

**Exploring the Comparative Effects of Societal Syndromes
on
Knowledge Discovery
in
New Product-Process Development**
~
Contrasting Anglo-Western Society and Han-Chinese Society

by

Peter James Sinclair

Volume I

Submitted to Marketing Discipline Group, UTS Business School
in partial fulfilment of the requirements for the degree of

Doctor of Philosophy in Marketing

at the

University of Technology, Sydney

September, 2012

© 2012 Peter James Sinclair. All rights reserved. Permission is herein granted to the University of Technology, Sydney to store; and, after **28 September 2013**, to copy and circulate for non-commercial purposes at the University's own discretion, the above title and content contained therein, upon the request of academic researchers, students and educational institutions. Title and authorship must be attributed.

Certificate of Authorship and Originality

I, Peter James Sinclair, hereby certify that the work in this thesis has not been previously been submitted for another degree, nor has the work been submitted as the part of any other degree. Furthermore, I certify that the thesis was written by me and that any sources cited in the preparation of the thesis have been fully and rightfully acknowledged.

Thesis Author..... Peter James Sinclair
28 September 2012

Acknowledgements

‘A journey of a thousand miles begins with a single step’ (The Way of Lao-tzu, *Teo te Ching* (道德經)). Also, any long academic journey ends with a final step. An important step: The step of recognition. The course of this thesis ends its journey by recognising that the works presented draw on the knowledge and scholarship of many others. The literature review and the bibliography are testimony to that fact.

The weave of the thesis is very much comprised of the threads provided by earlier authors and seekers of knowledge. The new patterns that emerge from the current investigation are an extension of the legacy of the earlier efforts of many others, especially from the disciplines of Cultural Studies, Knowledge Management and New Product Development in Marketing.

My own drive to explore investigative pursuits was nurtured in decades past, primarily, by my late parents, John Sinclair and Kathleen Sinclair. My pathway into earlier academic studies, which ultimately led to this thesis, was encouraged by the Late Robert Dash.

A work of this kind required the support of many people, both inside and outside the University of Technology, Sydney:

The help and understanding of the UTS Business School and the Marketing Discipline is gratefully acknowledged. Ms Elizabeth Ng, the Research Manager at the UTS Business School, has over recent years has been supremely considerate of the trials and tribulations surrounding PhD candidature, as have Deans and other UTS academics and administrators, who have allowed my quest to follow its full course and to reach this submission.

Thank you, Dr Matthew McDonald, for proof reading the examination draft of the thesis. Ms Alison McCallum kindly facilitated presentation of the final version of the thesis by proof reading the post-examination volumes to correct clerical and typing errors.

The Grand Master of Statistics, my Principal Supervisor, Dr Paul Wang, provided excellent tutelage in the use of advanced forms of quantitative procedures necessary to test my ideas. In this way, Dr Wang guided me in making the seemingly unknowable known. I very much appreciate Dr Wang’s help with quantitative methods. Thank you, Dr Wang.

Emeritus Professor Kenneth Miller has championed Marketing at UTS and the wider business community, for decades. It was a privilege to have had him as my Co-supervisor. Professor Miller's always helpful advice, regarding the management of the thesis, remains very much appreciated.

Thank you to Ms Carolyn Zhou for translating my English language surveys into the Chinese language. Ms Zhou was the main cross-language translator. Also, Dr Paul Wang, Mr Shaun Leubin and two bilingual students at Macquarie University provided complementary helpful assistance with language translation and back-translation.

The good efforts of three respected examiners in reviewing the thesis are gratefully acknowledged. The review of a three-volume thesis is a considerable undertaking. Their supportive comments, favourable remarks and worthy guidance on how to improve the final submission is appreciated.

The completion of a PhD thesis requires resilience and support from family and friends. First, and foremost, I acknowledge and thank my very dear wife, Carolyn Sinclair, who has been my partner in experiencing the troubles and triumphs along the way and through the years. Carolyn has willingly accepted the weight of extra responsibilities, so I could be free to research and write the thesis. Raymond Sinclair and Judith Sinclair, Robert Robertson and Alison McCallum, James Day and Valda Day, Leslie Millar and Cheryl Millar, Dan Lewandowski, and the Late Margaret Kennedy, were my support squad, keeping my spirits high, during times of challenge. Ms McCallum was particularly thoughtful, sending me regular encouraging emails. Accordingly, I owe a huge debt to my family and friends for their love, succour and forbearance.

I dedicate this work to the generations born in the twenty-first century, with the hope they will meet their challenges in the spirit of global co-operation. Across their new world, to be encountered; I trust they will live in friendship and work together towards mutual benefit and prosperity.

Peter Sinclair, Sydney, 2012

ABSTRACT

International marketers must learn how to match product and process transformation requirements to localised cultural predispositions, as not all cultures are equally disposed towards novel innovation or improving existing technologies.

In this thesis, the original unification of prior histological investigations and first application of quantitative analyses of reflective and structural equation models, newly confirmed that a comprehensive understanding of cultural predispositions in society at large and in the workplace, is necessary and indispensable, in guiding the rightful assignment of global new product-process development tasks. Moreover, the affiliation between cultural antecedents and final product-process outcomes was shown not to be a direct relationship, as formerly assumed: Instead, cultural predispositions, based on newly revealed societal syndromes, were unmistakably found to act to foster or impede knowledge building (i.e., knowledge sharing and creative synergies) and knowledge discovery. Thus, in this thesis, for the first time, knowledge building was unambiguously shown to; *intermediate* the relationship between cultural antecedents and final new product-process development outcomes.

Key societal models, established in this exploratory research, were developed for multiple cross-societal applications. However, for first measurement, significant to the twenty-first century product and process development, Anglo-Western society and Han-Chinese society were selected to test an original societal syndrome archetype comprised of the primary dimensions of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy. ‘First measures’ were made, in ‘seminal’ and quantitatively exploratory research, to reveal Han-Chinese general superiority in replicating known technologies and making minor incremental changes to enhance known technologies. Alternatively, Anglo-Western society was typically

more talented in developing first generation (often high transformation) or intermediate transformation product-processes, which require higher levels of lateral knowledge sharing and involvement of out-groups.

Extensive structural equation modelling confirmed original societal syndromes. A new intermediation primary path model and accompanying moderators were statistically validated. Armed with a new knowledge of societally-based predilections, towards either progressing highly novel product-process innovation or forms of innovation aimed at improving traditional practices; based on particular needs, global companies, with various products and components, such as Boeing Inc. and 3M, can now benefit, from a more informed basis for assignment of their product-process development tasks.

Unifying socio-cultural studies and histological accounts enabled study of cultural antecedents, providing a more integrated theoretical qualitative discipline-wide model than previously available. Development of a dynamic structural design (archetype) comprised of original societal syndromes, elucidates for theorists the relationships of societally qualified syndromes on knowledge building across multiple disciplines

From the perspective of cross-societal dispositions, concerning products and processes, future researchers should study the implications of profitability and new research commitment, on original innovation vis-à-vis cultivating accepted approaches. New transnational cross-societal equity corporate relationship types could be progressed, to concurrently achieve benefit, in both creative product-process innovation and existing product-process generation improvement, across societies in joint-venture relationships, by leveraging societally localised advantages globally.

TABLE OF CONTENTS

VOLUME ONE

CHAPTER ONE: INTRODUCTION AND THESIS OUTLINE

1.1 JUSTIFICATION FOR THESIS	2
1.2 OUTLINE OF THESIS	6
1.3 FORMAT OF LITERATURE REVIEW	7
1.3.1 Establishing the Current State of Understanding	7
1.3.2 Establishing Deep Histological Understanding	7
1.3.3 Theory and Archetype Transformation	8
1.3.4 Research Design and Methodology	8
1.3.5 Assessment of Measurement Models	9
1.3.6 Structural Modelling and Further Assessment	9
1.3.7 Conclusions and Discussion	10
1.4 NEXT CHAPTER	10

CHAPTER TWO: LITERATURE REVIEW – PART ONE

2.1 INTRODUCTION	12
2.1.1 Chapter Synopsis	12
2.1.2 Preface to Literature Review	13
2.2 THREE PARENT DISCIPLINES	19
2.2.1 Knowledge Management	19
2.2.1.1 Definitions of Knowledge Management	19
2.2.1.2 Trends towards a Knowledge Based Economy	24
2.2.1.3 Innovation	31
2.2.1.4 Knowledge Sharing and Information Flow	33
2.2.1.5 Japanese Management Systems	35
2.3 THREE PARENT DISCIPLINES	38
2.3.1 Preface to New Product Development in Marketing	38
2.3.2 Definitions of New Product Development	40
2.3.3 Cross-functional Team Research in New Product Development	42
2.3.4 Innovation in New Product Development	46
2.4 CULTURAL STUDIES	49
2.4.1 Ecology	49
2.4.2 Culture's Foundations	50
2.4.3 Defining Culture	52

2.5 DEVELOPING A NEW INTERGRATIVE QUALITATIVE MODEL	61
2.5.1 Three Perspectives On Culture’s Constituent Parts	61
2.5.1.1 Fiske’s Four Elementary Forms of Social Reality	62
2.5.1.2 Triandis’ Cultural Syndromes	71
2.5.1.3 Redding’s Chinese Capitalism	75
2.5.2 Non-Empirical Models: Integrating Seminal Culture Literature: Anglo-West And Han-China	79
2.6 LITERATURE REVIEW PART I: SUMMARY AND CONCLUSIONS	84
2.7 NEXT CHAPTER	86

CHAPTER THREE: LITERATURE REVIEW – PART TWO
--

3.1 INTRODUCTION	88
3.1.1 Chapter Synopsis	88
3.1.2 Scope of the Literature Review for Chapter Three	89
3.2 VERTICAL ORDER IN TRADITIONAL CHINESE HISTORY	90
3.2.1 Contrasts in History	90
3.2.2 The <i>li</i> and <i>wu lun</i>	95
3.3 HORIZONTAL ORDER IN CHINESE HISTORY	101

3.4	CONTRASTING SINO-HOMEOSTATIC AND WESTERN DYNAMIC TRANSFORMATIONALISM	108
3.5	LITERATURE REVIEW PART II: SUMMARY AND CONCLUSIONS	114
3.6	NEXT CHAPTER	115

**CHAPTER FOUR: THEORY AND RESEARCH ARCHETYPE
TRANSFORMATION**

4.1	INTRODUCTION	118
4.2	SCOPE OF CHAPTER FOUR	119
4.2.1	Revisiting the Modelling of the Non-Empirical Literature	119
4.2.2	Interlude on Modelling Archetypes Applied	121
4.2.2.1	Non-Empirical Models	121
4.2.2.2	Template for Empirical Models	122
4.2.3	Investigation One: Introduction to Intermediation Primary Path Model	123
4.2.4	Investigation Two: Introduction to Cross-Cultural Moderation Model	124
4.2.5	Investigation Three: Introduction to Product Transformation Requisites Moderation Model	125

4.3	RETURNING TO CULTURAL STUDIES	127
4.3.1	Revising Cultural Studies	127
4.3.2	Integration of Fiske's Elementary Forms and Triandis' Culture Syndrome	131
4.3.3	Social Complexity - Triandis	134
4.3.3.1	Tight versus Loose Cultures - Triandis	135
4.3.3.2	Individualism and Collectivism	136
4.4	SOCIETAL CULTURE AND SOCIAL BEHAVIOUR	140
4.5	PLURALISM	141
4.6	INTERLUDE REGARDING DEVELOPMENT	147
4.7	CONSTRUCTING AN ORIGINAL CULTURAL STUDIES MODEL	151
4.8	INTERLUDE REGARDING DEVELOPMENT	158
4.8.1	Vertical Power Ethos	160
4.8.2	Horizontal Altruism	162
4.8.3	Conventional Orthodoxy	166
4.9	CONCLUDING REMARKS ON ORIGINAL CULTURAL SYNDROMES	168
4.10	KNOWLEDGE BUILDING IN NEW PRODUCT DEVELOPMENT TEAMS	169

4.11	KNOWLEDGE DISCOVERY IN NEW PRODUCT- PROCESS DEVELOPMENT	171
4.12	FINAL CONFORMANCE OUTCOMES IN PRODUCT- PROCESS	173
4.13	SUMMARISED OUTLINE OF INTERMEDIATION PRIMARY PATH MODELS	174
4.14	HYPOTHESES RELATING TO THE INTERMEDIATION PRIMARY PATH MODEL	178
14.14.1	Hypotheses pertaining to Societal Syndrome Internal Relationships	178
14.14.2	Hypotheses pertaining to Knowledge Building	180
14.14.3	Hypotheses pertaining to Knowledge Discovery	183
14.14.4	Hypotheses pertaining to Final Product-Process Outcomes	184
4.15	MAIN EFFECTS MODEL FOR ALL PRODUCT TRANSFORMATION CATEGORIES OF ANGLO WESTERN SOCIETY AND HAN CHINESE SOCIETY COMBINED - INCLUDING HYPOTHESES	189
14.15.1	Introduction to Cross-Culture Models	189
14.15.2	Contrasting Cultural Syndromes in Anglo Western and Han Chinese Societies	196
14.15.3	Hypotheses pertaining to Anglo-Western and Han-Chinese Culture Moderation Model Relationships	200
4.16	PRODUCT-PROCESS TRANSFORMATION REQUISITE MODELS FOR ANGLO WESTERN SOCIETY AND HAN CHINESE SOCIETY	204
4.16.1	Preface to Product-Process Transformation Moderation	204
4.16.2	Propositions Pertaining to Product-Process Transformation Moderation Model	205

4.17 SUMMARY AND CONCLUSIONS: THEORY AND RESEARCH ARCHETYPE TRANSFORMATION	206
4.18 NEXT CHAPTER	209

-Please turn page-

TABLE OF CONTENTS

VOLUME TWO

CHAPTER FIVE: RESEARCH METHODOLOGY

5.1	INTRODUCTION	212
5.1.1	Chapter Synopsis	212
5.1.2	Scope of Chapter Five	213
5.1.3	Reflective Model Adopted	215
5.2	BUSINESS PROBLEMS	217
5.3	RESEARCH PROBLEMS	219
5.4	RESEARCH QUESTION	219
5.4.1	Research Question Posed	219
5.4.2	Research Issues	220
5.5	RESIGN DESIGN	224
5.5.1	Outline for the Operation of Constructs and the Creation of New Scales	224
5.5.2	Determination of Measures	225
5.5.3	Generation of Item Pool	226
5.5.4	Expert Panel Revision	227

5.6	PRETESTING THE SURVEY INSTRUMENT	229
5.7	FINAL SURVEY INSTRUMENTS	231
5.7.2.	Data Collection and Sampling	233
5.7.3.	Respondents	234
5.7.3.1	New Product-Process Developers	234
5.7.3.2	Non New Product-Process Developers	237
5.8	MEASUREMENT OF THE THEORETICAL CONSTRUCTS	244
5.9	ORIGINAL MODELS	246
5.9.1	Measurement Models - Societal Syndromes Study	246
5.9.2	Structural Equation Modelling -Three Investigations	247
5.9.2.1	Intermediation Primary Path Model	249
5.9.2.2	Two Moderation Models	250
5.9.3	<i>Post hoc</i> Test for Common Method Variance	255
5.10	SUMMARY AND CONCLUSIONS	255
5.11	NEXT CHAPTER	259

CHAPTER SIX – ASSESSMENT OF MEASUREMENT MODELS

6.1	INTRODUCTION	262
6.1.1	Chapter Synopsis	262
6.1.2	Contributions of Societal Syndromes	262
6.1.3	Statement of Scope	265
6.1.4	Outline of Chapter Six	266
6.2	THEORETICAL FOUNDATIONS OF PSYCHOMETRIC MEASURES	267
6.2.1	Measurement	268
6.2.2	Reliability	270
6.2.3	Validity	276
6.2.4	Content Validity and Dimensionality	278
6.2.5	Criterion-Related Validity	280
6.2.6	Convergence Validity and Discriminate Validity	280
6.2.7	Nomological Networks	281
6.2.8	Dimension Specification and Confirmatory Factor Analysis Specification	282
6.2.9	Interim Summary: Psychometric Theory	284
6.3	RELIABILITY AND DIMENSIONALITY	285

6.4	PRINCIPAL AXIS FACTORING	291
6.4.1	Two Group Analysis of Degree of Variance: Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy	294
6.5	THEORY OF MEASURES OF GOODNESS-OF-FIT	297
6.5.1	Confirmatory Factor Analyses	297
6.5.2	Goodness-of-Fit	298
6.5.3	Interim Summary and Interpretation: Goodness-of-Fit (Theory)	303
6.6	ANALYSES OF GOODNESS OF FIT AND CFA ANALYSES OF DIMENSIONALITY	304
6.6.1	Vertical Power Ethos	304
6.6.1.1	VPESOC.AW: VPE in Society-at-Large in Anglo-Western Society	304
6.6.1.2	HORWOR.AW: HOR at the Workplace for Anglo-Western Society	306
6.6.1.3	VPESOC.HC: HOR in Han-Chinese Society-at-Large	307
6.6.1.4	VPEWOR.HC: VPE at the Workplace in Han-Chinese Society	309
6.6.2	Horizontal Altruism	310
6.6.2.1	HORSOC.AW: HOR in Society-at-Large in Anglo-Western Society	311
6.6.2.2	HORWOR.AW: HOR at the Workplace for Anglo-Western Society	312
6.6.2.3	HORSOC.HC: HOR in Society-at-Large for Han-Chinese Society	314
6.6.2.4	HORWOR.HC: HOR at the Workplace in Han-Chinese Society-at-Large	315
6.6.3	Conventional Orthodoxy	317
6.6.3.1	CONSOC.AW: CON in Society-at-Large in Anglo-Western Society	317

6.6.3.2	CONWOR.AW: CON at the Workplace in Anglo-Western Society	319
6.6.3.3	CONSOC.HC: CON in Society-at-Large for Han-Chinese Society	321
6.6.3.4	CONWOR.HC: HOR at the Workplace for Han-Chinese Society	322
6.7	CONTRASTING ANGLO-WESTERN SOCIETY AND HAN-CHINESE SOCIETY PRELIMINARY MEASURES	325
6.7.1	Vertical Power Ethos	325
6.7.2	Horizontal Altruism	326
6.7.3	Conventional Orthodoxy	327
6.8	INTERIM SUMMARY AND INTERPRETATION: ANALYSES OF GOODNESS OF FIT AND CFA ANALYSES OF DIMENSIONALITY	328
6.9	CONCLUDING REMARKS ON MEASUREMENT MODELS	330
6.10	NEXT CHAPTER	332

CHAPTER SEVEN: TESTING THE STRUCTURE OF THE PATH MODELS

7.1	INTRODUCTION	335
7.2	TWO GROUP ANALYSIS OF THE DEGREE OF VARIANCE: CREATIVE SYNERGIES, KNOWLEDGE SHARING, PRODUCT-PPROCESS DISCOVERY, FINAL PROCESS OUTCOMES AND FINAL PRODUCT OUTCOMES	339
7.3	INVESTIGATION ONE: INTERMEDIATION PRIMARY PATH MODEL	341
7.3.1	Overview of Intermediation Primary Path Model	341
7.3.2	Societal Syndromes Schema Intra-relationships - Hypotheses H ₁ - H ₈	352
7.3.3	Societal Syndromes to Knowledge Building Relationships - Hypotheses H ₉ - H ₁₁	359
7.3.4	Knowledge Building Schema Intra-Relationship - Hypothesis H ₁₂	365
7.3.5	Creative Synergies to Knowledge Discovery Relationships - Hypothesis H ₁₃	370
7.3.6	Knowledge Discovery Relationships to Final Product-Process Relationships - Hypothesis H ₁₄	373
7.3.7	Investigation One : Summary Of Findings	375

7.4	INVESTIGATION TWO: MODERATION EFFECTS OF SOCIETY: CONTRASTING ANGLO-WESTERN SOCIETY AND HAN-CHINESE SOCIETY	376
7.4.1	Introduction	376
7.4.2	Contrasting Anglo-Western and Han-Chinese Moderation Effects on the Intermediation Primary Path Model	
		377
7.4.2.1	Introduction to the Moderation Effects of Society	377
7.4.2.2	Cross-Society Path Coefficients and T Score Moderation Effects $H_{15} - H_{21}$	378
7.4.2.3	Moderation Effects: Hypotheses $H_{15} - H_{21}$	380
7.5	CONTRASTING ANGLO-WESTERN AND HAN-CHINESE COMPARATIVE INDEPENDENT MEANS ON INTERMEDIATION PRIMARY PATH MODEL	389
7.5.1	Cross-Cultural Manifestations	389
7.5.2	Evaluation of Comparative Independent Means	394
7.6	CONCLUDING REMARKS ON INVESTIGATIONS ONE AND TWO	395
7.7	NEXT CHAPTER	403

-Please Turn Page-

TABLE OF CONTENTS

VOLUME THREE

CHAPTER EIGHT: PROPOSITIONAL STUDY: EXPLORING THE EFFECTS OF PRODUCT PROCESS TRANSFORMATION

8.1 REVISION OF EARLIER INVESTIGATIONS	405
8.2 RATIONALE FOR MEASURING PRODUCT-PROCESS TRANSFORMATION	406
8.3 PROPOSITIONAL NATURE OF QUANTITATIVE RESULT	408
8.4 PROPOSITIONS REGARDING THE MODERATING EFFECTS OF PROCESS TRANSFORMATION	409
8.5 MAIDEN FINDINGS FOR PRODUCT-PROCESS INFORMATION DEVELOPMENT	418
8.6 NEXT CHAPTER	422

CHAPTER NINE: DISCUSSION, CONCLUSIONS AND FURTHER STUDIES

9.1	OUTLINE OF CHAPTER NINE	424
9.2	ADDRESSING RESEARCH PROBLEMS	426
9.3	DISCUSSION DRAWN FROM RESEARCH ISSUES	431
9.3.1	Can societal syndromes be derived from collected research data?	431
9.3.2	Can societal measures be differentiated between Anglo-Western society and Han-Chinese society?	431
9.3.3	How do posited societal syndromes relate Knowledge Sharing and Creative Synergies in Anglo-Western society and Han-Chinese society?	432
9.3.4	How do Knowledge Sharing and Creative Synergies in knowledge building relate to product-process conformance outcomes in Anglo-Western society and Han Chinese society?	433
9.3.5	How does the extent of Product-Process Transformation Required by management relate to new product conformance in Anglo-Western society and Han-Chinese society?	433
9.3.6	How can societal syndromes be best applied by international marketers in Anglo-Western society and Han-Chinese society in new product-process development?	434
9.4	CONTRIBUTIONS AND IMPLICATIONS	434
9.4.1	Contributions to Methodology	434
9.4.2	Major Cultural Anthropological Studies Integrated and Operationalised	436
9.4.3	Operation of Latent High Horizontal Altruism Revealed	437

9.4.4	Knowledge-Based Intermediation Effects Confirmed	439
9.4.5	Anglo-Western and Han-Chinese Societal Moderation Effects on the Intermediation Primary Path Model Established	441
9.4.6	Effects of Product-Process Transformation on the Intermediation Primary Path Model Established in Anglo-Western Society an Han-Chinese society	443
9.5	ADDRESSING THE RESEARCH QUESTION	444
9.5.1	Framework for Answering the Research Question	444
9.5.2	Answering the Research Question	446
9.6	SUMMARY OF MAIN IMPLCATIONS	447
9.6.1	Implications for Theory	447
9.6.2	Implications for Practice	449
9.6.3	Implications for achieving Product-Trade Advantage	452
9.7	LIMITATIONS	454
9.8	FUTURE RESEARCH STUDIES	456
9.8.1	Introduction to Future Research Studies	456
9.8.2	Future Research Design Approaches	456
9.8.3	Specific Future Research Recommendation	458
9.9	REGARDING APPENDICES	460
	BIBLIOGRAPHY	461

LIST OF TABLES

VOLUME ONE

Table 3.1	Vertical Order, Horizontal Order and Traditionalism in China and the West	89
Table 3.2	Antecedents to Sino Homeostatic Traditionalism and Western Dynamic Transformationalism	109
Table 4.1	Main Constructs and Underlying Factors	159
Table 4.2	Anglo-Western and Han-Chinese Culture Moderation Model Relationships	199

VOLUME TWO

Table 5.1	Format of Surveys	231
Table 5.1.1	Survey Formats (a)	231
Table 5.1.2	Survey Formats (b)	232
Table 5.2	Anglo Western and Han Chinese Sample Sets	234
Table 5.3	Product Transformation Categories	252
Table 6.1	Recommended Levels of Cronbach alphas from the Literature	273
Table 6.2	Main Constructs and Associated Dimensions (Scales/Factors) (Reprise)	278
Table 6.3	Measurement Data For Vertical Power Ethos in Society at Large (SOC) and Workplace (WOR)	288
Table 6.4	Measurement Data: For Horizontal Altruism in Society at Large (SOC) and Workplace (WOR)	289

Table 6.5	For Conventional Orthodoxy in Society at Large (SOC) and Workplace (WOR)	290
Table 6.6	Vertical Power Ethos (Eigenvalues)	292
Table 6.7	Horizontal Altruism (Eigenvalues)	293
Table 6.8	Conventional Orthodoxy (Eigenvalues)	293
Table 6.9	The Factor Models For Invariance In Society: Anglo-West And Han-China - Societal Syndromes	295
Table 6.10	The Factor Models For Invariance at the Workplace: Anglo-West And Han-China -Societal Syndromes	296
Table 7.1	The Factor Models For Invariance: Anglo-West And Han-China Society - Knowledge Building & Product-Process Development	340
Table 7.2	Intermediation Path Model -Full Correlation Matric - Both Societies Combined and All Product Transformation	351
Table 7.3	Intra-relationships within Societal Syndrome Paths (H ₁ - H ₈)	353
Table 7.4	Vertical Power Ethos to Knowledge Building (H ₉)	362
Table 7.5	Horizontal Altruism in the Workplace and Knowledge Building (H ₁₀)	363
Table 7.6	Conventional Orthodoxy in the Workplace and Knowledge Building (H ₁₁)	364
Table 7.7	Knowledge Sharing to Creative Synergies (H ₁₂)	369
Table 7.8	Creative Synergies to Product and Process Discovery (H ₁₃)	373
Table 7.9	Product-Process Discovery and Final Product-Process Outcomes (H ₁₄)	375
Table 7.10	Cross-Societal Path Coefficients and T score Moderation Effects (H ₁₅ - H ₂₁)	379
Table 7.11	Cross-societal Independent Means of Anglo-Western Society and Han-Chinese (H ₂₂ -H ₂₄)	390

VOLUME THREE

Table 8.1	Societal Syndromes and Knowledge Building by Level of Product-Process Transformation (P ₁)	410
Table 8.2	Creative and Knowledge Building by Level of Product-Process Transformation (P ₂)	412
Table 8.3	Evaluation of Comparative Independent Means by Product Transformation the society - for Cultural Syndromes (P ₃)	414
Table 8.4	Evaluation of Comparative Independent Means by Product Transformation the society - for Knowledge Building (P ₃)	415
Table 8.5	Evaluation of Comparative Independent Means by Product-Process Transformation in Product-Process Discovery	416
Table 8.6	Evaluation of Comparative Independent Means by Product-Process Transformation in Final Product-Process Conformance Outcomes	417

~

LIST OF FIGURES

VOLUME ONE

Figure 2.1	Outline of Disciplines & Studies – Literature Review	14
Figure 2.2	Generic Attributes of Product-Process Conformance (Four Steps)	17
Figure 2.3	Japanese Decision Making Processes (Fakuda 1988)	37
Figure 2.4	Product Decisions and Planning and Knowledge-based Innovation	39
Figure 2.5	Dissimilar Environments and Normative Behaviours Exhibited	51
Figure 2.6	Necessity for Two-Level Analysis of Societal Domains	64
Figure 2.7	Communal Sharing and Authority Ranking and Asian Collectivism	67
Figure 2.8	Relationships of Equality Matching and Market Pricing in Western Society	70
Figure 2.9	The Spirit of Chinese Capitalism (Redding 1990)	76
Figure 2.10	Literature Integration – New Model for Chinese Society	82
Figure 2.11	Literature Integration – New Model for Western Society	83
Figure 3.1	Primary Effects of Sino-Homeostatic Traditionalism and Western-Dynamic Transformationalism	112
Figure 3.2	Detailed Effects of Western Dynamic Transformationalism and Sino-Homeostatic Traditionalism on Knowledge-based Products	113
Figure 4.1	Integration of Fiske’s Elementary Forms and Triandis’ Culture Syndromes	133
Figure 4.2	Effects of Western Feudal Pluralism vis-à-vis Chinese Familialism and Limited & Bounded Trust	145

Figure 4.3	Bridging the Literature to New Societal Syndromes	149
Figure 4.4	For China - Effects of the Absence of Pluralism Stemming from Relationship of Non-Empirical Contributions (Part A)	153
Figure 4.5	For China - Effects of the Absence of Pluralism Stemming from Relationship of Non-Empirical Contributions (Part B)	154
Figure 4.6	For The West - Reprise of the Relationship of Non-Empirical Contributions (Part A)	155
Figure 4.7	For The West - Effects of the Presence of Pluralism Stemming from the Relationship of Non-Empirical Contributions (Part B)	156
Figure 4.8	Basic Structure of the Intermediation Primary Path Model	174
Figure 4.9	Generic Intermediation Primary Path Model (Without Moderators)	176
Figure 4.10	Internal Relationships of Posited Society Syndromes	179
Figure 4.11	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Hypotheses	183
Figure 4.12	Relationships of Knowledge Building from Societal Syndromes & Knowledge Discovery from Knowledge Building to Final Product-Process Conformance	186
Figure 4.13	Hypothesised Moderation Effect of Anglo Western Society on Intermediation Primary Path	197
Figure 4.14	Hypothesised Moderation Effect of Han-Chinese Society on Intermediation Primary Path	198

LIST OF FIGURES

VOLUME TWO

Figure 5.1	Coalescing Samples Recruited to Measure Societal Syndromes	239
Figure 5.2	Society-at-Large and Workplace-in-Society	243
Figure 5.3	Basic Structure of Intermediation Primary Path Model (Reprise)	249
Figure 5.4	Moderation Effects of Anglo-Western Society or Han-Chinese Society on Intermediation Primary Path	254
Figure 6.1	Principal Factor Measurement	283
Figure 6.2	Confirmative Factor Analysis of VPESOC.AW	305
Figure 6.3	Confirmative Factor Analysis of VPEWOR.AW	306
Figure 6.4	Confirmative Factor Analysis of VPESOC.HC	308
Figure 6.5	Confirmative Factor Analysis of HORWOR.HC	310
Figure 6.6	Confirmative Factor Analysis of HORSOC.AW	311
Figure 6.7	Confirmative Factor Analysis of HORWOR.AW	313
Figure 6.8	Confirmative Factor Analysis of HORSOC.HC	314
Figure 6.9	Confirmative Factor Analysis of HORWOR.HC	316
Figure 6.10	Confirmative Factor Analysis of CONSOC.AW	318
Figure 6.11	Confirmative Factor Analysis of CONWOR.AW	320
Figure 6.12	Confirmative Factor Analysis of CONSOC.HC	322
Figure 6.12	Confirmative Factor Analysis of CONHOR.HC	324

LIST OF FIGURES

VOLUME TWO

Figure 7.1	Existing Models and New Intermediation Primary Path Model	341
Figure 7.2.1	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories - Hypotheses H ₁ - H ₁₄	348
Figure 7.2.2	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories - Path Coefficients	349
Figure 7.2.3	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Scores	350
Figure 7.3	Reduced ¹ Model of Societal Syndromes Internal Relationships (Societal Archetype)	357
Figure 7.4	Summarised Societal Syndrome Schema to Knowledge Sharing and Creative Synergies	358
Figure 7.5	Reduced Model of Societal Syndromes in the Workplace and Knowledge Sharing	360
Figure 7.6	Reduced Model of Societal Syndromes in the Workplace and Creative Synergies	361
Figure 7.7	Reduced Model of Knowledge Sharing on Creative Synergies in Knowledge Building	369
Figure 7.8	Reduced Model of Creative Synergies on Product and Process Knowledge Discovery	372
Figure 7.9	Reduced model of Knowledge Discovery Relationships to Final Product-Process Relationships	374

¹ **REDUCED MODEL:** Definition as requested by Thesis Examiner. “Reduced” means sectioned within the full Intermediation Primary Path Model. Here, representing the aggregate Societal Archetype international relationship *before* Knowledge Sharing. Partitioning allows autonomous and independent analysis of dissected construct formations. This term used several times in the thesis.

VOLUME THREE

Figure 8.1	Product Transformations by Final Product Conformance Outcomes: Contrasting Anglo-Western Society and Han-Chinese Society	421

LIST OF INCLUSIONS

Inclusion 3.1	Confucius and Traditionalism (Conventional Orthodoxy): Revering the Past	92
Inclusion 3.2	The <i>wu lun</i>	97
Inclusion 4.1	Systematic Experiment	144

APPENDICES ALL VOLUMES

A	Behavioural Approach to Comparative Management	A-I to A-IV
B	Survey Structure with Annotation	B-I to B-XLII
C	Principal Axis Factoring & Correlation Matrices for Anglo-Western Society	C-I to C-XXII
D	Principal Axis Factoring & Correlation Matrices for Han-Chinese Society	D-I to D-XXII

~

One ship sails East,
And another West,
By the self-same winds that blow,
'Tis the set of the sails
And not the gales,
That tells the way we go.

Like the winds of the sea
Are the waves of time,
As we journey along through life,
'Tis the set of the soul,
That determines the goal,
And not the calm or the strife.

- Ella Wheeler Wilcox

~

CHAPTER ONE

INTRODUCTION AND THESIS OUTLINE

CHAPTER ONE: INTRODUCTION

'Wisdom is like a baobab tree; no one individual can embrace it.' - David Lloyd George

1.1 JUSTIFICATION FOR THESIS

No longer can marketers take it for granted that new product development will remain affixed to one societal location. Globalisation has changed how strategic global management and international marketing function. Product and component development have become distributed in a manner never before encountered in history. During this contemporary evolution, disparate cultures having different comparative advantages in new product and process development compete for the attention of transnational corporations, while looking to efficaciously situate global product-process development teams. On the other hand, product developers aspire to situate low, intermediate and high transformation products at the most apposite international locations, which best fit the category of final product to be developed.

Therefore, increasingly, new product developers need to understand how cultural predispositions operate to influence knowledge generation in the creation of products and attendant underlying processes. Globally, new product development requires leveraging a comprehensive knowledge of cross-cultural antecedents, based on accurate sociological and

historical predispositions. In the past, earlier contributions (Nakata and Sivakumar 1996, Hofstede 1984¹) have provided guidance to help new product developers.

However, under the contemporary global order it has become essential that international marketers learn how to effectively harmonise new product-process societal team culture to the level of product and process transformation required. Accomplishing this feat requires cross-cultural models, stemming from a deeper understanding of socio-cultural and historically based cultural antecedents. What is more, it is not known how societal archetypes affect knowledge building in new product-process development. Nor is it known how society and the level of product transformation moderate the relationships between societal syndromes and knowledge building, along the path to new product-process development, towards priming success or failure.

Strong cultural contrasts are often exhibited between the East and West, to a greater or lesser extent, as enduring legacies of times past. In this way, the disposition, to respond or not respond to change, in the present, is a product of a particular past (Triandis1994). In this context, societies differ in normative behaviour associated with vertical order, horizontal relationships and level of expressed conventionality (Redding 1990, Silin 1976).

The cultures of Anglo-Western society and Han-Chinese society have both become significant destinations for new product-process development. Anglo-Western society has been the dominant global player since the Great Divergence (c.1760) and now China has emerged to regain its historical prominence in world trade, progressively since 1978. Thus, Anglo-Western society and Han-Chinese society provide apposite occasion to operationalise

¹ Hofstede's IBM (HERMES) investigations were made 1967 to 1973. Typically, cited as 1980, from first public commercial publication.

the wider field of qualitative study (Triandis 1994, Fiske 1992, 1990, Redding, 1990). For this reason, contrasting Anglo-Western society and Han-Chinese society shall remain at the core of the entire thesis.

Operationalisation in this framework requires the development of original societal syndrome archetypes on a primary path model, which, for the first time, recognises knowledge building, as an essential intermediary between cultural syndromes and product-process development conformance outcomes. This new intermediation primary path model would be of substantial worth to theorists and practitioners because each step from the societal archetype² created from new cultural syndromes to product-process completion would be operationalised, and significant interrelationships accurately articulated. Moreover, the moderation and absolute effects of multiple societies (e.g. the Anglo-Western and Han-Chinese) could be categorised by low, intermediate or high level of product-process transformation.

Therefore, the proposed modelling would be suitable for meeting new cross-culture challenges encountered with global product-process development. Low, intermediate and high transformation product-process development could be assigned to the most suitable societal location, based on integrated qualitatively endorsed knowledge and empirically validated findings. Distributed assignment of specific product-process development would ensure each foot (task) fits its shoe (culture).

This ‘seminal’ Thesis makes ‘first measurement’ of constructs derived from qualitative research, developed over decades. From a quantitative perspective, the investigations and quantitative findings in future chapters of the thesis are ‘exploratory’. Accordingly, the reader

² A societal archetype being the composite of a set of societal constructs. The constructs interact within the archetype to affect other constructs external to the societal archetype.

should recall, while the thesis is inspirational, orientating and its findings very salient, from the perspective of the mission of the Thesis, one should be reminded of the preliminary nature of this operationalisation.

On the other hand, new operationalisation of qualitative research, and development of new now quantified constructs, were based on the triangulation of already well-respected qualitative knowledge representing the scope of the field of study. Original results from quantification of the constructs proved highly consistent with expectations derivable from grounded theory in cross-cultural and sociological qualitative literature, and attested highly favourable to the Thesis. Whereas, the established qualitative theory provided a sound foundation for initial quantification; the complementary ‘first measurement’ findings were clearly logical extensions, from stable cross-cultural literature derived from grounded qualitative theory.

It follows, the Thesis esteems the of value of both qualitative and quantitative research. In this way, the Thesis acts to comprehensively understand the latent variables, before extensive quantitative analyses. The Thesis puts both approaches are important and neither should be diminished. Accordingly, the reader is urged to afford equal weight to both qualitative and quantitative studies and accompanying findings.

Lastly, beyond this thesis, extended knowledge of cross-cultural product-process development of comparative advantage, could guide future researchers to construct new cross-societal patent and equity alliances, across all levels of product-process transformation. This would enable transnational corporations to become trans-global equity corporations more fitting to twenty-first century globalisation.

1.2 OUTLINE OF THE THESIS

The level of guidance required to effectively direct contemporary cross-cultural product-process development in the latest period of globalisation does not exist. The extensive socio-cultural literature available has not been adopted for operationalisation; instead, studies having been designed for *other purposes* which have been accepted by marketers, for example, the human resource management studies of Geert Hofstede (1980).

Likewise, subtle societal constructs have been developed employing only a small number of items and not incorporating the dual affects of society-at-large and social behaviour, which no longer suffice in the contemporary era. Instead, more sophisticated scales, currently unavailable, are needed, because complex, dynamic interactions between societal syndromes need to be fully clarified, prior to assessing the relationships between each societal archetype.

Further, the results for the interactions of multiple scales are not sufficiently understood to guide international marketers regarding how to best leverage societal syndromes to improve new product-process development outcomes based on socio-cultural predispositions. In the present case, under investigation and revision, there is currently too little known about the architectures of Anglo-Western society and Han-Chinese society's historical and sociological normative characters, to legitimately determine, how to situate new development teams, based on the level of new product-process transformation expected.

Resolution of these issues would contribute substantially to both theory and practice in this area, by effectively resolving the legitimate needs of theorists concerned with socio-cultural modelling and the requirements of international marketers engaged in cross-cultural new

product-process development, especially regarding Anglo-Western society and Han-Chinese society.

1.3 FORMAT OF LITERATURE REVIEW

1.3.1 Establishing the Current State of Understanding

The aim of Chapter Two is to determine the effects of culture on knowledge discovery in new product-process development. Achievement of this goal requires a review of the literature that takes into account a behavioural approach in the analysis of the parent disciplines - Culture Studies and Knowledge Management. Cultural Studies is a broad topic, however the thesis focuses on three sets of studies; Fiske's (1990, 1992) 'Elementary Forms' (1990, 1992), Triandis' 'Cultural Syndromes' (1994) and Redding's (1990) Chinese Capitalism. Knowledge Management concentrates on knowledge sharing, information flow and creative synergies in innovation. New product development reviews project expectations (expected conformance in lieu of post project performance), product and process duality, product-process team environment and product-process transformation.

The review of the literature pertaining to cultural studies, knowledge management and new product development foreshadow an original *culture-knowledge building-final product development* intermediation primary path model to be offered later in the thesis and tested for Anglo-Western society and Han-Chinese society.

1.3.2 Establishing Deep Histological Understanding

Chapter Three extends the literature review in order to identify the histologies underlying the cultural antecedents in China and the West, because reference to embedded socio-cultural histographies in the business studies discipline is currently too cursory. Also, the existing scales built on subsidiary historical referencing cannot be known to be truly enduring over

time. A more embedded foundation is required. Business studies can look to socio-anthropology and history to confirm more stable traits than earlier business studies contributions. China was found to exhibit high vertical order, limited horizontal order and high traditionalism in the qualitative literature, supporting the assignment of two meta-constructs, Sino-Homeostatic Traditionalism and Western Dynamic Transformationalism.

1.3.3 Theory and Archetype Transformation

As an interlocutor between the literature and earlier terminologies and new societal syndromes and original constructions, Chapter Four revisits the new qualitative model representing the field of study pertaining to cultural antecedents as previously reported. On the other hand, the development of an original quantitative model capable of producing dynamic syndrome archetypes, requires further development of the foundation qualitative model in order to allow a more comprehensive assessment, including measuring the relationships of the new societal syndromes vertical power ethos, horizontal altruism and conventional orthodoxy to knowledge building, thence knowledge discovery and ultimately product-process conformance outcomes. The new relationships direct development and provide coherence to research methodologies.

1.3.4 Research Design and Methodology

The research design, advanced in Chapter Five, was planned using known scaled development procedures (Devellis1991) to address business problems and research problems. Moreover, data collected were from multiple industries at various locations in Anglo-Western society and Han-Chinese society. Measurement invariance was tested and proved existent. Development of three new societal syndromes supporting comparable societal archetypes used a substantial population (n=1,495). Here, no distinction was made between new product

developers and non new product developers, thus, the universality of the societal archetypes is emphasised.

Further, development of an original intermediation primary path model captured and tested data from hard to reach busy new product-process developers in the two societies (n=306). The modelling of two-tier socio-cultural environments was guided by Dunbar (1996): In this respect, survey questions were designed to capture the *twin* influences of society-at-large and in the workplace. Further, the moderation effects of Anglo-Western society vis-à-vis Han-Chinese society and, low, intermediate and high product-process transformation were tested on the intermediation primary path model (n=306).

1.3.5 Assessment of Measurement Models

Chapter Six tests the main effects of original empirical models operationalising the unification of the field of study pertaining to cultural antecedents. The chapter succeeded in making determinations regarding the reliability, validity, dimensionality, divergence and convergence of data in the context of scale development and psychometric testing, including confirmatory factor analyses and Cronbach alpha measures. As a consequence, the new constructs viz. vertical power ethos, horizontal altruism and conventional orthodoxy; were confirmed, together with the underpinning the associated dimensions (factors).

1.3.6 Structural Modelling and Further Assessment

Chapter Seven employed structural modelling to assess the intra-relationships between societal syndrome paths to formulate cross-cultural societal syndrome archetypes and to model the relationships between societal syndrome archetypes to knowledge building and knowledge discovery in new product-process development, contrasting Anglo-Western society and Han-Chinese society. Hypotheses are offered.

Chapter Eight offers a preliminary, propositional study on the moderation effects of Anglo-Western society vis-à-vis Han-Chinese society, to determine in establishing comparative absolute values between the two societies in achieving low, intermediate and high product-process transformation. Propositions³ are offered.

1.3.7 Conclusions and Discussion

Chapter Nine concludes the Thesis and provides discussion on the research results. The conclusions return to the Research Question, research problems and research issues developed in Chapter Five:

- All problems and issues are answered
- Contributions, implications, limitations and thoughts on future studies are presented.

1.4 NEXT CHAPTER

Next, we continue to the Literature Review, Chapter Two. Chapter Two reviews the Literature relating to three parent disciplines supported detailed discussion.

³ Owing to smaller sample sizes, due to segmentation of databases.

CHAPTER TWO

LITERATURE REVIEW: PART ONE

CHAPTER TWO

LITERATURE REVIEW AND EVALUATION – PART I

‘If we value the pursuit of knowledge, we must be free to follow wherever that search may lead us.’ – Adlai Stevenson

2.1 INTRODUCTION

2.1.1 Chapter Synopsis

Chapter Two of the literature review assesses the current state of understanding of how cultural antecedents influence Knowledge Discovery in new product-process development, wherein, there has been extensive research into culture, Knowledge Discovery and new product development both independently or jointly. Yet, there has been no attempt at building a full-stage comprehensive, consolidated model, based on cultural antecedents to Knowledge Management, and thence applied to new product development.

The seminal cultural studies of Alan Page Fiske, S. Gordon Redding and Harry Triandis, are qualitative in form, with little evidence of integration and quantification of posits presented. On the other hand, the now very mature contribution of Geert Hofstede was extensive in its scope. However, the findings were limited in depth in explaining the influence of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy in culturally homogeneous societies and workplaces.

In this framework, Chinese society and Western society were found in the literature to be excellent candidates for developing a new, more complete non-empirical model, pertaining to affect of prime cultural antecedents on new product-process development.

The new non-empirical model when developed, acts as a foundation and stepping stone, to establish original empirical models developed throughout future chapters of the Thesis.

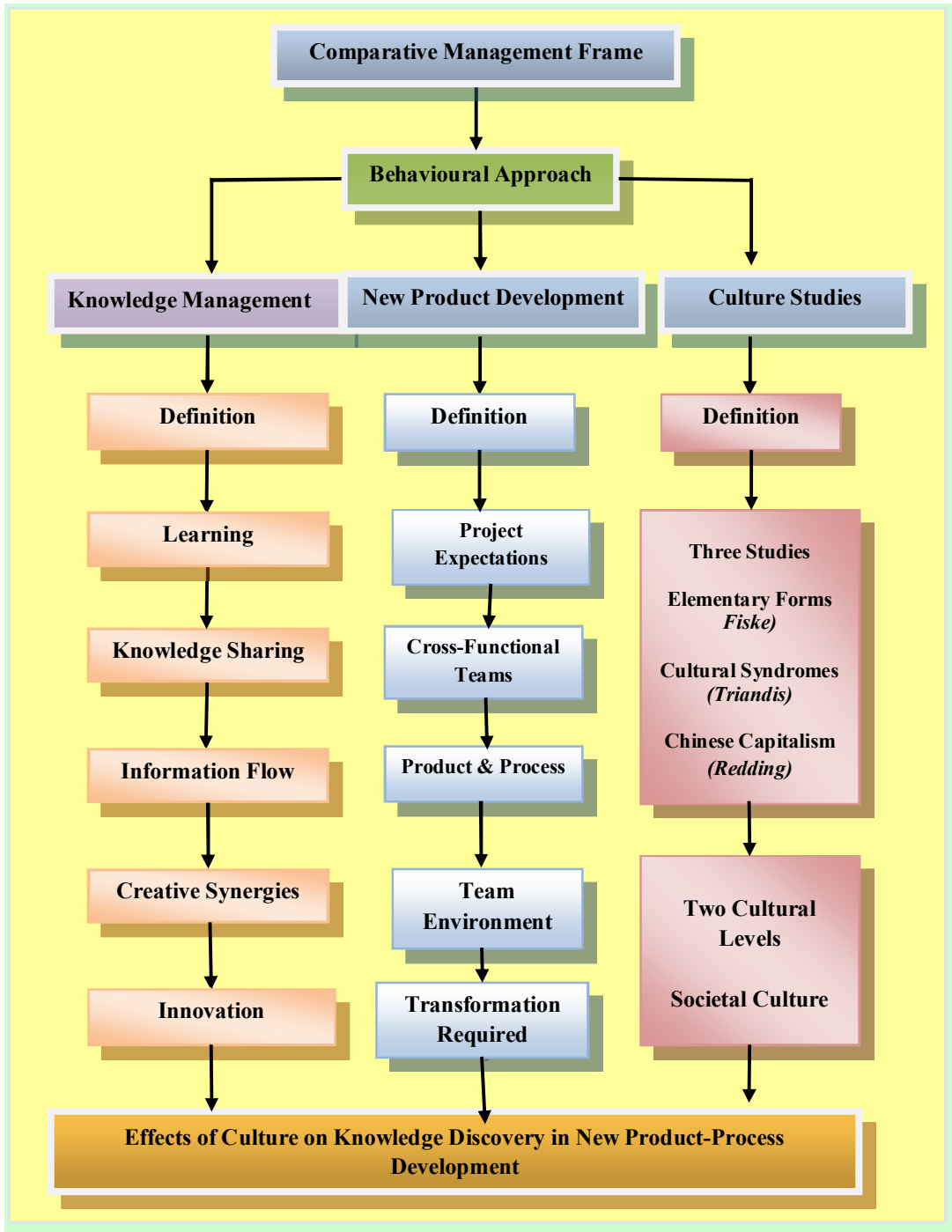
2.1.2 Preface to Literature Review

This Thesis aims, for the first time, to develop a comprehensive, integrated model of empirical cultural antecedents (Cultural Syndromes) from the non-empirical literature based on a comprehensive review of the literature, rather than attempting to merely operationalise one study only: e.g. Hofstede (1984). In so doing, serious consideration was given to multifarious researchers, while retaining the ultimate goal of consolidating three seminal cultural studies, which would capture the *field of study*; rather than *specific purpose* contributions, each of which, if separated and isolated, would have a different *agendum* to the current purpose. Herein, with the new integrative model, an original contribution is made to non-empirical theory.

At the highest level, to provide context, the Comparative Management approach (Davis 1971) was applied, so to clearly focus the research on behaviour in context with comparative cultural clustering, before reviewing for the more germane contributions from the parent disciplines of Knowledge Management, New Product Development and Cultural Studies. Detailed comment regarding the Behavioural Approach to Comparative Management (Davis 1971) is presented in Appendix “A”.

Flowing from the Behavioural Approach in Comparative Management adopted, Figure 2.1, herein, outlines three parent disciplines, (1) Knowledge Management, (2) New Product Development and (3) Cultural Studies. These aforementioned disciplines lead to the ‘Effects of Societal Culture on Knowledge Discovery in New Product Process Development’.

Figure 2.1: Outline of Disciplines & Studies - Literature Review



Management activity steering the launch of a new product requires various levels of interaction between the new development product team and the supporting process development team. Product development embraces expectations for tangible goods and intangible services. Process development includes physical design, manufacturing specifications and technology selection and project management. Historically unknown to the Literature, the new term ‘product-process’ newly refers to the composite of these two key areas.

Moreover, diverse new product-process goals are *unequal* regarding their dependency on personal knowledge. High product-process transformation is decidedly dependent on personal knowledge contribution to facilitate Knowledge Sharing and Creative Synergies required, especially of, significant product-process development. Low product-process development is less reliant on novel and specialised knowledge, because the blueprint supporting delivery requirements essentially already subsists. In this case, an existing product can be copied or merely minor incremental change is made.

Furthermore, advanced research into new product-process development and new generation products, requires personal knowledge-based offerings towards the innovation underlying enhanced product-process transformation. Not all product-process environments can be assumed to be on a par with regards to personal Knowledge Sharing in teams. Some product-process teams shall be open to Knowledge Sharing; whereas, other product-process teams will demonstrate personal knowledge retentiveness.

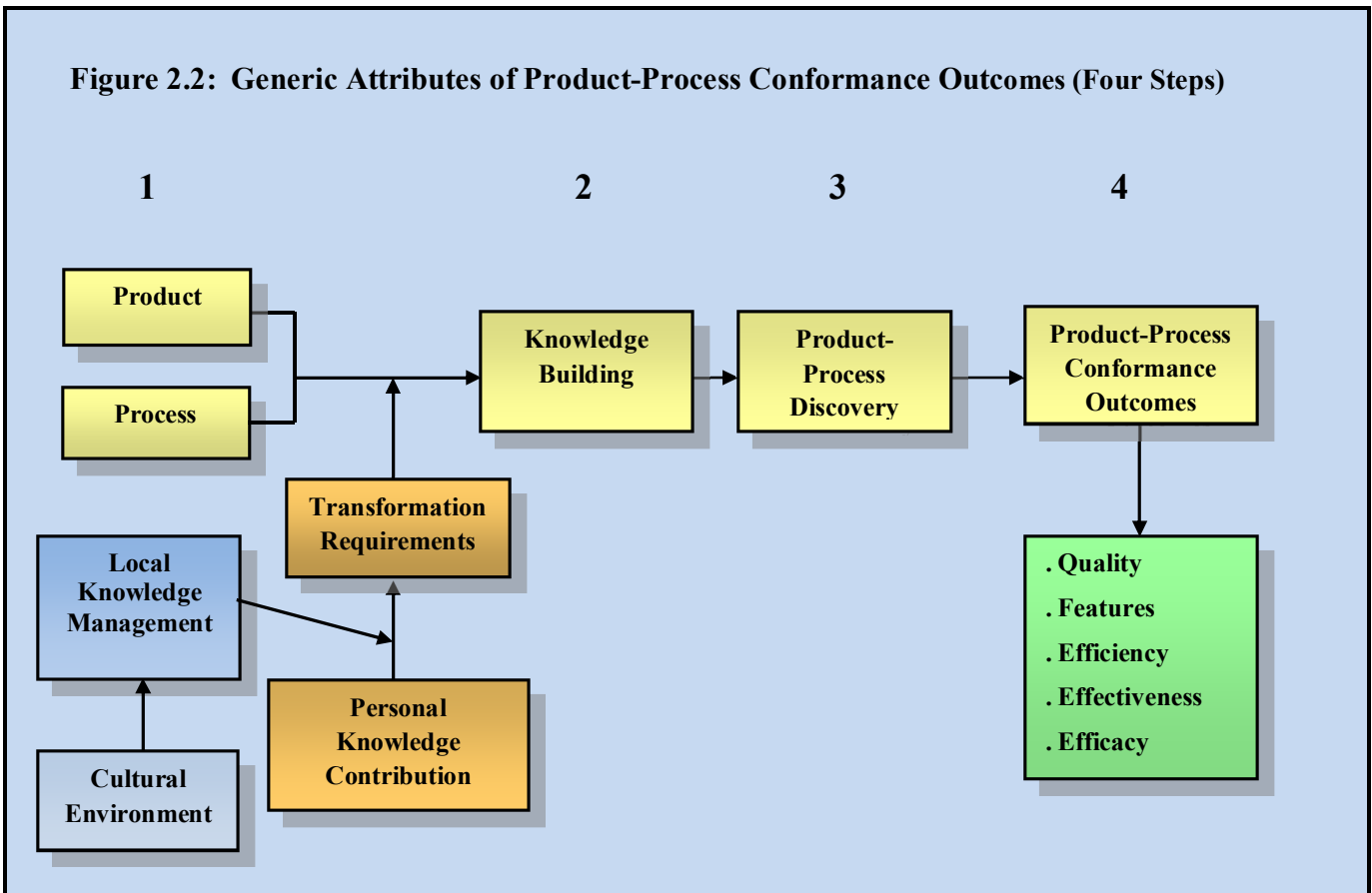
Herein, in the Thesis, societal culture is posited to moderate the relationship between product-process requirements and Knowledge Building; wherein, under twenty-first century globalisation, Anglo-Western society and Han-Chinese society are important sources of product-process development. Thus, Western society and Han-Chinese society were contrasted in the Thesis, with diligence, to ascertain their comparative societal affects on Knowledge Building.

High Knowledge Building is held by the Thesis to facilitate new Knowledge Discovery in product-process development. Therefore, the higher the product transformation required, the higher the personal Knowledge Sharing required. Here, the Thesis argues Anglo-Western society *vis-à-vis* Han Chinese Society shall more readily exhibit those cultural characteristics necessary, to achieve success over a wider range of product-process transformation demands, because of Anglo-Western society's higher inclination towards open Knowledge Sharing, as tested in the Thesis.

For the first time, Figure 2.2 shows the four-stage generic pathway from product-process requirements to product-process conformance outcomes; wherein, conformance denotes performance against expectations.

The integration of the shown elements from the extant literature is original. Both product and process are moderated by personal knowledge contribution in response to the influence of cultural antecedents.

Figure 2.2: Generic Attributes of Product-Process Conformance Outcomes (Four Steps)



Moreover, Knowledge Building and product-process discovery, in turn, determine the extent, by which, the product-process conformance outcomes of quality, features, efficiency, effectiveness and efficacy are achieved. Knowledge Building and Product-Process, for the first time, are shown as intermediators, between product-process development and product-process conformance outcomes.

In this frame, the Thesis *empirically tests* Anglo-Western society and Han Chinese society, elaborating on the substantial qualitative contributions of Alan Page Fiske (1992, 1991), Harry Triandis (1994) and S. Gordon Redding (1990), noting these established qualitative researchers

have not fully tested their propositions via empirically developed scales. In rejoinder, the Thesis addresses the requirement of measuring, and, where necessary, extending their offerings, while remaining mindful of the well-known quantitative contributions of Geert Hofstede (1984).

In developing the Thesis, elaborate deliberation was given to local Knowledge Management processes responding to Anglo-Western and Han Chinese cultural environments. Herein, cultural influences, both in society-at-large and in-the-workplace, are held to stimulate Knowledge Sharing and Creative Synergies to achieve specific new Product-Process Conformance Outcomes.

New Product-Process Conformance Outcomes are said to rely on the level of personal knowledge transfer within communities of practice. Thus, when recognising the nuances adopted by local Knowledge Management on ‘the creation, acquisition, capture, sharing and the use of knowledge, skills and expertise;’ (Swan *et al.* 1999, p. 264) new product-process developers become better situated to apply the distinct cultural antecedents of specific societies. Herein, allowing the formulation of more informed product-process development decisions.

Over the page, the Thesis turns to a thorough review each of the three parent disciplines.

2.2 THREE PARENT DISCIPLINES

2.2.1 Knowledge Management

2.2.1.1 Definitions of Knowledge Management

Knowledge Management is a field which develops the concept of organisational processes, people's knowledge and technology melding, in order to enhance organisational success through learning' (Armistead 1999). Herein, knowledge gained through learning, leads to further Knowledge Building and Creative Synergies.

Once created, knowledge can be 'captured and codified, shared and transferred' (Armistead 1999, p. 145). Thus, Knowledge Management extends the resource-based theory of the firm, which shows 'knowledge as a reproducible production factor ...which can show the way to an economic group without any additional labour power' (uit Beijerse 1999, p.95).

The significance of Knowledge Management to marketing is evident in the marketing literature particularly regarding the investigation of teams and cross-functional synchronization and integration regarding new product development (Jassawalla and Sashittal 2000, Matheson and Tarjan 1998, Nakata and Sivikumar 1996, Ettlief 1995, Wheelwright and Clark in 1992, Zirger and Maidique 1990). Further, Knowledge Management, as expressive of the new economy, places emphasis on intellectual capital in context with the knowledge-based economy, which applies personal know-how to tasks.

We shall next consider some definitions of Knowledge Management, including an original submission.

Gupta, Iyer and Aronson's (2000) definition highlights the strategic and 'dynamic' nature of knowledge and its management:

'Knowledge Management is a process that helps organisations find, select, organise, disseminate, and transfer important information and expertise necessary for activities such as problem solving, dynamic learning, strategic planning and decision making.' (Gupta, Iyer and Aronson 2000. p. 17)

Above, a linear process connects interrelated stages, which identify and shift 'information and expertise', in the form of knowledge, in order to resolve management problems, throughout the organisation, and improve organisational learning. Strategic planning and decision making processes stand out as key managerial functions. In this way, Gupta, Iyer and Aronson's (2000) definition takes a top-down managerial perspective towards Knowledge Management. The Gupta, Iyer and Aronson definition regards 'information' as something that is found and handed-on, rather than something transformed and melded via communities of practice and applied.

On the other hand, Malhotra suggests; (a) human innovation and (b) the union of data and information processes, act to define Knowledge Management:

‘Knowledge Management embodies organisational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and the innovative capacity of human beings’. (Malhotra 1997, in Pimapunsri Butdee and Tichliewitch 2008, p. 804) For Malhotra, Knowledge Management requires human creative and innovative capacity to synthesise data and information processes. Processing capacity and innovative capacity are linked. The relationship between human innovation and information technologies is not well developed. A more encompassing definition might show that, within and across communities of practice, synergies exist, which create new knowledge or enhance existing knowledge.

Moreover, Koulopoulos and Frappaolo’s (2000) own definition is proactive; wherein, Knowledge Management steers actions towards an undefined object and a goal.

‘Knowledge Management is the leveraging of collective wisdom to increase responsiveness and innovation.’ (Koulopoulos and Frappaolo 2000, p.38)

Similar to Gupta, Iyer and Aronson (2000); Quintas and Finkelstein argue that Knowledge Management is a sequential process: Information is ‘shared,’ rather than disseminated. Herein, recognising a greater latitude for two-way and many channel communications.

‘Any processes and practices concerned with the creation, acquisition, capture, sharing and the use of knowledge, skills and expertise.’ (Quintas and Finkelstein 1996, in Swan 1999)

Lastly, a revised original definition of Knowledge Management is offered for the Thesis:

‘A non-linear process, used by management and personnel, to engender the synthesis of knowledge to be shared within and across formal and informal communities of practice; to achieve the linear outcomes of knowledge discovery and further knowledge creation.’

– Peter Sinclair 2010

The above definition makes clear that the process of Knowledge Management is not exclusively a managerial domain. It is communities of practice, which interact and synthesise information to create and share new knowledge. Herein, the machinations of communities of practices are non-linear. New knowledge circulates ,within each community of practice: both vertical communities of practice and horizontal communities of practice; for example, between one senior executive manager having a suite of teams (vertical relationship) or between a marketing department and the legal department (horizontal relationship). These relationships are aligned to two key constructs examined later in the Thesis, i.e., Vertical Power Ethos and Horizontal Altruism.

Last, but not least, the Thesis acknowledges, in a more limited fashion, Nonaka and Takuschi’s (1995) four modes of knowledge creation (Socialisation, Externalisation, Internalisation, Combination) derived from, tacit and explicit knowledge separated entities. This model is, allegedly based on the epistemological frame of Polanyi (1966).

However, had Nonaka and Takuschi (1995) been aware of the wider corpus of Polanyi’s works, they would have realised that Polanyi (1946, 1966, 1974) saw tacit knowledge as being indivisible and co-efficient, as the quote below illustrates:

‘Hence, an explicit statement can bear on reality only by virtue of the tacit coefficient associated with it. This conception of reality and of the tacit reality and of tacit knowing of reality underlies all my writings’ – Polanyi (1946, p.10)

Further, in *The Tacit Dimension*, Polanyi (1966) maintains when the learner ‘indwells’ in the experience of the master, the learner brings their *a priori* tacit knowledge and predispositions to the knowledge domains. Again, emphasising the ((*tacit*)* (*explicit*)) coefficient. Herein, an English person and a French person would likely interpret the explicit event of the *Battle of Waterloo* differently. Likewise, superordinates and subordinates will present different tacit multipliers to an explicit knowledge domain in society at large and at the workplace. Hence, externalisation *does not* enunciate tacit knowledge *into* explicit knowledge, as presented by Nonaka and Takeuchi (1995).

Herein, Polanyi’s *bona fide* scheme would have tacit knowledge and explicit knowledge *combined*; whereas, Nonaka and Takeuchi appear to have tacit knowledge *transmute* to explicit knowledge. Accordingly, the Thesis accepts Polanyi’s (1946, 1966 and 1974) epistemology. In so doing, the Thesis adopts a different interpretation of Polanyi than have Nonaka and Takeuchi (1995).

The Thesis presented definitions of Knowledge Management in the extant literature, as a strategic and dynamic process that supports key decision making development, via practises that help organisations find the information needed to achieve results. Authors were divided to the extent to which creative innovative capacity is derived from a linear or non-linear processes concerning knowledge and innovation dissemination, within organisations and among participants. An alternative definition was posited to resolve the inconsistency.

Moreover, tacit and explicit knowledge were deemed to be co-efficient based on the epistemological contributions of Polanyi (1966). Further, Communities of practice must have open channels of communication if the goal is to facilitate knowledge synthesis.

Thus, our review on Knowledge Management points to a shift towards a new knowledge based economy complementing the classical model. Accordingly, we briefly review trends in the knowledge-based economy, which is dependent on Knowledge Sharing and Creative Synergies.

Economics is briefly addressed in the Thesis, because, it is important to demonstrate shifts in the reliance from the traditional schema towards a knowledge-based schema, relevant to the twenty-first century.

2.2.1.2 Trends towards a Knowledge Based Economy

The evolution of Knowledge Management has corresponded with changes in economic thought and perceptions of the nature of capital in context with organisational learning. Classical economists view productivity in terms of the 'old economy' (Koulopoulos and Frappaolo 2000), which is based on the three factor endowments of land, labour and capital.

In the old economy¹, technological change results in 'changes to the production function' (Mansfield 1999, p. 264). Further, 'the availability of new products can be regarded as a change in

¹ In the old economy, where Q is quantity of output:

$$\begin{aligned} Q &= a (bL + cK), \text{ (represents the production function)} \\ L &= \text{Quantity of labour} \\ K &= \text{Quantity of capital} \\ b \&, c &= \text{Constants} \end{aligned}$$

the production function' (Mansfield 1999, p. 265), following-on from technological change and labour productivity, which is the ratio output to input. However, total factor productivity incorporates capital, in addition to labour, as inputs to production function.

Nevertheless, this classical approach appears incomplete, because it omits the personal knowledge contribution of individual employees or communities of practice (Koulopoulos and Frappaolo 2000, Nonaka and Takeuchi 1995). Similarly, Drucker (1993) and Koulopoulos and Frappaolo (2000, pp. 32-33) testify to the existence and relevance of intellectual capital, when recognising knowledge, as a limiting resource, rather than financial capital and 'the shift from physical assets to intangible assets of knowledge', respectfully.

Therefore, today:

'a managerial view of a knowledge-based company is expressed in terms of knowledge vision, knowledge crews, high density interaction, leveraging product development, empowering middle managers ... and a network with the outside world.' – (Armistead 1999, p.148)

Herein, the modern company shall best meet the challenges of a rapidly changing environment by having open vertical channels of communication and open horizontal channels of communication.

Hence, total traditional factor productivity (α) is $Q/bL + cK$. In response, old economy organisations have acted to automate labour functions to improve production efficiencies and effectiveness (Gupta, Iyer and Aronson, 2000, online).

It follows, processes must be personal knowledge based, rather than based on older systems of production or hierarchical conventional orthodoxies or reverence for arcane human relations management systems. Instead, senior management must be open and teams provided latitude to share personal knowledge.

Figure 2.2 suggests that Knowledge Management finds its origins in epistemology and organisational innovation theory and involves management development. Strategic management approaches are seen to have direct implications for the Knowledge Management discipline and, Marketing, including new product development decisions. National culture can be interpreted by the cultural cluster approach to Comparative Management to better explain new product development machinations. Regarding the discipline of economics and its influence over marketing a dichotomy is said to now exist between the new economy and the old economy (Koulopoulos and Frappaolo 2000). In this way, in the new economy, intellect is categorised as a form of capital available to the organisation (Koulopoulos and Frappaolo 2000).

Personal knowledge, herein, is revealed as the contributions of individuals or groups, either directly, or, via Knowledge Sharing, emanating from communities of practice. Thus, an organisation's level of knowledge, especially intellectual capital, is instrumental in determining its core intellectual competencies and position on the knowledge chain. Core intellectual competencies, the shared knowledge of communities of practice and the intellectual capital of the sum of individuals, all act to establish knowledge. Furthermore, the speed of innovation is largely a function of core intellectual competency and willingness to share information.

Highly innovative products are held by the Thesis to be more reliant on the new knowledge economy. Moreover, the stance taken in this Thesis is that Knowledge Sharing is not equivalent across communities of practice, but based on societal predilections.

Therefore, for the twenty-first century, it must be recognised that the emergence of the Knowledge Based economy, is super-added to the more traditional economic models; wherein, personal Knowledge Sharing, which leverages personal intellectual capacities, is needed to develop transformational products in the new economy, including globally.

Knowledge Management recommends that organisations give primacy to core competencies over a purely product focus (Storey and Barnett 2000, Koulopoulos and Frappaolo 2000), as products will alter over time in response to needs.

Knowledge Sharing and knowledge transfer are essential to quality and process efficiencies to achieve competitive advantage (Ramesh and Tiwana 1999, Gieskes and Langenberg 2001).

Herein, people with distinct areas of expertise and experiences must effectively communicate across dispersed operations, including new product-process development in different countries and cultures (Akgün, Lynn and Yilmaz 2006), Desouza and Evaristo 2003, Nataka & Sivakumar 1996 and Morelli *et al.* 1995, Ghoshal, and Bartlett 1990).

‘Knowledge is now being seen as the most important strategic resource in organisations, and the management of this knowledge is considered critical to organisational success’. – (Ipe 2003, p. 337)

Team new product-process development requires capturing team memory (Akgün, Lynn and Yilmaz 2006), thinking, sense-making, improvisation, as well as information dissemination and implementation. Team memory is built from acquiring knowledge through information rich team structures and the abilities of each member to actively facilitate Knowledge Sharing. Further, learning at the workplace is both an individual and cooperative process; however, whether team learning occurs is reliant on the social and structural milieu of the team (Lukas, Hult and Ferrell 1996). In this way, the level of willingness to convey knowledge to the team represents the extent of the repository of contributors to overall knowledge available (Ipe 2003).

Additionally, acquiring knowledge from various contributions generates more solutions and better alternatives for the new product-process development team, overall (Garvin 1993). Herein, problems benefit from finding solutions built on creative strategies. Likewise, at the workplace successful new product-process learning requires capturing personal knowledge and creating adaptations based on new learning (Meyer 1982).

Davenport and Prusak (1998, p.5) allude to personal knowledge, as adopted throughout the Thesis, by recognising that knowledge has its origins in ‘the minds of knowers,’ including insights to provide ‘the framework for evaluating new experiences’.

‘Knowledge by its very nature exists in both tacit and explicit forms. However, with the increasing recognition of the importance of knowledge in organisations, different types of knowledge have also begun to be valued differently within organisations. These two characteristics of the nature of knowledge, tacitness and explicitness of knowledge, and the

value attributed to knowledge have a significant influence on the way knowledge is shared within organisations.’ (Ipe 2003, p343)

Tacit knowledge and explicit knowledge (Koulopoulos and Frappaolo 2000) are required to create new products, and as such, represent core competencies (Storey and Barnett 2000, Koulopoulos and Frappaolo 2000). Accordingly, marketers of new innovative products do not compete in the marketplace merely with their product offerings, but also on their ability to manage personal knowledge in order to ‘maintain innovation, and to continuously set the industry benchmark’ (Koulopoulos and Frappaolo 2000, p. 16). Thus:

‘Products should exist at the vortex of the whirlpool-constantly changing. Your core competence is at the outer limits of the whirlpool.’ (Koulopoulos and Frappaolo 2000, p. 16)

Marketing orientated organisations compete on the basis of being able to consistently create and develop new products, which are relevant to a changing market environment. In this context, earlier marketers refer to ‘marketing myopia’ (Levitt 1960 in Kotler, Chandler, Brown and Adam 1994, p. 5); whereby, the marketer must in no way lose sight of the customers’ needs and must define a broad domain of operations.

However, the knowledge manager might ask, ‘how can critical, relevant, contemporary knowledge, be better managed, captured and disseminated in order that marketers are able to produce the most competitive product in the marketplace’?

In response, Knowledge Management is about achieving competitive advantage, which requires marketers to learn to forget their past restrictive practices and to deeply appreciate the soft assets of ideas, people, teamwork, communities, values and knowledge (Webber, undated, in Koulopoulos and Frappaolo 2000). It follows, Conventional Orthodoxy would be restrictive.

With the shift towards shorter product life cycles and the need to innovate more frequently, Knowledge Management is receiving greater attention by researchers (Storey and Barnett 2000; Carneiro 2000, Jin 1996 *et al* ; Seufert, von Krough and Bach 1999; uit Beijerse 1999 and Shariq 1999; Swan, Newell, Scarough and Hislop 1999). With contemporary Knowledge Management, there is a heightened emphasis on (a) capturing knowledge and (b) learning to forget past practices in order to transform and innovate (Koulopoulos and Frappaolo 2000). Regarding, the latter it would seem overt langsyne attachment to the past and *a priori attachment* is undesirable.

The development of knowledge-based products is highly dependent upon the capture and codification of knowledge, within an environment, which promotes the free flow of information and the ready ability of the organisation to integrate information streams, in order to create what knowledge manager's term 'awareness' and 'responsiveness' to the internal environment (Koulopoulos and Frappaolo 2000, p. 28). On the other hand, as reported on the next page, this preferred state does not always manifest, and, as a result, information flow is restricted, for example in Hong Kong, as quoted from an interviewee:

‘The staff would naturally look towards the highest source of authority, who is the boss, the owner of the company. He will take commands from that level. Even though a manager tells him to do this and that and he knows that he (the manager) is probably on the right track,’ yet, he will seek out confirmation from the boss, ‘even though the boss may not be right’ (Hsein², interview, in Redding (1990, p.158).

The Thesis holds that such a scenario would prove to be troublesome for new process-product development, particularly where high transformation and innovation are required.

We have explored Knowledge Sharing as a precursor to successful knowledge creation, especially for erudition-based products, requiring elevated adaptation. Moreover, we have seen vertical power structures can be inhibitive, for example in Hong Kong, where subordinate deference to authority is overtly based on hierarchical status, rather than on the skills of the superordinate vis-à-vis the knowledgeable subordinate. Innovation, furthermore, is held a consequence of knowledge. Therefore, we now discuss and augment the literature on innovation.

2.2.1.3 Innovation

The shift from the old economy to the new economy has amplified the importance of the contribution of knowledge to managerial and workplace practices. Because knowledge has its origin in peoples’ ideas, marketing managers require environments, which foster innovation and the free flow and sharing of information to build better products. Achievement of new technologies, therefore, requires an appreciation that human knowledge is fashioned via interaction and conversation, and knowledge is created when it is an exchange of ideas *between* and not *within* people (Polyani 1966).

² Hsien is a *nom de plume*.

Similarly, Swan (1999) states that innovation needs to adopt a structuralist approach, which includes the adoption of the ‘dynamic cognitive and political process through which new ideas are developed, communicated and transferred over time’. Hence, Cheng and Van de Ven’s (1986, p. 590) definition of innovation is, ‘the development and implementation of new ideas by people who overtime engage in transactions in an institutional context’.

In defining and describing the environments that will flourish, the literature appears to emphasise structure, which indeed seems relevant, but does so to the exclusion of message content. In other words, researchers show innovation like a *flow chart*, joining entities to processes. Of course, parties and channels are key elements to achieving innovation, but so is the accurate transmission of the message content between parties. Further, the Thesis suggests that innovation *is a result of a process*, and this needs to be clearly stated and delineated in any new definition:

‘Innovation is the product of the effective transmission and development of new ideas by and between individuals, and horizontal communities of practice and, or, vertical communities of practice, which freely and readily interact to transact and exchange information resulting in novel solutions to new and existing problems and opportunities.’

– Peter Sinclair 2010

The above definition of innovation incorporates all the structural elements of existing definitions of innovation, but adds that new ideas need to be effectively transmitted (i.e., coded, sent and decoded), potentially involving many communities of practice, throughout the organisation.

Moreover, innovation is innovation only, when novel solutions are presented to new or existing problems.

2.2.1.4 Knowledge Sharing and Information Flow

The acquisition, availability, free-flow and sharing of knowledge, both tacit and explicit (Polanyi 1966, in Koulopoulos and Frappaolo 2000, Nonaka and Takeuchi 1995, in Armistead 1999, is a key company asset. According to uit Beijerse (2000), a company's existing stores of knowledge are critical inputs into the production of new knowledge. Further, efficacious information flows are critical for the successful development of innovative new products (Lundvall, in Foray, 1993). Thus, Huq and Toyama (2006, pp.167-168) found regarding the development of creative capabilities in the development of new products:

‘In the firms with higher levels of technological capability, employees were encouraged to play an active role, expressing their ideas for the improvement and development of products and production processes, and the need to establish collaborative links were emphasised through the use of daily meetings and through the setting of joint targets between different functional departments.’³

Moreover, Asian models were found in the literature to be *not* indicative of ‘more mature economic and informational environments’; rather, the ‘Asian style approximates an experienced based, intuitive, idiosyncratic model, well suited to an uncertain environment with little information’ (Haley and Tan 1996, p.10).

³ Marketing and Research and Development in New Product-Process Development

In respect to Asian countries, Haley and Tan (1996 p. 1) assert that Western multinational companies with a presence in Asia operate in an environment characterised by a 'dearth of data' resulting in 'an informational void that affects the practice of strategic management in the region,' but they did not identify cultural traits, to explain the paucity of data sharing in Asian countries. This points to the need of a greater understanding of cultural dimensions.

Thus, the free-flow and sharing of knowledge (Koulopoulos and Frappaolo 2000, Nonaka and Takeuchi 1995, in Armistead 1999) is a key company asset. According to Minn (1996, in üit Beijerse 2000), a company's 'existing stock of knowledge are (sic) critical in puts into the production of knowledge'. It follows, cultures and structures, which stimulate the sharing of knowledge, hasten the production of new knowledge; whereas cultures and structures, which retard the sharing of expertise, obstruct the production of new knowledge.

This Chapter has demonstrated that information flow and information diffusion are key assets well suited to creating new knowledge, based on social frameworks. Western companies were found to be more adept at nourishing mature open information environments. In contrast, East Asian companies were found to be unable to achieve the information flows necessary to create new proprietary high technology endeavours. Therefore, there is a need to better understand the societal and social frameworks that function to allow or restrain information flow and information diffusion.

Although, the Thesis highlights Chinese and Western societies, it is argued that Japanese society provides external perspectives, against which, Chinese society and Western society can be compared. Further, the decision to introduce Japan into China-West cross-cultural studies shall

become evident, in latter chapters, where pluralism will be analysed in context with how vertical power is deferentially exercised in Japan vis-à-vis China.

Although, the Thesis primarily evaluates Anglo-Western society and Han-Chinese society, we next review the literature on Japanese management systems, as a control, regarding the measurement of vertical rule by management and consensus in horizontally ordered autonomy.

2.2.1.5 Japanese Management Systems

Matheson and Tarjan (1998) analysed information flows related to cross-culture teams working on an inter-country joint venture between the United States and Japan. Their research found that compared with the United States, Japanese management and organisational structures impede information flows and information dissemination.

Nevertheless, Japanese managers are generally more open with their employees than Chinese managers. *Unlike* culturally Chinese-influenced corporate decision-making and information management, Japanese decision-making and information management tends to encourage line management consensus. Moreover, both *nemawashi* and *ringi seido* are operationalised

When implementing *nemawashi* management is interested in determining the anonymous opinions of individual employees. *Ringi seido* requires multi-level group consensus. Recognition of *Wa* relates to the maintenance of harmony. *Nemawashi* translates to ‘dealing with the roots’ (Chen 1995, p. 184). Simply put, Japanese managers delegate and Japanese groups are cohesive.

While Chinese and Japanese societies are highly hierarchical and tend toward autocratic leadership structures, Japanese companies foster more team involvement in decision-making, allowing these Japanese companies to be internationally competitive, and to react quickly to new market demands and develop technological innovations.

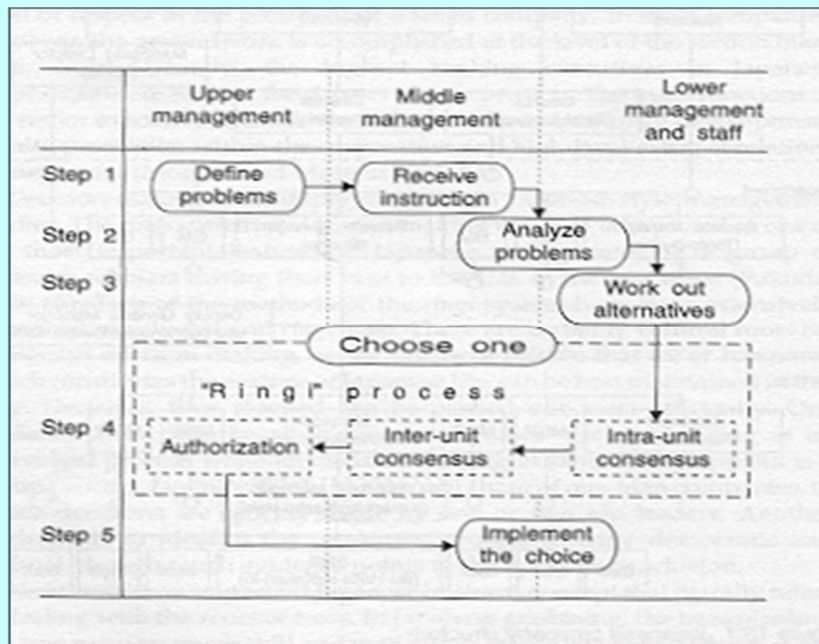
Calantone, Schmidt and Song (1996, in Li and Atuahene-Gima 1999) associate consensus with the decision making process. Moreover, Li and Atuahene-Gima (1999) extend the notion of a collectivist character of the Chinese society, to suggest cooperation is allied with high uncertainty avoidance (Hofstede 1984), achieved by group conformity to established rules and procedures.

However, Chinese rules and procedures are typically preset by high vertical order superordinate others in an environment of non-trust (Redding 1990). Thus, unlike Japanese *Ringi seido*, a widened view of Chinese characteristics finds Chinese new product-process development teams, without an effective operations loop existing between team self-generated ideas and management approval. Consequently, by contrast, Japanese new product developers are typically well placed to evade fixed, conventional methods, and, therefore, suitably situated to successfully handle the personal knowledge-based innovation, as required of high transformational products.

Over the page, Figure 2.3 illustrates the nature of top-down relationships and the latitude for independent team consensus in Japan vis-à-vis China clearly differs. In the case of Japan, less managerial direction and greater team autonomy allow for fewer managerial *dictates* on *how work is completed* and makes possible the environment for Knowledge Sharing and Creative Synergies.

While there is workplace respect for senior Japanese managers, compared with Chinese management systems, Japanese executive involvement seems to be restricted to defining problems and authorising the consensus choice of middle management and staff (Fukuda 1988).

Figure: 2.3 Japanese Decision Making Processes (Fakuda 1988, p. 64)



The Thesis has shown, unlike in Chinese management systems, the Japanese *Ringi* process moderates the vertical dictates of senior management on team consensus. Problems are defined by

senior management and middle management and staff have the autonomy to make recommendations regarding solutions. Thus, the higher horizontal independence promotes higher innovation in Japan, compared with China.

Next, we investigate new product development and innovation, from the perspective of New Product Development, in the Marketing parent discipline.

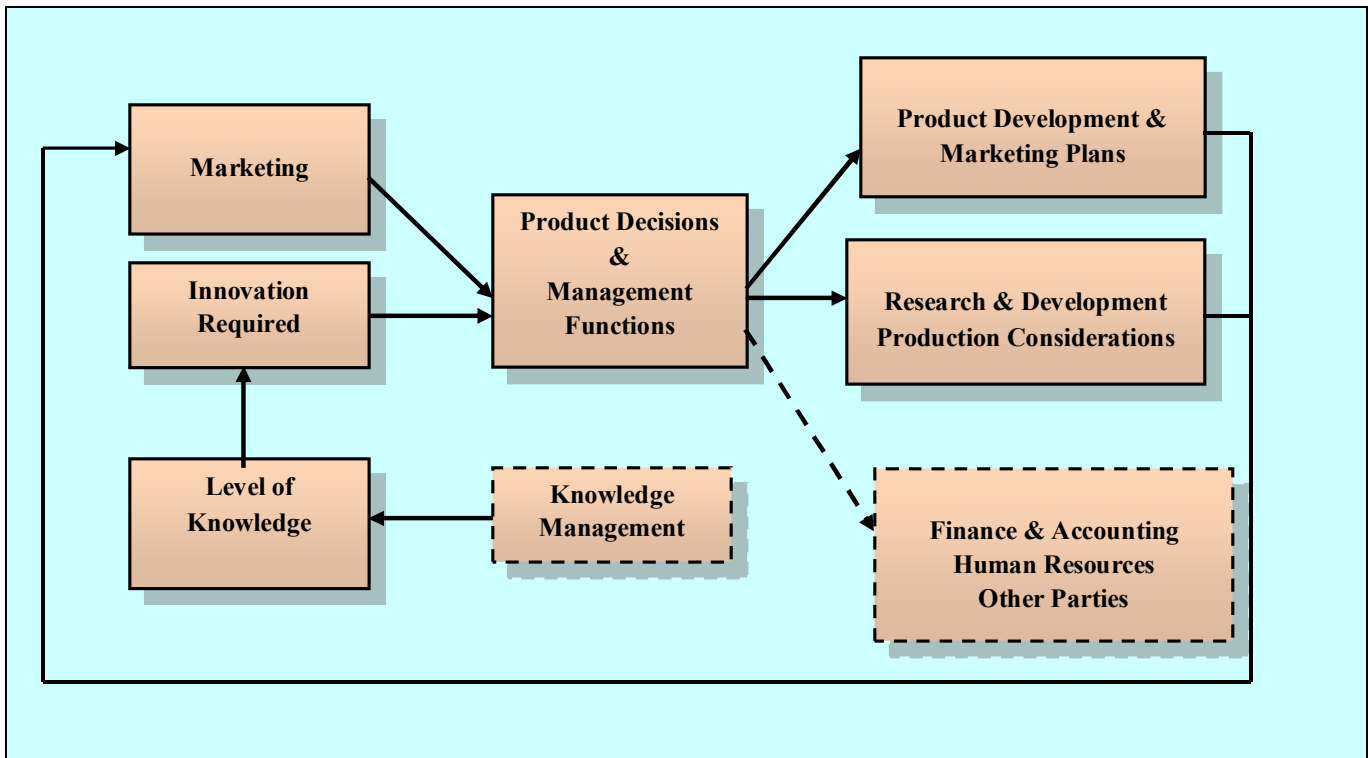
2.3 NEW PRODUCT DEVELOPMENT IN MARKETING

2.3.1 Preface to New Product Development in Marketing

The discipline of marketing stems from economics. Marketing has been defined as, a ‘social process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others’ (Kotler, Chandler, Brown and Adam 1994, pp. 4-5).

The aforementioned limited definition does not incorporate product-process activities, prior to product launch. However, *a priori* conceptual and managerial activities permitting product-process development have previously been recognised by the American Marketing Association, which define marketing as ‘the *process of planning and executing the conception*, pricing, promotion and distribution of ideas, goods and services to create and satisfy individual and organisational objectives’(emphasis added) (Anon. in McColl-Kennedy, Kirel, Lusch and Lusch 1994). Accepting this structure, the Thesis adopts the American Marketing Association’s definition, which readily encompassed the conception and creation of products, before commercialisation.

Figure 2.4: Product Decisions and Planning and Knowledge-based Innovation



According to Drucker (1973, in Wind 1982), the firm has two basic functions, namely, marketing and innovation, which influence product decisions, management functions and planning. However, more recently, Knowledge Management practitioners emphasise that ‘there is a growing realization that knowledge and the ability to innovate are factors of production’, whereby knowledge is operates to assemble systems to facilitate the articulation of sharing information and know-how’ (Koulopoulos and Frappaollo 2000). Figure 2.4 integrates these concepts from the literature, a composite form. Thus, within the Marketing discipline, product decisions affecting product development and marketing plans and research and development are reliant on the level of knowledge available to the degree of innovation required.

2.3.2 Definitions of New Product Development

The marketing community clearly advocates new product development process is not limited to physical construction of the final product; but, also involves research and creative practices, which are the determinants of ultimate results. This assertion is affirmed by the following definition from the marketing literature:

'The process of conceiving and creating a new product and the outcomes of that process' (Nataka & Sivakumar 1996, p. 62).

The definition provided by Nataka and Sivakumar paints new product development as a sequential process originating with a concept, leading to product construction and ending with 'the outcomes of the processes' (Nataka and Sivakumar 1996). Thus, a significant proportion of new (product-process) development is process. Kotler (1997) adds:

'The development of original products, product improvements, product modifications, and new brands through the firm's own research and development efforts.' (Kotler 1997, p. 283)⁴

Kotler (1997, p. 283) proposes a developmental process, which includes 'research and development efforts'. Attention is centred on activities occurring before commercialisation. This definition does not limit new product development to 'original products,' and includes categories of altered product. Rix and Stanton (1998) provide a further definition strongly emphasising research and development:

⁴ Kotler's (1997) categories are not discretely defined, for example, it would be hard to conceive of a product improvement, which is not also a modification.

‘The technical activities of product research, engineering and design’ (Rix and Stanton 1998, p. 547)

The new product development definition suggested by Rix and Stanton (1998) is confined to activities prior to product commercialisation, and is less substantive than either Nataka and Sivakumar’s (1996) or Kolter’s (1997) definitions. However, it is noted that ‘product research, engineering and design’ (Rix and Stanton 1998, p. 547) all require pre-production conceptualisations to be shared on the new product development team. Herein, product research, engineering and design broaden the scope of activities in support of Marketing’s functions.

However, there are conceptual differences across the new product definitions cited so far. All of the definitions place special prominence on marketing activities, before product launch. Yet, all the definitions, either explicitly or implicitly, recognise contemplative contributions, which underlie Knowledge Sharing and Creative Synergies.

Moreover, the aforementioned definitions of new product development recognise the contribution of conceptualisation to new product development, but not innovation. However, according to Drucker (1973, in Wind 1982), innovation asserts a strong influence on product decisions. In this way, Drucker’s (1973, in Wind 1982) contention is consistent with Knowledge Management’s observation that knowledge and innovation are required to develop systems (Koulopoulos and Frappaolo 2000). Therefore, building primarily on Nataka and Sivikumar’s (1996) definition of new product development, a revised definition is offered:

‘The process of original product or altered product conception and creation stemming from innovation, research and development, prior to product commercialisation, and terminating with the associated outcomes from that process.’ - Sinclair 2010

The above definition incorporates innovation, as a key determinant of the new product development process, and recognises both pensive and physical inputs to new product development. ‘New product’ is more clearly defined, as either an ‘original’ product or ‘altered’ product;’ indicating that degrees of product transformation are required to receive this designation.

Having reviewed the preliminary definitions of new product development, the Thesis now explores cross functional dynamics in new product development.

2.3.3 Cross-functional team research in new product development

Jassawalla and Sashittal (2000, p.49) investigated cross-functional dynamics, regarding technology and concept transfer between team members, and found that functional dynamics positively affects new product development outcomes stating that ‘creating a culture of interdependence, mindfulness and transparency is essential’ to the new product development process. Yet, this finding appears inconsistent with Sethi’s (2000) research conclusion, which states functional diversity has no influence on product quality.

On the other hand, the apparent dissimilarity in the deductions drawn might rest with the different approaches taken by the two studies, with regards to qualifying cross-functional interaction. Jassawalla and Sashittal (2000, p. 46) investigates cross-functional interactivity from the perception

of its association with ‘contextual influences,’ such as ‘time pressure and product innovation from the firm’s perspective’ and ‘the quality orientation of the firm’: Whereas Jassawalla and Sashittal (2000, p.46) explored ‘interaction, information sharing and the cross-fertilization of ideas’ between cross-functional teams. Consistent with Jassawalla and Sashittal (2000, online), Takeuchi and Nonaka (1986) maintain:

‘...when all the team members are located in one large room, someone’s information becomes yours without you even trying. You start thinking in terms of best or second best for the group at large and not only about where you stand. If everyone understands the other person’s position, the each of us is more willing to give in, or at least to try to talk to each other. Initiatives emerge as a result.’

Thus, Creative Synergies are based on personal Knowledge Sharing. Moreover, personal knowledge can only become manifest, where individuals are willing to share their expertise; wherein, various individuals;

‘... interact with one another in a spiral-like fashion, whereby individuals’ input, their collaborative activities, affect the nature of the joint distributed system, which in turn affects their cognitions such that their subsequent participation is altered, resulting in altered joint performances and products.’ (Madhavan and Grover 1998, p. 122)

In consequence, the success of new product development depends on the degree by which *embedded* personal knowledge becomes *embodied* in the entire new product development team

(Madhavan and Grover, 1998), which may or may not achieve its full potential, via Knowledge Sharing and Creative Synergies. Likewise, Pasano and Teece (1989) find that transactional risk is attached to teams, when members are disinclined to participate, resulting in uncertainties about outcomes. Herein, the Thesis maintains that the transmutation of embedded personal knowledge to embodied new product-process, team knowledge shall be greater in Western society than in Chinese society, owing to societal knowledge openness and retentiveness, respectfully.

Further, while Sethi (2000) did employ an elaborate research design, which included a sample size of 141 respondents from 240 mailed questionnaires, regression analyses and data normalisation techniques, it is questionable that the researcher considered variability within the levels of contribution made by different functional areas.

On the other hand, Jassawalla and Sashittal (2000) did consider varying levels of participation by various organisational units, and found that the research and development teams make a disproportional contribution to ‘decisions’, ‘workflows’ and ‘tasks’ related to new product development. In the high technology companies studied, Jassawalla and Sashittal (2000, p. 46) found that the research and development department saw themselves as consultants, who resisted ‘attempts to share power with marketing and production groups’, acting as if, ‘*de facto*’ owners of the project, even if the marketing department was formally in-charge.

Yet, presently, too many marketing studies dismiss the role played by research and development in new product-process development; unless, the interdepartmental interaction, itself, is the locus of

the study. Consequently, the quantitative research conducted by the Thesis considers both marketing's contribution to product and research and development's contribution to the process.

A comprehensive investigation into product-process development dynamics would benefit from considering contributions of all relevant functional product and process areas, particularly concerning the development of high technology products; where, *all the departments are equal, but research and development is more equal than others*. Furthermore, the sharing of knowledge in a well-co-ordinated, information rich cross-functional environment has a positive and encouraging influence on quality, features delivered and efficiency, effectiveness and efficacy in new product development. This conclusion is supported by Jassawalla and Sashittal (2000, p 46), who having reviewed new product development processes, state:

‘Better communication and cooperation among R & D, production, marketing and other functional groups, as well as effective coordination in their activities improve and accelerate the (development) process.’

However, not all national cultures or workplace cultures are equally information rich: e.g., Chinese organisations operate in a society-at-large and workplace environments that limit free information flow underlying Knowledge Sharing and Creative Synergies, because information is controlled by owners and a few trusted managers (Chen 1995, Redding 1990).

The thesis has reviewed the literature on the cross-functional relationships between marketing and research and development in new product development. Interdependence heightened the need to share expertise against an environment of departmental power plays. That being the case, the overall state of affairs requires the aggregation of initially disconnected personal knowledge into a refined amalgam. Moreover, not all cultural environments are on a par, regarding the ability to embody personal knowledge contributions into new product development team tasks.

The literature review revealed a proclivity towards limiting investigations to the dynamics of marketing and research and development, without adopting the “product” *plus* “process” structure into more elaborate modelling. Herein, one does not see the whole new product development task by looking at only one part of the elephant. Gaps in understanding exist in the literature and the composition of the components of the focus of past research. As such, only part of the story is told. There is a need for a more comprehensive story, recognising the multifarious parties.

Previously, we have found in multiple areas of the literature the need for Knowledge Sharing regarding various aspects or perspectives of new product development. Here, complementing the review into Knowledge Sharing, we next appraise innovation in new product development, wherein, the literature maintains Knowledge Sharing has tendrils into ‘innovation’.

2.3.4 Innovation in New Product Development

Successful new product innovation requires on-going interaction between marketing developers and the process developers. The most successful developers enhance the exchange of knowledge and

more dynamic new product developers are highly dependent on open Knowledge Sharing, cooperation and 'efficient R & D processes' (Spithoven *et al* 2010, p. 362).

Innovation is aided by approachable senior management willing to be open with information and release corporate resources (Johne and Snelson 1988, in Nakata and Sivakumar 1996), while delegating high levels of autonomy to personnel. Herein, top-down openness and the absence of executive interference facilitates new product development. Likewise, autonomy and the lack of restrictions facilitate innovation (Block and McMillan 1985) and the absence of stringent control, smooths the progress of creative thoughts (Schollhamer 1982), within development teams.

Product development team members are required to co-operate to achieve Knowledge Sharing and Creative Synergies underlying innovation. Innovation is a necessary and positive force towards better product outcomes, but requires an environment of open, cross-functional information flow and team collaboration, in order to fully flourish. On the other hand, in culturally Chinese influenced locations, organisational patriarchs proactively act to control the dissemination of information throughout the organisation (Redding 1990). Stifling of information flow will curtail innovation, and have harmful effects on new product development conformance outcomes. This Thesis proposes high transformational products shall be more negatively influenced by patriarchal control and secrecy than low transformational products. Moreover, vertical control shall hinder the willingness of team members to contribute to opposing ideas. Thus, personal knowledge contribution shall be generally restrained.

Intriguingly, innovation has been found to negatively influence new product quality (Sethi 2000), where product quality is defined as, ‘perceived superiority or excellence in a product as compared with alternatives in the marketplace’ (Garvin 1988, Zeuthmal 1988) or ‘the extent to which a new product is superior to competing products in aesthetics, performance, life, workmanship or safety’ (Sethi 2000, p. 2).

In this context, innovativeness disrupts existing manufacturing processes (Clark and Fujimoto 1991, in Sethi 2000), because team members become ‘overwhelmed with a large diversity of unfamiliar issues’ (Sethi 2000, p.3). Consequently, even highly innovative new product development teams shall be challenged by advanced research , which significantly extends current product offerings, based on new technologies or the development of new products displaying a significant break-away from earlier product archetypes.

Having reviewed new product development and new process development, the Thesis , now considers the issues of culture.

-Please turn page-

2.4 CULTURAL STUDIES

2.4.1 Ecology

Ecology in its broadest sense recognises the need for organisms to manage relationships within their environment to improve prospects for survival:

‘Significantly, survival need not be limited to an individual’s biological survival. Herein, ecology also provides the prime foundation for community survival and commercial survival. In this frame, ‘ecology shapes the cultures that emerge in it’ and humans develop cultural norms to enhance their feeling of domination over the environment.’ (Triandis 1994, pp. 14-15)

We can see ecology as the fundamental antecedent of societal culture; wherein, the environment is either, ‘friendly’ or ‘inimical’ (Haeckel 1866, in Allen 1998, p. 2). Survival is sustained by adopting traits most fitting to the management of the specific environments encountered. Different societies confront their own particular challenges by developing pertinent behaviours, which coalesce and become entrenched cultural antecedents, directing societal norms.

Ecology determines social and cultural behaviour (Triandis 1994, Yang 1986) impelling cultural evolution towards adaptive design (Smith and Winterhalder 1992). For this *raison d’être*, successive populations can inherit adaptive benefits through predisposed knowledge transmission and via longitudinal intergenerational imitation. Individuals learn their culture’s rules of conduct from historical memories of how the society controls the environment (Kluckhohn 1954, in Triandis

1994). In response, societies develop cultural dispositions with regards to the exercise of vertical power, Horizontal Altruism and Conventional Orthodoxy.

Having introduced the literature on ecology and environment to establish how diverse societies evolve, we next assess culture's foundations.

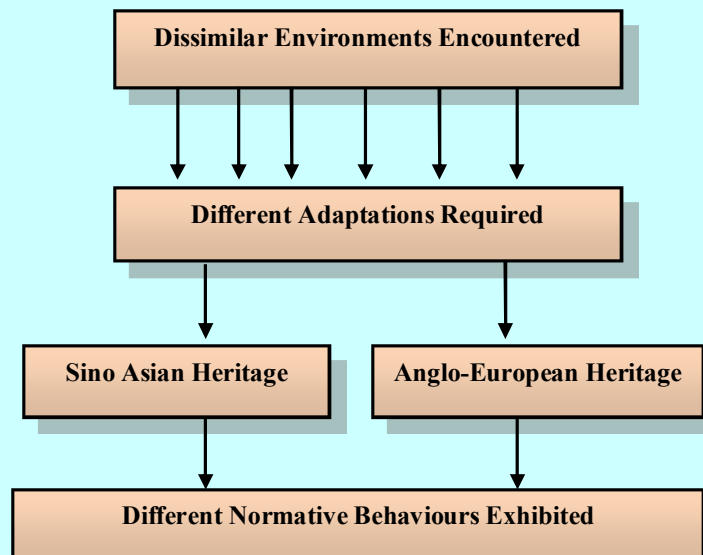
2.4.2 Culture's Foundations

Culture emerges from ecology and biology (Triandis 1994, Yang 1986) as the fundamental identifier of civilisations. While recognising the contribution of biological predispositions to cultural development, this thesis focuses on culture as a product of ecology. Herein, composite cultural antecedents transpire to manage societal and workplace situations, wherein diversity exists within and between cultures. Interior to each culture, some specific behaviours are promoted and other particular behaviours are restrained so that, 'the norm for society is the most generally accepted patterns of values, attitudes and behaviour' (Adler 2002, pp. 18-19).

Normative behaviour is contextual because different societies have dissimilar histories, dissimilar economic endowments, and different leadership structures. In this way, variations in normative behaviour exist between Sino-Asian and Anglo-European societies (Hofstede 1984), as recognised by the marketing (Steenkamp 2001, Nakata and Sivakumar 1996) and international business (Ralston, Holt, Terpstra and Yu 1997) literature. Figure 2.5, on the next page, illustrates this process.

For example, Redding (1990) found in interview-based research and secondary research Chinese society exhibits ‘strong vertical order, controlled behaviour and ritual deference’ (p.83) ‘limited and bounded trust’ (pp. 66-68) and ‘traditionalism’ (p.179). In contrast, Quigley (1961, p.336) describes Western society as, ‘optimistic, moderate, democratic, social and dynamic’. Thus, implicitly showing; Western society *vis-à-vis* Chinese society to have weaker vertical order, lesser control and ritual deference, greater trust and lesser emphasis on tradition. For this reason, this Thesis shall later newly develop the Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy constructs in order to empirically test the observations of Redding (1990), Fiske (1992) and Triandis (1994).

Figure 2.5: Dissimilar Environments and Normative Behaviours Exhibited



Regarding the *etic* approach to data analysis adopted, generalised statements are made about comparable data concerning ‘all cultures’ in the world and pertaining to a ‘single system’ so that newly found data are organised and classified in reference to a system, ‘which has been created by the analyst before studying the particular culture within which the new data have been found’ (Pike, 1954, p 8).

An alternative approach to investigating cultures, *not adopted by the thesis*, is emic analysis, which relates to ‘relatively homogenous and integrated behaviour’ or to a ‘culturally defined class of people to describe the pattern of that particular language or culture in reference to the way in which the various elements of that culture are related to each other in the functioning of that particular pattern, rather than an attempt to describe them in reference to a generalised classification derived in advance of the study of that particular culture’ (Pike, 1954, p. 8). Unlike the *emic* approach, the thesis decomposes *etic* constructs cross-culturally: Thus, traits exhibited are universal, yet at the level of their expression, are cross-culturally variable.

2.4.3 Defining Culture

Herskovits (1955, in Triandis 1994, p. 16) defines culture as, ‘the human-made part of the environment’. Correspondingly, in the Behavioural Sciences, culture is a product of the environment based on ‘a set of schedules of reinforcement’ (Skinner 1981, in Triandis 1994, p.16). The environment reinforces adaptive emitted random behaviour, which ultimately becomes entrenched and contextualised societal behaviour. Adaptive interactions (Triandis 1994) facilitate instrumental responses and make probable the prioritisation of modes of behaviour in answer to environmental encounters (Rokeach 1979). Thus, behaviours are collectively learned from familial

and societal associations. Afterwards, intergenerational information transfer, inside societies, institutionalises these instrumental responses. Once established, collectively learned behaviour becomes resistant to change:

‘Institutions once they become facts, reinforce the societal norms and the ecological conditions that led to them. In relatively closed society, such a system will hardly change at all.’ – (Hofstede 1984, p.22)

In considering Kroeber and Kluckhohn’s (1952) definition, we need to appreciate cross-culturally commissioning agents are not universal *etic* agents, because societal histories differ. In this sense, differing societies are the very embodiment of cultural diversity (Adler, 2002) and ‘cultures vary in solutions to common problems and dilemmas’ (Trompenaars and Hampden Turner 1998, p. 26).

According to Adler (2002, p. 18) ‘diversity exists both between and within among cultures’. Within each culture, certain specific behaviours are promoted, while other behaviours are restrained; whereby, ‘the norms for society are the most generally accepted patterns of values, attitudes and behaviour’ (Adler 2002, pp. 18-19). For this reason, on one hand, the literature finds Chinese society is highly influenced by Confucianism (Allen 1998, in Alon 2003, , Ralston, Holt, Terpstra and Yu 1997, Redding 1990, , Bond 1986, Pye 1985, Hofstede 1984 & 1997, Weber 1905, in Baehr and Wells, Eds. 2002), Taoism (Chen 1995, Redding 1990) and Buddhism (Chen, 1995, Redding 1990).

On the other hand, Western society is influenced by Christianity and the Classical Greek and Classical Roman civilizations (Huntington 1996, McNeill 1963, Quigley 1961, Wells 1937) and the Protestant Work Ethic (Weber 1905 in Baehr and Wells, Eds. 2002, and Redding 1990). In this thesis, it is posited, variations between Western society and Chinese society *a propos* Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy, which are newly introduced constructs. Taking societal norms and underlying constructs from the ecological environment to be highly stable, we can readily assert measurable societal behaviours are capable of being accurately measured given foreknowledge of pre-existing societal conditions. It therefore follows, societies that share similar environmental conditions are likely to share common cultural characteristics.

Conversely, societies with dissimilar environments apply alternative schedules of reinforcement, producing divergent, culturally assigned behavioural responses. Otherwise put, varied ecologically based schedules of reinforcement cause cultural deviation. Within this frame, this Thesis contends that Western and Chinese cultures are independently consistent and cross-culturally variant.

Given that normative behaviour is contextual it is no surprise then that variations in normative behaviour are found to exist between Chinese and Western society's (Steenkamp 2001, Ralston, Holt, Terpstra and Yu 1997, Nakata and Sivakumar (1996).

Hofstede (1984, 2001) sees the manner in which people learn, within society, to be analogous to computer programming. Mental programmes are developed from indwelling in the environment. Mental blueprints mould behaviour. Once acquired, these mental programmes are ingrained and

become difficult to unlearn. The environment, as the programming agent, determines the expressed behaviour by reflecting the communal mind of the social *milieu*.

In this vein, Hofstede (1991, p. 7) sees apt social *finesse* in culture articulated as, ‘the training or refinement of the mind’. The mind epitomising processes, by which individuals attain behaviours apposite of their own society, consists of ‘whatever it is one has to know or believe in order to operate in a manner acceptable to its members’ (Goodenough, 1964 p.36). Augmentation of mental programming is limited to the encapsulated endogenous aspect of the social environment: Hofstede (1984, p. 5) refers to such internally bounded expressions as ‘Culture One’.

Similarly, mental programming of the individual contained by society is implicit in Gulidford’s (1959, p. 13) earlier definition of personality within culture, which states that personality is, ‘the interactive aggregate of personal characteristics that influence the individual’s response to the environment’.

In contrast ‘Culture Two’ (Hofstede 1984) is the external appearance of shared societal characteristics to others providing the basis upon which people discriminate between societal groupings. Hofstede (2001, p. 9) defines Culture Two as, ‘the collective programming of the mind which distinguishes members of one group or category of people from another’. Culture Two assumes *etic* perspectives. Similarly, Triandis (1994) finds ecology to be culture’s programming agent, *from which*, the independent development of social behaviour is guided.

Kluckhohn asserts, 'culture is to society what memory is to individuals' (Kluckhohn 1954, p. 1967, in Trandis 1994, p. 15). Societies collectively recall cultural retrospectives to determine currently appropriate behaviours. Given these responses are entrenched, significant original cultural adaptations are rare. Correspondingly, cultural memory is long, with ideological culture and societal culture resistant to change (Lewis, 1969). Kluckhohn's description presents as a metaphor and is not truly definitional.

Nonetheless, elsewhere and otherwise, Kluckhohn collaborated with Kroeber to produce another definition of culture, which is substantive and more clearly delineated. Accordingly, Kroeber and Kluckhohn (1952, p. 181, in Adler 2002, p. 16) offer the following more comprehensive definition of 'culture', after a meta-analysis as to culture's meaning:

'Culture consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiment in artefacts; the essential core of culture consists of traditional (i.e., historically derived and selected) ideas and especially their attachment to values; culture systems may on the other hand, be considered as products of action, on the other, as conditioning elements for future action.'

Herein, Kroeber and Kluckhohn's (1952, p.181, in Adler 2002, p. 16) definition holds antecedent influencing agents determine the present, by emphasising 'historically derived and selected ideas', which connect to and assign cultural values. Herein, supporting the position adopted by the Thesis, that the environment elicits societal culture and social behaviour. In this fashion, Kroeber and Kluckhohn (1952) view traditional values, as 'conditioning' agents instrumental in determining

current behaviour and forming 'future action'. As a result, the environment strengthens emitted random behaviour, which becomes ingrained as contextualised societal behaviour.

Further, not all individuals in a society conform to all of the specific cultural norms, rather cultures exhibit 'accurate stereotypes' (Adler 2002, p. 19). For example, notwithstanding sporadic incongruent individual behaviours, greater cultural uniformity manifests as normative societal behaviour becomes evident, via aggregation into larger groups, such as, within organisations 'coordinating management values and ethical standards' (Adler 2001, p.32), and for determining the locus of control in society (Smith, Trompenaars and Dugan 1995, Rotter 1966).

In continuing the Literature Review, we find Triandis (1994, p. 22) offers a further inclusive definition of culture:

'Culture is a set of human made objective and subjective elements that in the past have increased the probability of survival and resulted in satisfactions for the participants in an ecological niche, and thus became shared among those who communicate with each other because they had a common language and they lived at the same place and time.'

Above, objective culture includes tools and artefacts (Triandis 1994, Lewis 1969, Kroeber and Kluckhohn 1952, in Adler 2002); whereas, subjective culture includes 'categorisations, associations, norms, roles and values' (Triandis, p.2). In this context, the Thesis accepts that objective culture essentially refers to physical objects, yet places its own emphasis on subjective culture.

Kroeber and Kluckhohn (1952) and Triandis (1994, p. 2) state culture is divisible for example into ‘elements’ or ‘symbols’. As such, culture is not a stand-alone entity. Instead, culture is composed of smaller units.

Two comprehensive definitions (Kroeber and Kluckhohn, 1952 and Triandis, 1994) reveal different perspectives on the character of culture. Succinctly put, Kroeber and Kluckhohn (1952) are saying that, what worked in the past is inclined to be carried by ‘human groups’ into the future, whereas Triandis (1994) argues we are who we are because of previously learned survival values.

The Thesis, after considering the aforementioned, offers an alternative working definition of culture:

‘Culture is a set of human made objective and subjective elements, including artefacts, ideologies, traditions, communications and relationships, which were previously positively reinforced by biology and the environment. Particular human groups believe these relationships warrant accommodation in the current ecological and biological niches, representing a significant indication of future action by particular human groups.’

- Peter Sinclair 2010

We adopt the aforementioned definition of culture into the Thesis in order to:

- (a) Integrate key elements of Kroeber and Klucholm’s (1952) and Triandis’ (1994) definitions,
- (b) Further emphasise environmentally-based instrumental conditioning in eliciting normative behaviour,

- (c) Place culture's dynamism on a time line extending from the past to the present and into the future, and
- (d) Recognise the antecedent contribution of biology.

Above, we have reviewed and defined culture and found normative behaviour emanates from each culture's embeddedness in a specific ecology. Moreover, while some behaviour is essentially globally inclusive, localised behaviours affix to particular cultures.

Next, we review three major non-empirical contributions from the literature revealing three perspectives on culture's constituent parts. These studies are purposively selected and were integrated, because, each alone, provides important information; and, when unified provides a fuller picture of the field of study relating cultural antecedents, as is offered by the Thesis. An original integrated non-empirical model will be presented in the next section: This action will allow for a transition from the non-empirical realm to a rigorous empirical study, based on three important qualitative contributions from Fiske (1990, 1992), Triandis (1994) and Redding (1990).

-Please Turn page-

DEVELOPING A NEW INTEGRATED QUALITATIVE MODEL

- **THREE PERSPECTIVES ON CULTURE**
- **ELEMENTARY FORMS (FISKE)**
- **CULTURAL SYNDROMES (TRIANDIS)**
- **CHINESE SOCIETY & WORKPLACE (REDDING)**
- **WESTERN SOCIETY & WORKPLACE (HISTOLOGIES)**



ORIGINAL INTEGRATED NON-EMPRICAL MODEL



ORIGINAL INTEGRATED EMPRICAL MODEL

(CHAPTER FOUR)

2.5 DEVELOPING A NEW INTERGRATIVE QUALITATIVE MODEL

2.5.1 Three Perspectives On Culture's Constituent Parts

The relationship between culture and the environment has been established and cultural diversity shown to be a product of environmental variability. Additionally, the literature supports using societal culture and social behaviour as grouped-constructs. Normative behaviour is derived from specific configurations of essential yet rudimentary components and 'cultures develop conventions about what to pay attention to and how to weight the parts' (Triandis 2001, p. 908). Thus, the Thesis recognises subjective culture is divisible into recognisable constituent 'elements' (Fiske 1990, 1992 or parts of Triandis 1994), which can direct the development of new constructs for empirical investigation.

We examine, therefore, three frameworks relating to cultural antecedents, commonly referred to in the literature, as posited by Alan Page Fiske (1990, 1992), Harry Triandis (1994) and S. Gordon Redding (1990)⁵. These researchers emphasise socio-anthropological perspectives in their work, which can be contrasted with the organisational psychology perspective favoured by Hofstede. In the following discussion, each of the investigations analysed, is contrasted with other relevant studies, to substantiate claims.

⁵ The goal was to unify the essential essence of each respected contribution, but not to capture every aspect of each theory.

2.5.1.1 Fiske's Four Elementary Forms of Social Reality

Fiske (1990, 1992 in Triandis 1994) postulates that social reality is derivable, based on 'elementary forms'. There are four elementary forms (1) communal sharing, (2) authority rank, (3) equality matching and (4) market pricing (Fiske 1990). The basic forms are present in all societies and therefore, *etic*. Localised representations of these forms exist in specific cultures.

When paired communal sharing and authority ranking relate positively to collectivism (Triandis 1994). Collectivism is associated with Asian society. Conversely, equality matching and market pricing positively relate to individualism (Triandis 1994). Individualism is associated with Western society. Hofstede (2001, p.7) notes:

'Individualism stands for a society in which the ties between individuals are loose. Everyone is expected to look after him/herself (sic) only and her/his immediate family only. (Whereas,) Collectivism stands for a society in which people from birth onwards are integrated into, string, cohesive in-groups , which throughout the person's lifetime continue to protect them in exchange for loyalty'.

We now consider Fiske's elements in context with collectivism and individualism as products of societal syndromes. Community sharing and authority ranking are held to relate to individualism in Asia; while, equality matching and market pricing are understood to be associated with individualism.

Communal sharing and authority ranking (Fiske)

We now emphasise the communal sharing and authority ranking social realities, because in combination the two elementary forms of social reality underpin collectivism.

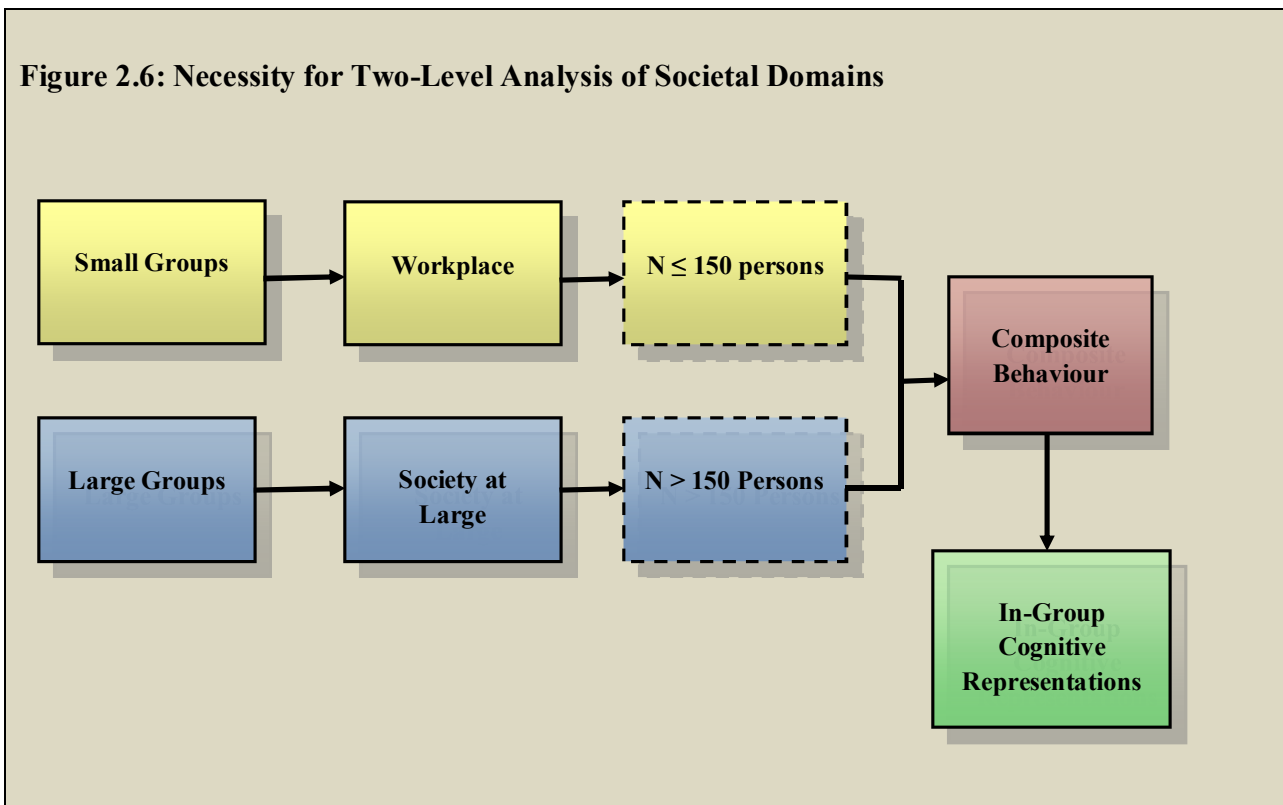
Communal sharing: Community sharing refers to a group dynamic, whereby members of the group become ‘indistinct ... with respect to dimensions to which people are attending’ and shared cohesion supports a boundary between the group and outsiders (Fiske 1991, p. 13). ‘People in such a relationship are oriented toward the group and, in direct or implicit contrast to outsiders’. Communal sharing, in this way, is an elementary form closely associated with a family-style hierarchical structure and communal needs (Fiske 1990, 1992 in Triandis 1994). In this fashion, Fiske (1990, 1992 in Triandis 1994) asserts intra-societal standards communal sharing engages the degree of contribution and allocation of resources, according to group predispositions.

In this frame, the Thesis acknowledges our social reality is played-out in two arenas: (1) a broad societal arena, and (2) a smaller arena of personal associations. In advanced societies (e.g. modern capitalist societies), on one hand, we have a need for community utilities shared by thousands perhaps millions of people; in this instance, communal sharing is not determined by personal relationships. On the other hand, our own personal social reality is limited to a tight number of meaningful personal relationships (Dunbar 1996), so that social science researchers consider a typical individual’s cognitive capacity limited to 150 tight relationships⁶ (Gladwell 2000).

⁶ Thus, a distinction exists between large and groups, as with Society-at-Large (large group) and in the workplace (small group).

Thus, Dunbar states:

‘...the figure of 150 represents the maximum number of individuals with whom we can have a genuine social relationship, the kind of relationship that goes with knowing who they are and how they relate to us.’⁷ - (Dunbar 1996, p. 160)



It is therefore argued, cultural research adopts a new *two-level* approach by measuring constructs at the level of society-at-large and the domain of interaction: e.g., the workplace. However, the current

⁷ The Thesis will repeatedly return to Workplace and Society-at-Large throughout its chapters; wherein, argument will assert measurement at two levels is apposite, yet currently and unrecognised in business studies research methodologies.

literature finds researchers extrapolating to national constructs based on questions related to workplace relationships (e.g. Hofstede 1984). To address this discrepancy in the literature, the Thesis adopts Dunbar's stance by developing a two-level analysis as illustrated in Figure 2.6.

In this manner, individual group members already know the fundamental shared norms and values, relating to their society. Once learned, shared cognitive representations reduce the effort required to appreciate social realities and become manifest as in-group cognitive representations: e.g. across societal cultures relating to new product-process development team (Romney, Boyd, Moore, Batchelder and Brazill 1996).

The Thesis will repeatedly return to this distinction in latter chapters, including quantitative analyses of Society-at-Large and behaviour in the Workplace, representing large and small groups, respectively. Thus, the reader will be called on to recall this two-group distinction.

We now review authority ranking (Fiske, 1990):

Authority ranking: Authority ranking refers to a 'transitive, asymmetrical relationship' having an ordered hierarchy, control of subordinates and relationships based on inequality. Members, 'pay attention to status and divide according to rank' (Fiske 1990, p. 14). Authority ranking differs from overt authoritarianism, because 'subordinates believe their subordination to be legitimate' (Fiske 1990, p. 14). Routinely, 'inferiors are differential, loyal and obedient'. In this way, authority

ranking posits social relationships in hierarchies and, vertical order (Redding 1990) and high power distance (Hofstede 1984, 1997).

Consequently, Chinese capitalism is modelled on the Confucian family, wherein, cardinal relationships are unequal and not proportional between the parties (Davies, Leung, Luk and Wong in Alon 2003⁸, Chen 1995 and Redding 1990). Similarly, Lucian Pye (1985) notes regarding the diffusion of accountability:

‘The concerned and distant ‘father’ that underlies the Chinese style of paternalistic authority is kept free to keep his own counsel and have his own plans, which everyone assumes is good for the family ... power is not meant to be shared and there is little delegation of authority...’ (Pye 1985, p. 198)

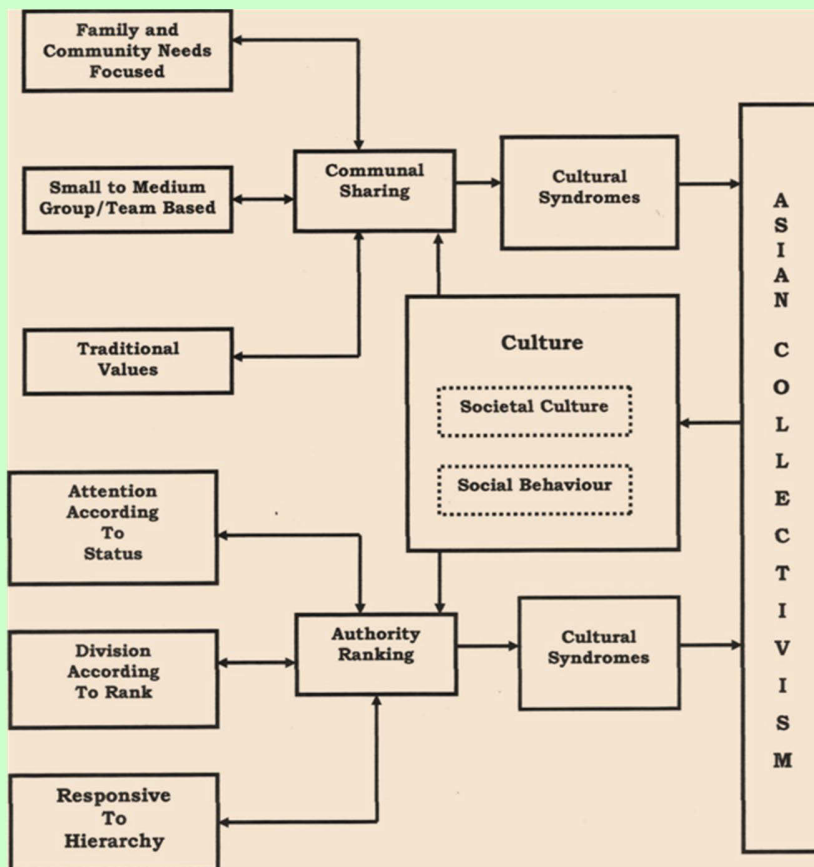
The patrimonial leader’s power is disproportionate to other persons with whom there are exchanges. Similarly, in business, ‘the boss, for his part, must be properly dignified (*tsun-yen*). The character *tsun* conveys the idea of honour; while the character *yen* connotes stern, strict, dignified and interesting enough, *father*’ (Fenn 1963, in Silin 1976, p.66).

Having discussed communal sharing and authority (Fiske 1990) as it relates to Dunbar’s (1996) contextualisation of groups, we now review a societal order where authority ranking and communal sharing are combined.

⁸ This must to rule is extended to from family (*jia jen*), to familiar persons (*shu ren*) to outsiders (*sheng ren*).

Communal sharing and authority ranking elementary forms (Fiske, 1990) can be combined to represent higher order societal constructs (Triandis, 1994). The new model, Figure 2.7, expands Triandis' contention as applied to Asian Collectivism by positing societal syndrome components and recognising a two-level societal reality at the level of society at large and social behaviour in the workplace. Communal sharing and authority ranking represent elementary forms (Fiske 1990) that support the high order Asian Collectivism construct (Triandis, 1994), to which, for the Thesis, the two-level structure and the notion of cultural syndromes are newly added.

Figure 2.7: Communal Sharing and Authority Ranking and Asian Collectivism



Having reviewed community sharing and equality matching, we next assess Equality Sharing and Market Pricing.

Equality sharing and market pricing social realities, in combination the two elementary forms of social reality underpin individualism in Western societies.

Equity matching: Equity matching is ‘an egalitarian relationship among peers who are distinct but coequal individuals’ (Fiske 1991, p.14-15). People are individualised, yet, normatively equal. In this respect reciprocal exchange ‘redresses imbalance’ (Fiske 1991, p.15).

In this manner, the Late Diana, Princess of Wales, had Prince William and Prince Harry wait in a queue with general members of the Public to pay for a food snack. Here, equity matching connects closely to low vertical order (Redding 1990), as associated with normative behaviour patterns in modern Western civilization, including the Anglo-West. Conversely, around the wealthy ‘The Peak’ area in Hong Kong, the local police are reluctant to stop traffic offenders for fear of whom they might pull over. Western society therefore demonstrates high equity matching, whereas, Han Chinese society exhibits low equity matching.

Market Pricing: Market pricing is ‘a relationship mediated by the values determined by the market system. Individuals interact with others when they decide it is rational to do so in terms of these values (Fiske 1991, p.15). Herein, market pricing represents ‘exchange’ and ‘proportionality,’ as in Western contracts (Triandis, 1990, pp. 149-150).

Accordingly, when social exchanges take place, there can be inequitable exchanges in social interactions. Exchanges can be financial or relate to 'love, information, goods, services, labour or time' (Triandis 1994, p.150). Thus, according to Muller (2004, in King 2004, p.1 Online), market pricing behaviour 'allows people to engage and disengage with strangers on a flexible, voluntary basis' making market pricing the best mode of interaction for large, complex societies'. Thus, Muller's perspective tracks close to the exchange processes in modern Western capitalism based in part on Adam Smith's *An Inquiry into the Nature and Causes of The Wealth of Nations* (1776, in Joyce (Ed.) 2001) and the Protestant Work Ethic (Weber 1905, in Baehr and Wells (Eds) 2002, Redding 1990).

Here, Adam Smith states:

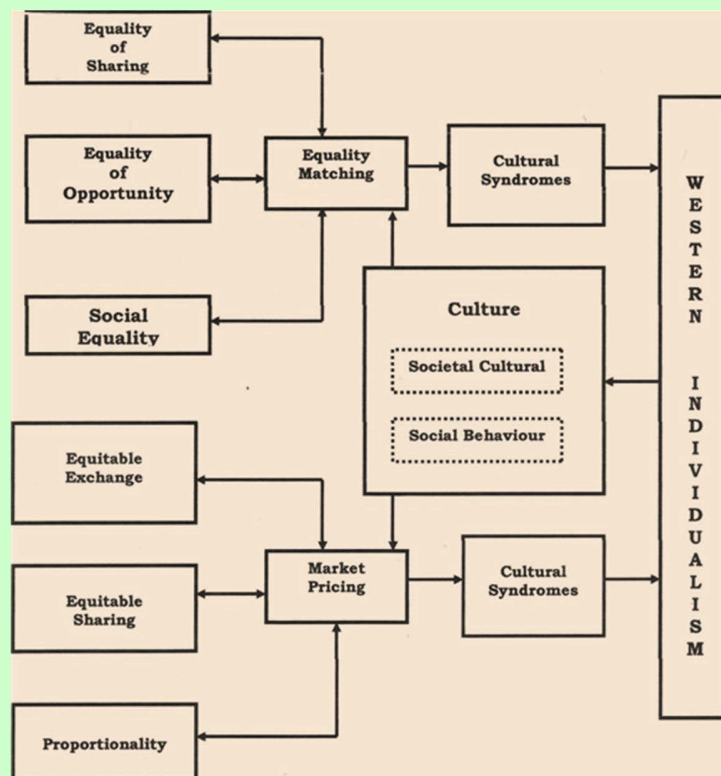
'Whoever offers to another a bargain of any kind, proposes to do this. Give me what I want, and you shall have this which you want, is the meaning of every such offer; and it is the manner that we obtain from one another the far greater part of those good offices which we stand in need of. It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love.' (Smith 1776, in Joyce (Ed.) 2001)

Smith (1776) makes the point that items of value are exchanged in the market in response to personal need. In this regard, 'self-love' clearly exemplifies individualism. In concert, the Thesis maintains Market Pricing underlies high individualism, and high individualism reinforces the

market pricing elementary form. In support of the claims of the Thesis, Weber 1905 in Baehr and Wells, Eds. 2002, states in context with the modern era of capitalism:

‘Today’s capitalist economic order ... into which a the individual is born and in which practice is for him, at least as an individual, simply given, an immutable shell (*Gehäuse*), in which he is caught up in relationships of the market, the norms of its economic activity’

Figure 2.8: Relationships of Equality Matching and Mark Pricing in Western Society



Moreover, equality matching and market pricing characterise the high order Western Individualism construct (Triandis, 1994).

Figure 2.8 expands Triandis' contention as applied to Western individualism by positing societal syndrome components and recognising a two-level societal reality and again showing societal cultural in society at large and social behaviour in the workplace. Equality matching and market pricing epitomise elementary forms (Fiske, 1990) that embrace the high order Western individualism construct (Triandis, 1994). For this Thesis, the two-level structure and the perception of cultural syndromes are originally added.

Thus, communal sharing and authority ranking underlie the cultural syndromes that point to individualism, as seen in Western societies: e.g., Anglo-Western society.

Next, we review (1990) four elementary forms in the context of Triandis' cultural syndromes.

2.5.1.2 Triandis' Cultural Syndromes

The thesis recognises Fiske's (1990) four elementary forms to be the *building blocks of cultural syndromes*, as Triandis (1994) notes. Herein, we see subjective cultural syndromes as aggregations of the four elementary factors. Given elementary forms represent fundamental societal constructs, the Thesis readily adopts the following definition for each culture syndrome:

‘a pattern of beliefs, attitudes, self-definitions , norms and values that are organised around some theme that can be identified in a society.’ (Triandis, 1994 p.2)

In this manner, basic societal threads weave the ‘pattern’ of each cultural tapestry. The aforementioned milieu introduces key cultural syndromes that include complexity, tightness and individualism (Triandis 1994).

Cultural Complexity (Triandis)

Complexity refers to the nature of societal development and intricacy (Triandis (1994). Low complexity is associated with simple nomadic and basic agrarian societies having low population densities. Conversely, high complexity is connected to advanced industrialised and information societies having high population densities (Triandis 1994). Furthermore, the level of complexity in a society, affects social behaviour, the configuration of the family unit, interpersonal and group behaviours, interdependence and autonomy.

China is an example of a complex society. Western countries are more complex still having more highly developed information networks and richness. In this structure, the West was already very complex, even before the Enlightenment and Great Divergence. Afterwards, the West entered an era of rapid development and high innovation until the present day.

Loose and tight societies (Triandis)

According to Triandis (1994), societies can be either loose or tight. China and Japan are tight cultures, wherein, divergence from societal standards are strongly discouraged. Here, Redding (1990) notes with regard to the rigid Chinese state that ‘... the Tiananmen⁹ Square massacres of 1989 were part of a long tradition’. Furthermore, power is expressed with favour and

⁹Heavenly Peace.

indiscriminately, because that is the essence of power in the hands of those at the top of the hierarchy.

Hsu (1981) asserts that historically the Chinese people have tended to depose unwanted leaders, yet, *very quickly*, the populous fell back into their prior societal rank. Here, the Chinese mode of behaviour is unlike the French Revolution (1789) and Russian Revolution (1917), where cardinal orders of rank changed significantly, after the uprisings.

Also, in China, even modern China, Confucian instruction is embedded in the culture so that the State coerces people (largely by using the fear of punishment) that they must accept their prescribed roles. This ensures that prescribed roles are maintained (Redding, 1990 p.45).

On the other hand, in Australia and the United States society is loose, because these Western countries have reformed from the Roman *patris potestas* form of patrimonial rule, to now favour more institutionalised civil laws allowing individuals considerable freedom theoretically in common equality before the State (Redding, 1990). In the West, civil law, when applied, is typically addressed to the individual, rather than the collective. Having established ample boundaries for freedom of expression, Western individuals are:

‘... left with much discretion and initiative and in practice encourage to exercise them. The stability and order of Western society rests, obviously with variations, on the acceptance of boundary constraints, and the principles they rest on, by more or less independent individuals’.

– Redding (1990, p.45)

Simply put Chinese society is tight, while Western society is loose.

Individualism-Collectivism (Triandis)

Hofstede (2001, p. 225) draws a distinction between individualism and collectivism:

‘Individualism stands for a society in which the ties between individuals are loose: Everyone is expected to look after his himself/herself and her/his (sic) immediate family only. Collectivism states for a society in people from birth onwards are integrated into strong, cohesive in-groups, which through a person’s lifetime continue to project them in exchange for unquestioning loyalty’

Reflecting on this definition, we can first look at individualism, as a movement, with roots in England, where there was equality among peer groups and by way of extension self-determination in New World countries, such as, the United States (Hsu, 1981). Likewise, Schwartz’s (1992) value surveys suggest affective autonomy, intellectual autonomy and egalitarian commitment to be associated with individualism. Tromprenaars (1998, p. 68) notes of individualism in the workplace, decisions are made quickly by people who have been delegated ‘personal responsibility’. Thus, there are low vertical power structures regarding individualism in contrast with collectivism. From the perspectives of Equality Matching and Market Pricing (Fiske 1993), synchrony is achieved by minimising differentials in status.

Moreover, Triandis (1994, pp. 164-177) develops the individualist theme, wherein, the self is developed independent to in-groups ‘success is attributed to ability, there is interaction with out-groups, rigorous debate and confrontation is permitted among within in-groups, and the individual

may be a member of many groups'. Relationships will exist between many groups for the individuals and such horizontal relationships shall tend to be casual (Triandis 1994).

Chinese paternalism', 'personalism' and 'insecurity' are cultural dimensions discussed in the Asian socio-organisational literature, as 'legacies of China's social history', particularly in relation to Chinese family businesses (Redding 1990, p. 83). Paternalism, personalism and insecurity are manifested at the level of the organisation, as 'Patrimonialism', 'obligation bonding' and 'systems of mistrust and defensiveness' (Redding 1990, p.83), as indicated in Figure 2.9, over the page.

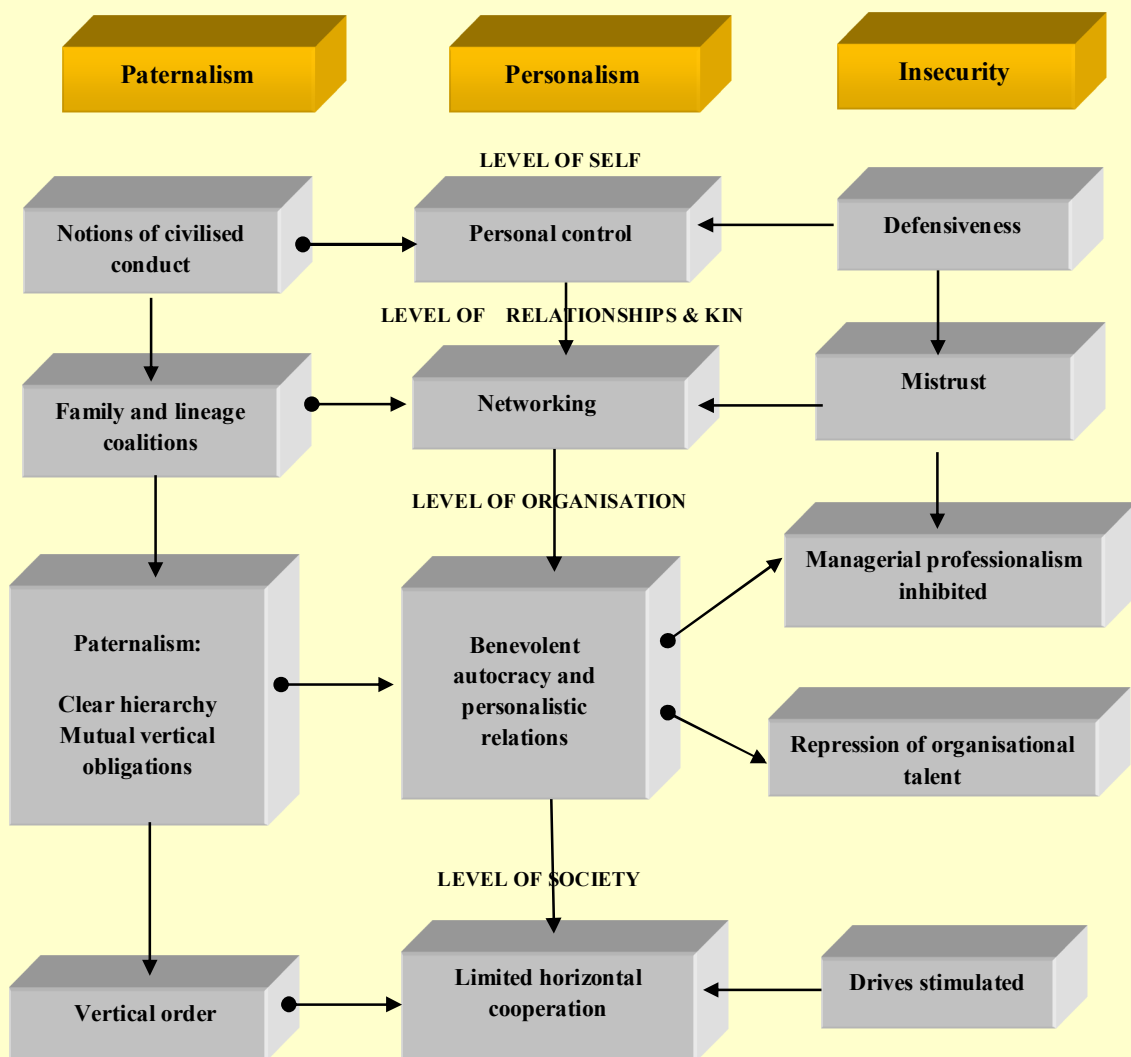
2.5.1.3 Redding's Chinese Capitalism

Redding (1990, p.83) asserts that at the level of the organisation (workplace), Chinese participants display Patrimonialism and Paternalism comprised of a 'clear hierarchy', mutual 'vertical obligations' and power in ownership supporting personal obligation bonding, exhibiting 'benevolent autocracy' and 'non-rational power and control'.

Consequently, when coupled with mistrust, defensive responses entertain inhibition of managerial professionalism, repression of organisational talent and product specialisation.

The aforementioned Chinese organisational cultures sit well with 'vertical order', 'limited and bounded trust' and drives towards insecurity. 'Strong vertical order', 'discipline', 'controlled behaviour' and 'ritual deference' are associated with Paternalism and associated with 'highly specific forms of horizontal cooperation based on obligation exchange (Redding1990, p. 83): See Figure 2.9

Figure 2.9: The Spirit of Chinese Capitalism (abridged from original source: Redding 1990, p.83)



According to Redding (1990, pp. 3-4), the Chinese family business operates like a ‘family fortress guarded against intrusions from the outside’, and that even larger Chinese companies retain these traditions. Redding’s (1990) assertions are consistent with Hofstede’s (1991, pp. 59-60) research, which states that from childhood Chinese family members take their bearings from their kin to develop a strong sense of ‘we’, thus being mentally programmed into a position of ‘subordination ... the complement of leadership’ (Bond 1991, p. 210).

Similarly, in the Chinese business the family acts as a template for patriarchal dominated operations with the subordinates assuming ‘cardinal’ ranks in relation to a father-boss; wherein, with employee assumes a subordinate rank relationship and individualism as not heralded (Bond 1991, Redding 1990, Hsu 1982, Silin 1976).

Along comparable lines, when I was a member of the general management team with a publically listed Singaporean company, the Chinese staff would often refer to the Company as being like Singapore and its Managing Director (my immediate senior), as being akin to Lee Kuan Yew. All power is ‘bound up’ with a patriarch, who will retain his prestige and control by ‘preventing other executives from making highly valued contributions which symbolise their (*i.e. the subordinates*)’ qualities, as leaders’ (Redding 1990, p. 129)¹⁰.

¹⁰ Two Indian staff members noted these cardinal patterns themselves, remarking to me in private, that they could see flaws in the Managing Director’s arguments at times, but felt it was necessary to flow with the ‘Chinese way of doing things’, because they needed to keep their jobs and work with their Chinese peers.

Further, in the context of the Chinese family business, Redding (1990, p.130), having studied Pye (1985), Deyo (1979, 1983), Silin (1976), concluded that familial obedience, leads to, quote:

- Dependence of the subordinate, as a mindset
- Personalised loyalty to willingness of subordinates to conform
- Authoritarianism is modified by sensitivity to subordinate's views'
- Authority is not divisible when it becomes so clearly identified with a person
- Aloofness and social distancing in the hierarchy
- Allowance for the intensions to remain loosely formulated/the leader as exemplar and 'teacher' (Redding 1990, p.130)

The aforementioned cultural findings clearly show the closed disposition of the culturally Chinese-influenced organisation, which extends beyond the small to medium Chinese enterprise (Redding 1990); whereas, successful new product development 'requires "efficient internal informational channels" and clear effect paths to all levels of management ... regardless of where the venture sits in the hierarchy' (Matheson *et al* 1998).

In the West, elevation of 'human interactions to a point where information sharing leads to a shared vision, hidden agendas (sic. agenda) are replaced by mutual understanding and synergistic interactions become routine (Jassawalla and Sashittal 2000) and effective sharing of knowledge can be seen as a creative synergy between groups (Nelson and Cooperider ,1996).

Further, Nelson and Cooperider (1996, p. 423) found in the 'casual relationships between mutual trust, influence and shared knowledge' that mutual trust and influence coupled with the sharing of knowledge, 'positively related to the performance of the information systems organisation'.

Thus, the qualities required of an effective and innovative product-process development environment stand in stark contrast to the ‘vertical order’ of paternalism, the ‘non-rational power and control of personalism’, and the managerial ‘defensiveness’, the ‘mistrust’, the inhibition of professionalism, the ‘repression of talent’ and the insecurity typically present in the Chinese Business, both large and small (Redding 1990, p. 83).

2.5.2 New Non-Empirical Models: Integrating Seminal Culture Literature: Anglo-West And Han-China

The original models shown in Figures 2.12 and 2.13 extend on Triandis’ (1994) recognition that Fiske’s elementary forms underlie cultural antecedents in attendance within societies. In Chinese society, the Triandis’ cultural syndromes (1994) of complex culture, tight culture and vertically collective culture are prejudiced by high communal sharing, high authority ranking, low equality matching and low market pricing. On the other hand, Western society is predisposed towards a highly complex culture, loose culture and individualist culture (Triandis 1994) as influenced by high communal sharing, high authority ranking and low equality matching and low market pricing. Hereafter, we can separate Triandis’ societal syndromes into society at large and social behaviour in the workplace. As Redding’s (1990) investigations primarily focused on China; assumptions based on the wider literature, were made in relation to Western society.

All three socio-anthropological contributions adopted are held to have high merit; yet, to be ‘fit for purpose,’ the Thesis must adopt more than one model to better claim general operationalisation from non-empirical literature to empirical tests.

Integration of the decisive works conducted by the three renowned theorists draws from the core the of the non-business studies discipline to apply the findings of subject specialists. In this frame, Figures 2.12 and 2.13, developed from the literature review, integrate the research contributions of Alan Page Fiske, Harry Triandis and S. Gordon Redding, to find the *fundamental* patterns between societal behaviour and social behaviour for Chinese society and Western society, respectively, within their particular environmental and biological circumstances.

The integration of three established works required the transliteration of terms expressed to designate the new societal syndromes, which have now been confirmed by Measurement Model assessment (Chapter Six). While the societal syndromes tested are decidedly original, their formation was made possible by the quintessential¹¹ integrity of Alan Page Fiske, Harry Triandis and S. Gordon Redding's contributions.

The Thesis therefore presages:

- In Chinese society low community sharing, high authority ranking, low equality matching and low market pricing enables complex, tight and vertically collective cultural syndromes. The patterns of societal behaviour are high vertical order, low horizontal order and high traditionalism; whereas, the patterns of social behaviour are high personal secretness, high personal control and limited and bounded trust¹².

¹¹ Not one express individual template was followed to develop original Society Syndromes, rather the composite essence of the extant three contributions was captured for empirical testing in the field

¹² Limited and bounded trust does not appear in Figure 2.12, because its contra effects relate to pluralism as developed later in the Thesis.

- In Western society high communal sharing, low authority ranking and high equality matching and high market pricing facilitates highly complex, loose and individualist cultural syndromes. The logically assumed patterns of societal behaviour are low vertical order, high horizontal order and low traditionalism.

As shown and described in Figures 2.10 and 2.11, integration of the literature is supported not only by the three major studies applied, but also by the other scholarly citations reviewed. Herein, the essentially qualitative literature unmistakably points to a differentiation between Chinese society and Western society on three key dimensions: Vertical Order, Horizontal Order and Traditionalism. Moreover, any new quantification and refinement of the present qualitative research shall prove an enhancement on earlier less socio-anthropologically tethered quantitative contributions. In this frame, the Thesis later develops three new more advanced empirical scales: viz. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy to extend the declared field of study.

-Please turn page-

Figure 2.10: Literature Integration – New Model for Chinese Society

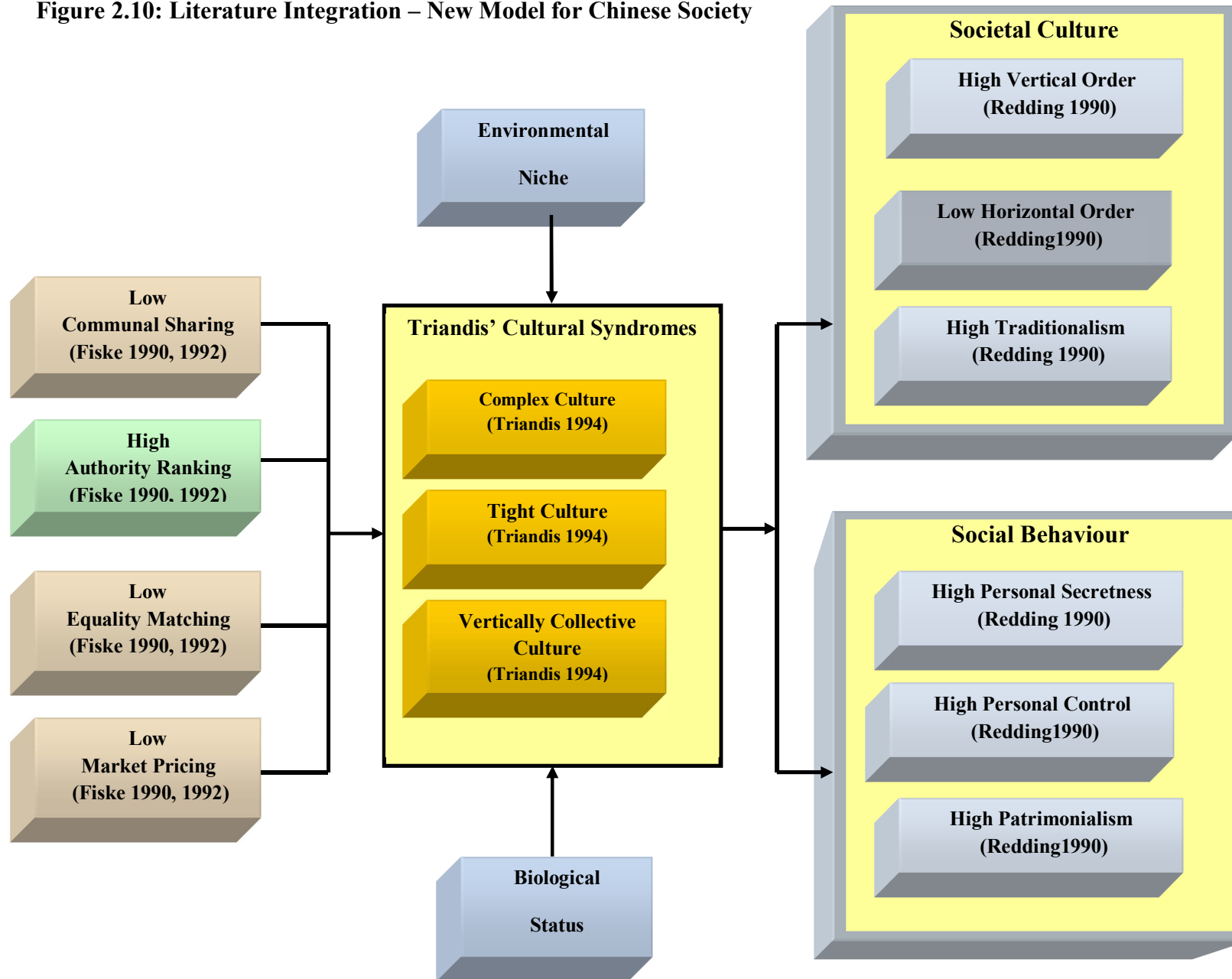
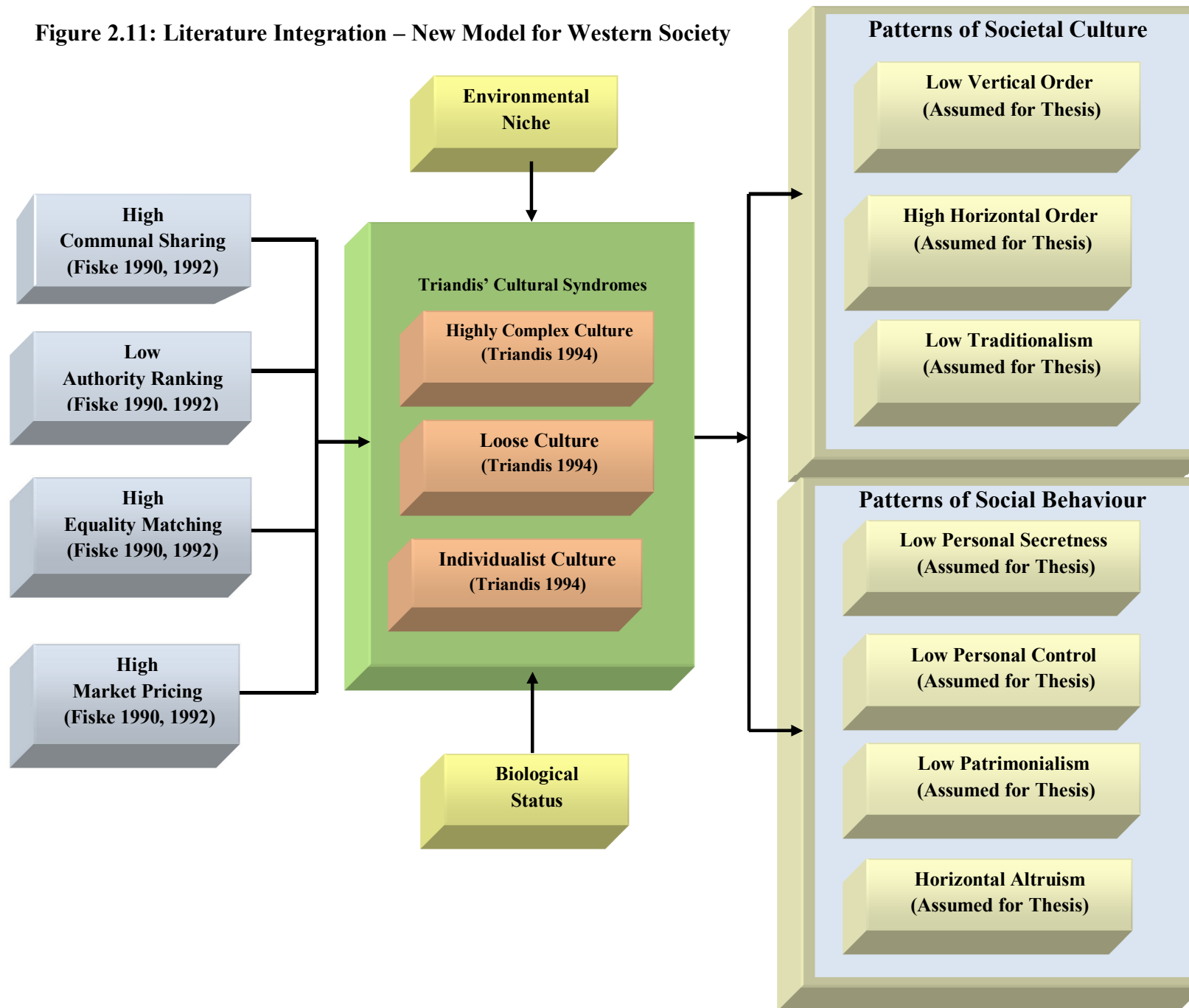


Figure 2.11: Literature Integration – New Model for Western Society



2.6 LITERATURE REVIEW PART I: SUMMARY AND CONCLUSIONS

Chapter Two adopted the Behavioural Approach (Davis 1971) of comparative studies to apply the three parent disciplines of Knowledge Management, New Product Development in Marketing and Cultural Studies, in order to build the preliminary framework for the investigation into the effects of Cultural Antecedents on Knowledge Building and Knowledge Discovery in New Product-Process development. For the first time, the scope of the model under examination is enhanced to incorporate the Marketing and Research and Development Interface on a primary path model, having Knowledge Building and Knowledge Discovery intercede between the Cultural Antecedents and Final Product-Process Conformance Outcomes.

Drawing from the cultural-anthropological literature, it was shown, the investigation of teams within cultures, needs to be measured at two levels: i.e. society at large and small groups less than 150 persons (Dunbar 1996), as found in the workplace.

From the analysis of the literature the Thesis two new models were developed. The first model illustrated the necessary role of Knowledge Management in achieving New Product-Process Conformance Outcomes. The second model challenged the practise of measuring cultural antecedents at only one level, herein, newly substituting a two-tier (two-level) structure, as a new to business studies, theoretical design and application imperative.

High product-process transformation was held to require high personal commitment to Knowledge Sharing. The literature indicated that high Knowledge Sharing supported improved communication and enhanced information flow sustaining Creative Synergies. Greater Knowledge Building was found essential, for high transformational product-process requirements.

The Literature Review (Part 1) revealed Chinese society and Western society demarcated on key cultural antecedents. Vertical order and horizontal order and traditionalism were seen to be associated with societal culture. Yet, qualitative research appeared too fragmented and required greater integration. The qualitative studies conducted by Fiske and Triandis were enmeshed to provide patterns of societal behaviour and patterns of social behaviour in Chinese society and Western society. Quantitative research would benefit from a contribution strongly connected to meaningful socio-anthropologically provided scales.

Chapter Two drew from the wider literature, three seminal contributions; viz. Fiske, Triandis and Redding; for successful integration into a new non-empirical *Gestalt*; wherein, the sum of the extant contributions is further enhanced through integration. It is argued that the third original, unified model, which emerged out of this process, is better placed to found a basis for a generalisable template, allowing for:

- (a) An improved, more comprehensive non-empirical structure, and
- (b) A foundation to start and build multiple empirical models, as confirmed for Chinese society and Western society in Chapter Six and Chapter Seven.

The third original non-empirical model, incorporates histologies, as do Chapter Three and Chapter Four, to ensure all scales, subsequently developed, are of an enduring character and not a mere, transient contemporaneous manifestation.

Review of the Japanese Management Systems demonstrated in showing that pluralism exhibited by *Ringi seido* allows for greater team autonomy than Confucian cardinal rank-based hierarchies. Herein, vertical dimensionality and horizontal dimensionality are seen as

distinct. Moreover, pluralism is associated with the feudal histories of the West and Japan, but not China.

Overall, a better understanding of the effect of cultural antecedents on Knowledge Discovery in new product-process has been achieved, through development of at least three original non-empirical models. Unification of existing non-empirical knowledge and the re-designation of current cultural antecedents facilitated in future chapters, the building of new empirical models, recognising the original empirical Cultural Syndromes, Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy in society at large and at the workplace, as tested with favourable results in Chapters Six, Seven and Eight.

2.7 NEXT CHAPTER

Chapter Two reviewed Literature pertaining to the three parent disciplines and related topics. Next, Chapter Three (Literature Review Part II) shall apply deep histological analyses to enhance our understanding of the discoveries made in Chapter Two, Furthermore, in Chapter Three, two new meta-constructs, Anglo-Western Dynamic Transformationalism and Sino-Homeostatic Traditionalism are to be presented.

-Please turn page-

CHAPTER THREE

LITERATURE REVIEW: PART TWO

- **CHINESE AND WESTERN HISTOLOGIES**



- **VERTICAL ORDER**
- **HORIZONTAL ORDER**
- **TRADITIONALISM**



- **WESTERN DYNAMIC TRANSFORMATIONALISM**
- **CHINESE HOMEOSTATIC TRADITIONALISM**

CHAPTER THREE

LITERATURE REVIEW AND EVALUATION – PART II

‘Tell and I’ll forget; show me and I may remember; involve me and I’ll understand.’– Chinese proverb

3.1 INTRODUCTION

3.1.1 Chapter Synopsis

Deep histological analyses of Chinese and Western society ratify the fundamental discoveries pertaining to cultural expressions found in Chapter Two. China has exhibited high vertical order marginalised horizontal order and high traditionalism for centuries. When these key cultural antecedents of Chinese history are contrasted with the West we find these two societies to be at opposite poles, wherein Western society expresses low vertical order, high horizontal order and low traditionalism in history¹.

The literature cited in Chapter Three clearly demonstrates high historical embeddedness of the vertical, horizontal and traditional dimensionalities, when comparing Chinese culture with Western culture.

Herein, we have ascertained the literature findings in Chapter Two are not transient and restricted to the contemporary era and are sustainable in the long term. Synthesis of the extant literature on Chinese and Western society newly identifies Sino Homeostatic Traditionalism and Western Dynamic Transformationalism in context with Knowledge Discovery in knowledge based product-process development. WDT was found more effective than SHT concerning achieving higher levels of innovation in knowledge based product-process development.

¹ Vertical Order, Horizontal Order and Traditionalism constructs from the non-empirical literature are enhanced, in later chapters of the Thesis, to transliterate, as new empirical Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy cultural syndromes.

3.1.2 Scope of the Literature Review for Chapter Three

The purpose of Chapter Three is to review the elongated historical literature pertaining to Chinese and Western society with the prospect of determining the sustainability of the vertical, horizontal and traditional dimensionalities in Chinese society and Western society.

Chapter Two established from the extant literature, the significance of the vertical, horizontal and orthodoxy dimensions as key cultural antecedents. Chapter Two also foreshadowed Chinese society and Western society to be at opposite poles regarding the vertical, horizontal and orthodoxy cultural antecedents, as assumed from non-empirical studies from the literature.

Chapter Three continues the foregoing theme, to more comprehensively contrast Chinese society and Western society. Hogan and Emler (1978, Bond and Smith 1996), caution against Western predispositions in research design. Therefore, to avoid Western biases and to foster Chinese subject matter familiarity, the key characteristics of Chinese society are reviewed in-depth. Herein, where appropriate, Chinese society proffers the dominant histological model, against which Western society is matched.

Table 3.1: Vertical Order, Horizontal Order and Traditionalism in China and the West

Culture	Vertical Order	Horizontal Order	Traditionalism
Chinese	High	Limited ²	High
Western	Low	High	Low

Vertical order and horizontal order in traditionalist Chinese history was comprehensively reviewed. Equivalent historical Western benchmarks were identified from the non-empirical literature. Table 3.1 details the principal findings, which were confirmed to be consistent with the hypotheses posed in this thesis, as tested in Chapter Six and Chapter Seven.

² Defined by patriarchal leaders and limited trust (Redding 1990)

3.2 VERTICAL ORDER IN TRADITIONAL CHINESE HISTORY

3.2.1 Contrasts in History



Section 3.2 reviews vertical order in traditional Chinese history. Western history is presented in contrast, where appropriate. The non-empirical literature terms - vertical order and traditionalism - provide the foundation from which the improved empirical cultural syndromes, Vertical Power Ethos and Conventional Orthodoxy, respectively, were developed.

In China, high vertical order has long prevailed. From the Zhou Dynasty (1027 BCE) until modern times Chinese states have exhibited a strong penchant towards vertical order sustained by hierarchy and centralised control. Concentricity increased even further with the unification, under the Qin, of the Qin, Qi, Yan, Wei and Zhu dukedoms, after which time the Emperor held all political, economic and military power. In consort, the Emperor sanctioned his Court to administer his authority. Thus, unlike Western manorial *enfeoffment*, there was no decentralised local power held and no regional nobles, because ‘everything under the sun belongs to the Emperor’ (Jacobs, Guopei and Herbig 1996 pp. 26-27). Therefore, the Chinese ruler remained unthreatened by aristocrats and challenges analogous to the nobles forcing King John I (1167-1216) to sign the Magna Carta (1215) in ‘federated’ England (Sinclair 1999, p. 7).

It followed, from the Qin Dynasty (221 BCE to 206 BCE) until the end of the dynastic periods (1911), the Emperor of China was the Son of Heaven holding the ‘Mandate from Heaven’ (Marks 1983). In this way, the Chinese Emperor was an ‘absolute ruler’ of the ‘Middle Kingdom’ (Marks 1983), between Earth and Heaven, whereby, Imperial China, with the Son of Heaven at its temporal apex held that ‘no other ruler was as sovereign, and

admitted no other state to equality’ (Pan 1990, p. 4) and ‘the people are the Emperor as from Heaven’ (Chinese proverb, Twitchett 1973) and there ‘cannot be two suns (two Sons of Heaven) in the sky’ (Confucius).

China saw itself as the pinnacle of civilisation by every measure. It saw itself as ‘All Under Heaven’ meaning that the Chinese empire and its territories are ‘universal and coextensive with civilisation’ (Pan p. 4). In contrast, other nations and territories were necessarily not under heaven and other non-aligned peoples unavoidably barbarians’ (Pan, p. 4). Along these lines, ‘All Under Heaven’ refers to the ‘*wen* of man’ (Bol 1992, p. 92) meaning the root of civilisation, received under heaven, as revealed by the wisdom of the sages.

Hence, , shows tú, the Earth, having China as the centre direction or the ‘Middle Kingdom’, and, in chorus, , shows China under heaven (Ross 2004, ideograms).

Chinese vertical order extended to such a degree that independent societies were viewed as insignificant. For example, the Emperor Qing Long (1711-1799), in the Qing Dynasty (1644-1911) declared to King George III’s ambassador, Lord McCarthy:

‘Swaying the wide world, I have but one view, namely to maintain perfect governance and to fulfil the duties of the State. It behoves you, O King, to respect my sentiments and display greater devotion and loyalty in the future, so that by perpetual submission to our Throne, you may secure, peace, and prosperity for your country hereafter ... Tremblingly obey and show no negligence.’ (Hayley 1938, in Pye 1984, p.110)

In this fashion, China’s centrism was evident and embedded its self-sustaining economy, its wealth and a belief in its own general superiority. Moreover, China once had no interest in western products, that is, ‘the manufactures of outside barbarians’ (Long 1793, p. 47, in

Russell 1922). Consistently, Russell (1922) explains China's perception by noting no technologically developed countries surrounded China, except for Japan.

To the crux of the matter, China saw itself as the pinnacle of civilisation by every measure and other kingdoms and countries unequal and not its peer. To the traditional Chinese way of thinking, other societies were inferior. Thus, the proclivity towards vertical order is deeply entrenched in China's posture, as is revering the past.

Inclusion 3.1: Confucius and Traditionalism (Conventional Orthodoxy)¹

Revering the Past

'Confucius, the supreme ethical moulder of Chinese civilisation, the uncrowned emperor, whose influence is vitally alive today.' (Needham 1981)

Confucius (Kung fu-tzu) or Kung Ch'iu or (551BCE-479 BCE) shaped China's civilisations, society and Chinese behaviour from ancient times until today. Confucianism, neo-Confucianism and post-dynastic systems have exhibited a strong predilection towards high vertical order, from the Ancient Imperial Court, up until today's new product development projects undertaken in state-of-the-art technology parks.

Confucius said the aspiration of learning is, 'to transmit, and not to create: to trust in, and to feel great affection for antiquity' (Confucius, in Kaizuka2002, p.66). This view has become a model for knowledge discovery in Chinese society accentuating a reverence for the past as Confucius wrote, 'I am not one of those who possess innate knowledge. I merely love antiquity, and earnestly seek it' (Confucius, in Kaizuka 2002, p. 66).

In this frame, China's intelligentsia conserved Confucian and Taoist traditions by engaging non-natural philosophies (Wang 1966) preserving a vertical social order having the Emperor

¹ Confucius' reverence of ancient ways is represented in the Thesis, as high Conventional Orthodoxy.

China's intelligentsia conserved Confucian and Daoist (Taoist) traditions by engaging non-natural philosophies (Wang 1966) preserving vertical social order, having the Emperor at its apex.

The Thesis holds the aforementioned pursuit seems to have led to a Knowledge Discovery processes akin to introspective humanism. In this way, Confucius in *The Great Learning* says of those, who succeeded in cultivating the mind by virtuous introspection:

‘...Wishing to rectify their hearts, they first sought to be sincere in thoughts. Wishing to be sincere in thoughts, they first extended knowledge to the utmost.’ - (Confucius c.500 BCE, Yang Wang-Ming c.1500CE, stanza 11, in Henke and Yang 1916 CE)

Thus, Confucianism believes that knowledge acquisition is achieved through introspection, not experiment. The Chinese intelligentsia discovered the path to good over evil by conducting classical exercises, having ‘reference to the mind and body’ (Yang Wang-Ming c.1500 CE, stanza 12, in Henke 1916 CE), thereby, assimilating the accepted wisdom of past sages. Thus, in China, the internal interpretation of experience in terms of confirming the classics is adopted over objective analysis and experiment.

Herein, entrenched institutional mores were employed towards Knowledge Discovery, so to new product development in technical imperatives were governed by anthropomorphic morality. Thus, perception and personal experience took precedence over experiment, discouraging external horizontal dialogue or collegial cooperation regarding new Knowledge Discovery in new product development.

Consistent with the previous analysis, the literature on invention (e.g. Chen 1996, Marks 1983, Needham 1970, 1969, Wolf 1950), reveals no examples of Knowledge Discovery processes being employed by Chinese intellectuals based on the sustained application of the

scientific method, except for Wang Yang-ming (1472-1529), who studied bamboo for seven days using scientific investigation methodologies.

Subsequently, the exhausted Wang Yang-ming dismissed the empirical approach as futile (Jin, Fan and Liu 1996): Instead, it was believed that no one can ‘investigate things under heaven’ and ‘nothing exists apart from the mind’ and ‘we lack the great strength required to carry on the investigation of things... what is called investigating does not consist in seeking within the realm of so-called external things’ (Yang Wang-Ming c.1500 CE, stanzas 12-14, in Henke and Yang 1916 CE).

To this end the traditional Chinese way of ‘thinking characterised by perception, brought disastrous consequences to scientific experiment’ because, ‘experiments were totally subject to the mystic concept of induction between heaven and man’ (Jin, Fan and Liu 1996, p. 138). Consequently, the production of physical things originated in heaven ‘and (are) received by men’; wherein, ‘the physical element as received by men and things varies; hence (the) mind in the degree of its intelligence’ (Chu Hsi c.1160, Stanza 19, trans. Zhu, in Russell1922). In summation, the view taken by the Chinese intelligentsia was that what we can understand comes from heaven and is limited by heaven at a personal level. Therefore, Knowledge Discovery is attained from within the person, not, from investigating the exterior World.

In contrast, Rutherford and Alhgren (1990, p. 2) state, Western Science, ‘presumes that things and events in the universe occur in consistent patterns that are comprehensible through careful, systematic study’. In this way, Dane, Tycho Brahe (1546-1601) observed celestial motion, ‘in particular he (Brahe) made long sequences of observations of the planets extending over a period of 30 years’ (Marks 1983, p. 25). The last statement and the Wang

Yang comments draw attention to the two totally different approaches to Knowledge Discovery, as employed by China and the Anglo-West. It appears then, that Wang Yang-ming (1472-1529) and Tycho Brahe (1546-1601) lived in similar times, but lived in societies that had greatly differing approaches to Knowledge Discovery.

In conclusion, we can be relatively certain that China's intelligentsia administered a Confucian ethical and moral state, where rediscovering the classic knowledge of the traditional masters was revered over new Knowledge Discovery processes. Further, the Confucian state did not emphasise product innovation. The intelligentsia maintained product innovation needed to be restricted to products of necessity, as required by the Court, State and agricultural needs. In this way, in the moral society, the production of general merchandise and artefacts was discouraged and, new product development was narrowly focused and tethered to the past. Furthermore, in China, the prominence of vertical order finds its existence not only between China and other societies, but also regarding societal relationships within China itself.

3.2.2 The *li* and *wu lun*

The mainstay of Confucianism remains concept of *li*, or right ways according to relational status and the Confucian classics, which promote right conduct according to status, and the Confucian beliefs contained emphasised right conduct. Confucianism stressed family relationships and on the subordination of the son to the father, younger brother to elder brother and wife to husband. (Redding 1990, Baker 1979, Silin, 1976)

Pragmatically, operationalisation of China's societal culture has acted to set the course of China's innovation in science and technology for a period of over two thousand years.

Against this long history, cultural dimensions unfavourable to contemporary personal knowledge sharing and new knowledge creation in new products remain firmly embedded in social behaviour, even today

High vertical order embodies a perpendicular social hierarchy'?). The driver of hierarchical Chinese ethical centrism is Confucianism, which gives prominence to the notion of the *li*.

'Right conduct according to status' (Cua 2002, Marks 1983, p. 224) and the *wun lun* stress rigid, vertical 'cardinal' relationships (Chen 1995, p.56). According to the *li*, 'harmony' and 'stability' are the goals of social associations and interaction (Nisbett 2004, in Ungson and Braunstein 2004, Thompson 1988, Nakamura 1964, p. 64, in Silin 1976), so that personal role acceptance in society and deference to rank and 'maintenance of proper social distance between people' are paramount (Silin 1976, p.36). Moreover, commitment is more than mere policy, because the *li* signifies a categorisation code, based on a 'pattern of reason' in response to a righteous 'law of nature' (Ho1985, p. 3, Feng, 1947).

Consequently, the traditional Chinese penal code maintained those who 'observed the *li* should be treated with benevolence for exhibiting communal humaneness (*jen*) and rewarded and detractors 'harshly' punished or executed (Redding 1990, van der Sprenkel 1962 p. 33, in Silin 1976). In this frame, compliance to authority was 'emphasised over active participation' by subordinates in interaction (Silin 1976 p.36), within a framework of ritualised conduct (Shun 1993) involving the family, community and State interactions (Chu Hsi c. 1150, in Cua 2002).

Inclusion 3.2: Cardinal Relationships and Vertical Order

The *wu lun*

The *wu lun* defines five cardinal relationships in Chinese society as, ‘sincerity between father and son, righteousness between ruler and subjects, distinction between ruler and subjects, distinction and separateness between husband and wife, order between older brothers and younger brothers’. Similarly, Confucius again emphasises the correctness of a rigid high vertical order, as mirrored by Duke Ching:

Confucius said: *‘Let the prince be prince, the servant be servant, the father, father, the son, son’.*

Duke Ching replied: *‘That is an excellent answer: if the prince be not prince, and the servant not servant, if the father be not father, and the son not son; even though I have my revenue, how could I enjoy it!’*

(The wu lun, Chêng Klang-chêng edition, second century CE, Wilhelm 1931, p.10)

Chinese cardinal relationships and other indications of status, as defined by the *wu lun*, are hierarchical in structure, recognising conformity to the *li*, within a constitution maintaining roles between people of unequal rank. Even in modern times under the Communist People’s Republic of China, *the wu lun*’s, ‘foundations of traditional social values’ remain, acting as a model for both the contemporary State enterprises and market-based Chinese businesses, as detailed in Chen (1995), Redding (1990) and Silin (1976).

Herein, collectively owned family assets were under the control of the head of the family principally, and, more generally ‘the male dominated structure of the family unit of production’ in farming, commercial and handicraft economies. This basic patriarchal dominated arrangement typifies today’s highly vertically ordered Chinese enterprise, large

and small. Thus, moral and ethical duties dictate interpersonal relationships are based on status, rather than ability (Nisbett 2004, in Ungson and Braunstein 2004, Redding 1990, Silin 1976). Thus, the *li* and *wu lun* have evolved into modern Chinese superordinate-subordinate didactics (Silin's 1976).

More recently, ethical obligation to a patriarch 'makes the entrepreneurial role easier to play' by leveraging empathy to rank in 'interrelatedness' and nurturing 'sensitivity to social contacts' (Herbig 1994, p. 107). Chinese society contemporaneously adopts a 'proactive active endeavour to build a sound commercial environment' (Sinclair, Editorial, p.2, 1999) throughout East Asia. Further, China itself has moved 'towards a limited market economy' (Sinclair, 1999, Editorial, p.2) since 1978, 'viewing all kinds of relationships in human society from the interpersonal perspective' (Fong 2001, p.54), as defined by the hierarchically structured *wu lun*.

Following-on from the *li* and the *lu wun*, especially in context with the conventional and time-honoured Chinese society, we find the vertical order is evident in the modern 'patrimonial state' and 'paternalistic' Chinese family, in which, a 'top-down' perspective emphasises individuals' roles, in accordance with rank and obedience, wherein, 'personal interests are sublimated' (Redding 1990, pp. 127-128). In this context, Redding (1990) stressed the contrast, between Western power and law and Chinese deference, as fundamental to Western institutionalised 'jurisdictions'; whereas, Chinese compliance rests on designating 'roles'.

Chinese civilisation is devoted to safeguarding its traditional ways. We find, 'Confucian ethical centralism' protected the ethical and moral state (Jin, Fan and Lui 1996, p. 176, p.

178, Wang 1996) and Chinese 'agrocracy' (Deng 2003, p. 501). In this manner, the two respected levels of Chinese society were the Chinese scholar-bureaucrats *Shih* and mandarins, who were an elite administrative class selected by difficult open public examinations (Needham 1981), and, the farming peasantry or *Nung*, who were regarded as 'the foundation of the regime' (Deng 2003, p. 501).

By creating a surplus, the farmers freed the intelligentsia to administer Confucianism, as a 'prescribed body of elaborate rules governing (unequal) man-to-man relationships' (Wang, p. 6). The intelligentsia often invested (Deng 2003 and Needham 1969) or retired (Wang 1966) to the land, as 'farming was a highly respected occupation in Chinese society' (Wang 1966, p. 16).

Thus, a vertical symbiotic relationship existed between the Chinese intelligentsia and the farming peasantry. The intelligentsia were guardians of traditional Confucian society, and, agriculture was regarded as the 'only true form of production' (Wang 1966, p. 7). To put this case another way, the intelligentsia were the engine and the farmers provided the fuel. All parties played their particular role in sustaining a conventional vertical framework, where each party was allotted a respected, yet, discrete in rank.

The aforementioned system operated as a meritocracy; wherein, mandarin intellectuals stood far removed socially from ordinary farmers. The farmers in most dynasties were permitted to read the role-reinforcing Chinese classics in preparation for potential elevation and entry into the Mandarinate, based on achievement in examinations. Learning *what was already known* about traditional literature and culture and not science (Needham 1969) was accepted, rather

than questioning what is known to advance new knowledge. Thus, high Conventional Orthodoxy was reinforced in the society at large.

Confucianism armoured 'social order (so it) could operate by itself, with the minimum assistance from a formal political structure' (Yang 1959, in Redding 1990, p. 45). In this context, the Confucian state educated all people to 'understand their prescribed roles', based largely around deference (Silin 1976), 'family socialisation' (Wilson 1970, in Redding 1990) and cardinal relationships. Severe punishments were meted-out for non-conformance to prescribed roles (Hsu 1970, Redding 1990).

Historically, Chinese families had no recourse to a developed system of adjudication, because in China 'civil law' did not develop (Redding 1990), as it ultimately did in the West. It follows that 'without a codified law the average Chinese person was more or less a passive victim', without personal rights, protected only by 'role compliance'; particularly, the common person, referred to as, *xiaoren* (Redding 1990, p. 46).

Confucianism and Chinese Communism maintain superior people or *junzi* labour for virtue or *de* and sincerity or *cheng* to perfect the 'inner man' (Pye 1984, pp. 42-43), as role relations are closely associated with virtue. Subordinates, therefore, defer to power by respecting role compliance and their superordinates' superior virtue.

Accordingly, traditional Confucians are cosmocentric, affirming nature and adapting to natural situations (Chen 1995), including role status in life (Triandis 1994, Pye 1984 and Silin 1976). In this way, Confucian sensitivities to relationships, networks and familial obligations are maximised and the self-actualisation of the individual minimised. Thus, the traditional Confucians are said to accept and adjust to their 'society in a harmonious way' (Chen 1995,

pp. 26-27). Likewise, modern Chinese economic and political systems would not stand without a Confucian foundation (Ralston and Gustafson 2003, Tung and Miller 1990). Similarly, Ong (2005, p. 194) asserts, while recognising China's rapid contemporary economic transformation: 'Communism increasingly appears to be a mere tool to control the nation and propagate one-party rule'. Thus, Mao Tzu Tung and subsequent communist leaders have not extinguished the shadow of the ancient notion of Cardinal Relationships.

3.3 HORIZONTAL ORDER IN CHINESE HISTORY

Section 3.3 examines horizontal order in traditional Chinese history. Western history is presented in comparison, where appropriate. The non-empirical literature provided the foundation from which the empirical cultural syndrome, Horizontal Altruism was developed.

The Sinic and Chinese agrarian civilizations were established in an ecological niche and political environment, which reinforced reliance on the family and mistrust of outside parties. In this regard, Redding (1990) states that the cultural determinants of Chinese social structures - 'family, networks and ethnicity' - are built on Confucianism, here, emphasising the 'Chinese form of linking the individual and the state' via relationship rules, accentuating 'filial piety', 'collectivism', 'face', 'limited and bounded trust' and 'non-cooperation' (Redding 1990, p. 43). In this way, the family became the 'first and last resort'. People's loyalties to their families 'stabilised' the Confucian state and individual achievement is subsumed into collectivist family goals (Wilson and Pusey 1982, in Redding 1990). Thereby, each extended Chinese family became entrenched as a competitive political, social and judicial unit.

Similarly, the Chinese farmer was not a chattel, like the serfs in Middle Ages Europe. Rather, the Chinese farmer could move between landlords (Goldstone 2003). In this way, the Chinese family unit was mobile, unlike Anglo Western serf under ennoblement. The Chinese agrarian family was self-contained, where they desired owning their own circumscribed land. For this reason, the Chinese family wanted to acquire land or feared losing land.

Furthermore, Chinese farmers were highly competitive and uncooperative (Goldstone 2003). Primary relationships were family-bounded and extra-family relationships were utilitarian (Redding 1990) and guarded. In this way, Chinese agrarian society was comprised of multitudes of self-contained extended families, which would ‘insist on obedience’ and ‘more focused around rules than in information-based societies’ (Triandis 1994, p. 158).

It is argued in the Thesis that this lack of mutual support has become ingrained into Chinese social reality. Hence, the Chinese agrarianism carried-forward and realised in modern Chinese society exhibits low horizontal order and low non- trust (Redding 1990).

What is more, Chinese agrarian families competed for scarce landed resources (Redding 1990) becoming ambivalent towards each-others’ families. By stressing high vertical order and low horizontal order, family enrichment was achieved at the expense of others, so that the traditional agrarian family was ‘opposed to a wider sense of community and societal responsibility’ (Lin 1977, Redding 1990, p. 46).

Along these lines, Chinese agrarian society was comprised of multitudes of self-contained extended families, which unlike information-based societies, ‘insist on obedience and ... are

more generally organised around rules than nuclear families' (Triandis 1994, p. 158). Similarly, Redding (1990) states, Chinese families are, 'survival units ... largely self-sufficient', and:

'that they do not fuse naturally into the general community, they are competitive, and that their members are largely motivated by pragmatic exigencies of protecting the family resources on which they in turn are highly dependent.'

Further, Lau (1982, in Redding 1990, p. 125) observes agrarian behaviour extends to the Sino Diaspora, describing Hong Kong society as, 'minimally integrated' and 'suffused' by 'utilitarian familialism'. Hence, horizontal relationships must be functional. Likewise, Bond (1986, p. 284) sees the relationship between the extended family and the quest for 'power and wealth,' as 'centripetal forces', where each family leverage's in-group wealth and wherewithal 'against other kin groups for scarce resources'.

It follows, from the traditional Chinese family through to large Chinese organisations, built on the same cultural influencers, where different economic units display suspicion of non-kindred external parties, demonstrating a 'general mistrust in a minimally integrated society lacking traditions of institutional trust such as law' (Redding 1990, p. 83). Having the family template as the basic economic unit primed a state of affairs requiring the common property or *chia* be collectively managed (Redding, 1990). Thus, non-altruistic assemblies support integrated in-group relationships and restrain distant out-group relationships.

Further, we can readily contrast Chinese limited horizontal order to Western high horizontal order, stemming as far back, as one thousand years. During this period Western medieval serfs, unlike Chinese farmers, were in servitude to their Lord, who offered them protection. In this way, the nearby manor and its environs were 'the fundamental unit of economic, political

and social organisation' (Kreis 2006, online). Other land was designated, as a Common, to be used by the community, supporting mutualism, high horizontal order and high social reciprocity and pluralism.

For example, the Chinese invented the plough centuries before the English. The ploughs used by the Chinese in the Tang Dynasty (617 to 907) and afterwards, were light ploughs and used human labour, rather than oxen. A 'single cultivator could produce relatively large food surpluses' (McNeill 1963, p. 467). In contrast, on the same timeline as the Tang Dynasty, in England, the heavy 'mouldboard' plough was invented. The mouldboard plough required eight oxen to pull it, making its use far beyond the resources of a single serf family, thus, requiring cross-family 'cooperation' (Kreis 2000, Online). Consequently, the serfs shared the plough and worked together to cultivate the land. High levels of altruism existed. Thus, we see, the English serf was horizontally integrated with many others, while the Chinese farmer's world was of a highly autonomous domestic kind.

Likewise, the traditional Chinese village showed narrow concern for collective welfare and assistance to the poor, wherein, villagers did not adopt Confucian virtues pertaining to morality in economic matters (Little 1989). Instead, they displayed 'limited and specified reciprocities' (Popkin 1979, in Little 1989, p. 35).

In contrast, Western serfs and peasants typically recognised the authoritative association of peasants to settle disputes, demonstrating recognition of fair and legitimate jurisprudence beyond the family. In contrast Chinese villages did not operate to deal with 'inequalities', because 'communal arrangements that would have been to the benefit of all ... tended to breakdown due to distrust and individual self-seeking' (Little 1989, p. 35). Correspondingly,

Redding (1990, p.55) asserts, ‘the Chinese village was not a “community” in the sense normally meant in the West ... (instead) it would appear a lack of the sense of community (existed)’ (Redding 1990, p. 55). In this case, exclusivity reigned over inclusivity.

Moreover, in China, restricted Horizontal Altruism is also evident in familialism more generally. Throughout Chinese history, investing in contained nuclear family units has resulted in the emigration of individuals for the benefit of the family:

‘Peasant families often sent one or more children to the frontier in colonial Southeast Asia in the hope they would strike in rich for the family.’ (Popkin 1979, p. 21)

Chinese familialism stands in contrast with Western pluralism, which has feudal roots. However, one should not conclude that overt familialism is a universal Asian value. For example, ‘feudal pluralism’ existed in Japanese society (Pye, 1985) and in the Japanese workplace *Ringi* system (Chen, 1995). While hierocracy is entrenched in the Chrysanthemum Empire, the code of *wan wan rida*⁴, would, have Japanese society more analogous to Western society than familialism in Chinese society, regarding horizontal order:

‘The hierarchically ordered (Japanese) society superiors could expect deference, but in return they were not (emphasis added) expected to push their views rather to work for consensus,’ (Pye, 1984, p.171)

As such, Japanese society⁵, like Western society, is strongly influenced by the ‘spirit of co-operation’ (Pye 1984, p.170), as found in the village (West) or *mura* (Japan). In this way, Japanese society and Western society both display high horizontal order; while, Japan displays high vertical order and the West low vertical order. Likewise, *kanban* (public

⁴ Leadership is nebulous.

⁵ As a control.

reputation) is associated with *matomari* (gather to voting obligation) in Japan (Curtis 1988, p. 250) and Western democracy has roots in Ancient Greece. The quid-pro-quo of reciprocation and mutual bonding is enduring (Pye 1984) in Japanese society, rather than utilitarian connections (*guanxi*), as in Chinese society (Redding 1990)

The historical legacies of feudal pluralism (Pye 1984) and shared village challenges (McNeill, 1991), indicates values of vertical order and the values of horizontal order are sufficiently independent to accept the legitimacy, as each as an independent variable, even across Asian societies.

In the current era, it remains common for contemporary Chinese families to send their members to different Western countries to hedge the family's fortunes, opportunities and economic exposure. In this way, families based in the Sino Diaspora might send three siblings to live in different Western countries, typically, the United States, Canada, United Kingdom and Australia (Sheridan 1999).

Likewise, Pan (1990, pp. 230-240) observes in context with the Liem business empire of Liem Sioe Liong, originally established, as a *cukong* family, with strong ties with the Soharto family and the Indonesian military:

‘... kith and kin were important to business's overseas expansion. One son, Chote, headed the London branch of the bank in the early 1980s, and another, Charn helped computerise it in the 1970s. A son in Singapore, a brother in Hong Kong, an uncle in Manila, a cousin in New York, and various relations all over the globe...’ (Pan, p.240)

Thus, while, China has undergone significant transitions, since 1978; the Thesis maintains that China retains an agrarian mind of the familial kind, which manifests in familialism

template being adopted in business affairs and workplace teams, rather than high altruism with other workgroups. Herein, we find, even beyond the family, fundamental beliefs, values and 'forms of cognition' are of a familial type, resulting in non-co-operation as a relationship rule (Redding 1990, p. 43).

In sum, throughout Chinese history, confidence and openness are typically not extended beyond the family and, limited and bounded trust, as *guanxi*, is extended, only when necessary (Redding 1990). In contrast, Western civilisation, despite the march of individualism, has nurtured a continuous positive sense of community.

-Please turn page-

3.4 CONTRASTING SINO-HOMEOSTATIC TRADITIONALISM AND WESTERN DYNAMIC TRANSFORMATIONALISM

Contrast:

***‘The illiterate of the future will not be the person who cannot read
It will be the person who does not know how to learn.’ – Alvin Toffler***

‘The nail that protrudes is hammered down.’ – Confucius

Based on the Literature Review two newly designated classes are identifiable. Herein, the Thesis newly adopts the terms, *Sino Homeostatic Traditionalism* (SHT) and *Western Dynamic Transformationalism* (WDT) as deeply entrenched societal macro-motivators representing Chinese society and Western society, respectively.

In the Thesis, SHT and WDT are posited to have influence in society at large and in the workplace (large group, small group), within each relevant society consistent with the two-level measures approach introduced in Chapter Two. The separate measures are required of large groups and small groups, because societal behaviour and social behaviour are independently variable.

Consequently, Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy shall be newly developed in Chapter Four of the Thesis, with the goal to enhance current knowledge concerning the influence of cultural antecedents on Knowledge Discovery in new product-product process conformance. However, for the present, the current chapter relates Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy to SHT and WHT, as two fundamentally different cultural approaches, which are contended by the Thesis to

have profound implications for new product-process development in Chinese society vis-à-vis Western society.

SHT is held by the Thesis to be founded on high Vertical Power Ethos, low Horizontal Altruism and high Conventional Orthodoxy societal syndromes and is contended normative of Chinese society. On the other hand, WDT is held to exhibit low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy as normative of Western society. The cultural characteristics of Sino Homeostatic Traditionalism (SHT) and Western Dynamic Transformationalism (WDT) are shown in Table 3.2.

Table 3.2: Antecedents to Sino Homeostatic Traditionalism and Western Dynamic Transformationalism

Culture	Vertical Order	Horizontal Order	Traditionalism	New Aggregate Designation
Chinese	High	Limited	High	SHT
Western	Low	High	Low	WDT

As introduced in Chapter Two, successful new product-process development requires the willingness to share information (Gerwin 2004, Srinivasan, Lilien and Rangaswamy 2002, Sethi 2000, Ayers Dahlstrom and Skinner 1997, Gupta and Govindarin 1996, in Suassaman, Watts and Schneier 2003), because new product-process development is a dynamic process, potentially requiring the resolution of many problems during the tenure of the development project (Clark and Fujimoto 1989). Similarly, social rituals' must 'engage people in specific Knowledge Sharing' and 'information sharing, exchanging and developing of ideas' and 'expressing disagreement' (Jassawalla and Sashittal 2002, p. 47).

What is more, there is a significant interdependency between members of the new product team (van de Ven 1986) whereby communication interactivity regularly occurs between development team members. Coupled to this is individual personal knowledge holders must freely contribute personal know-how towards the development group's collective deliverables. Therefore, optimal collaboration requires all suitably knowledgeable contributors to the new product-process development process to 'unify their efforts through the transmission of information' (Gerwin 2004, p. 249). In this way, the free flow of information is an effective precondition to problem solving (Sheremata 1999) and technology fusion (Needham 1969) in new product innovation development. The thesis shall later further develop the aforementioned Knowledge Building contingencies, as Knowledge Sharing and Creative Synergies, outside of the present literature review.

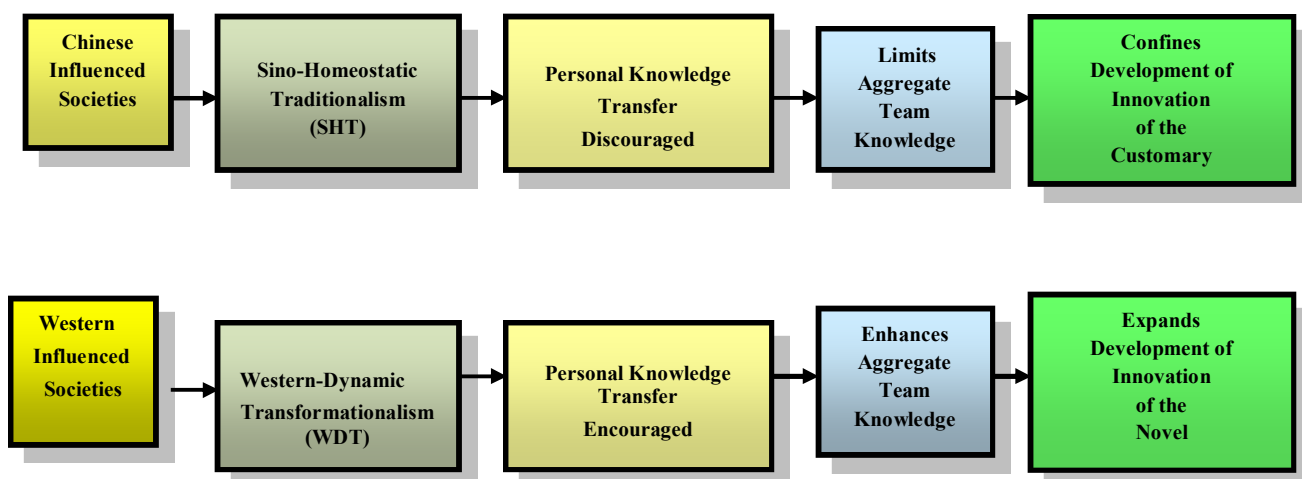
Impediments to the free flow of information and Knowledge Sharing embody major new development risk (Ahmadi and Wang 1999) in sharing of personal schema to teams (Hargadon and Fanelli 2002, in Marinova 2004). The Thesis maintains societies exhibiting normative social behaviour which are inclined towards secretness, control and personal non-trust and conservatism, regarding the acceptance of change and the free flow of information, shall foster an inadequate common creative domain, for idea generation in new product development, as can be recognised from the current literature review. In this form, SHT in Chinese society clearly exhibits the previously mentioned traits. Alternatively, WDT is amicable to participants' free information flow in new product development, owing to the comparatively low existence of secretness, the willingness towards altruism and a progress approach to dominion over the environment in Western society.

The common creative domain in new product-process development can be viewed as a field of inference, from which, new product developers interact independently and collectively. Here, developers are normally required to contribute and draw information during the process of new Knowledge Discovery in new product development. Problem solving during development tasks requires ‘an iterative sequence of scanning for ideas, knowledge and information and integrating, and (then evaluating and selecting among courses of action’ (Sheremata 1999, p. 393, Mitzberg, Raisinghai Théorêt 1976, Witte 1972 and Strodtbeck 1995 in Sheremata 1999).

Creative Synergies shall be dependent on Knowledge Sharing. In consequence, there is dependency on openness within a common creative domain during the new product-process development process (Atuaheme-Gima 2003, Brown and Eisenhardt 1995). Here, the ‘free flow of information’ facilitates the quality of ‘solutions found’ and ‘problem-speed’ to the new product-process development process (Atuaheme-Gima 2003, p. 360).

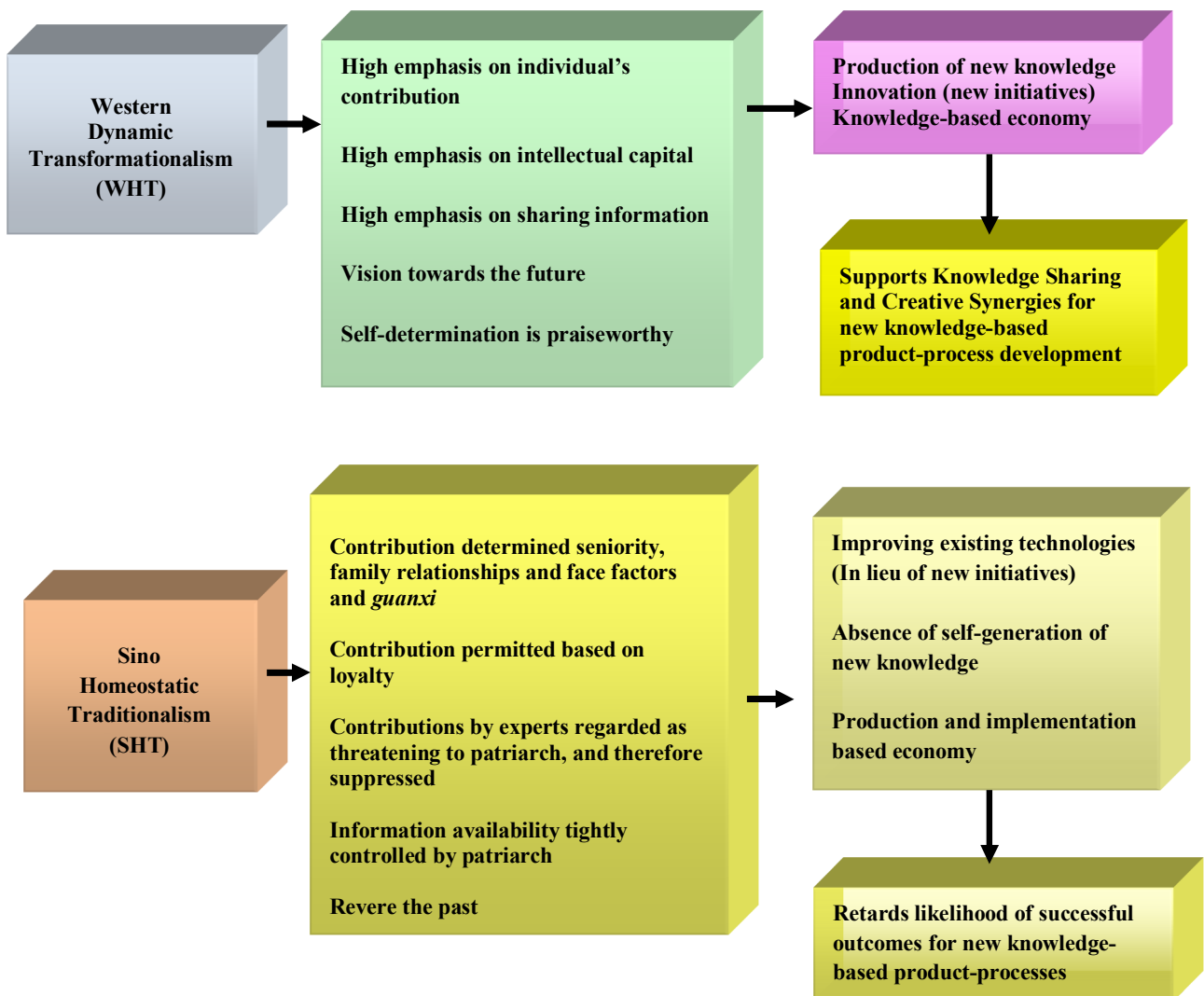
Herein, an open communication environment in the product-process development process is understood to be far superior to a closed communication environment. In this case Western society is designated as an open communication environment while Chinese society is designated as a closed communication environment. Please refer to Figure 3.1, contrasting the primary effects of Sino-Homeostatic Traditionalism and Western-Dynamic Transformationalism.

Figure 3.1: Primary Effects of Sino-Homeostatic Traditionalism and Western-Dynamic Transformationalism on Innovation



The new model, Figure 3.1, draws from the literature and assembles fragmented characteristics drawn from Chapters Two and Three to create an original profile of the detailed effects of WDT and SHT on Knowledge-based products. WDT emphasises intellectual capital in the new economy and the autonomy of the individual from overt hierarchical control where, futurist farsightedness and personal fortitude are laudable. SHT does not proffer an environment conducive to instigating novel innovation: e.g., knowledge based product-process development. Alternatively, WDT facilitates knowledge transfer to fuel novel innovation: e.g., high transformation product-process development.

Figure 3.2 Detailed Effects of Western Dynamic Traditionalism and Sino-Homeostatic Traditionalism on Knowledge-based Products⁶



⁶ New model composited from themes from extant literature.

3.5 LITERATURE REVIEW PART II: SUMMARY AND CONCLUSIONS

The Literature Review of the deep histographies of China and the West endorse the general findings from Chapter Two, which confirmed China and the West present vastly different profiles regarding vertical order, horizontal order and traditionalism cultural antecedents. The literature indicates that:

- China presents high vertical order, limited horizontal order and high traditionalism.⁷
- The West exhibits low vertical order, high horizontal order and low traditionalism.⁸

At present there is very little recognition of the embedded histologies, as discussed so far, in the business literature. Consequently, it is unclear, whether or not; the existing cultural antecedent scales employed in business studies proffer the necessary lineage to be regarded as truly pedigree⁹. In this frame, please recall the modern nation state is merely two hundred years old and social trends ebb. It is argued that the power of histologies in developing new constructs is currently underdeveloped by researchers: The Thesis has attempted to rectify this situation.

Chapter Three provided a new refinement (e.g. improved, better-related parent theory) and the discovery of the significance of non-empirical behavioural relations previously underestimated in the extant literature: e.g. the relationship between pluralism in both Western society and Japanese society vis-à-vis Chinese society.

⁷ Extant terminology for non-integrated, non-empirical designators of latent cultural variables.

⁸ Extant terminology for non-integrated, non-empirical designators of latent cultural variables.

⁹ By way of comparison, in the Musical Arts, vernacular styles may last decades but not centuries. For example, consider the transient words, “rag, gaye, cool and baby” vis-à-vis the more enduring word, “love”. True societal traits should endure centuries. Only measuring contemporary status is inadequate. Likewise, Samuel Huntington (1998) notes cultural drivers long survive beyond State borders. Thus, only asking about subordinate relationships at work (measuring ends alone in a delimited frame), represents merely a superficial attempt at measuring culture. Traits measured at work must have an historical context to be known theoretically and factually persistent.

Chapter Three revealed that extant comparative studies of Chinese and Western society required amalgamation and refinement, to provide greater facility to theorists and practitioners, who research the influence of cultural antecedents, generally, and, the effects of cultural antecedents on Knowledge Discovery in new product-process development, specifically. Chapter Three also introduced the original non-empirical meta-constructs of Western Dynamic Transformationalism and Sino-Homeostatic Traditionalism (SHT), as these meta-constructs relate to personal knowledge transfer being encouraged or discouraged in Society. In Western society, WDT encourages personal knowledge transfer, enhancing team knowledge and expanding innovation of the innovative. In Chinese society, SHT discourages personal knowledge transfer, limiting team knowledge and confining innovation to the novel.

3.6 NEXT CHAPTER

Next, Chapter Four revisits and develops topics introduced in Chapter Two, given knowledge gained from the histological investigation. Chapters Two and Three focused on the review of the Literature, with respect to existing non-empirical models and construct terminologies employed. Chapter Four, revisits some past ground, thence transmutes constructs and transliterates societal construct terminologies, to appropriate original models, statically confirmed in Chapter Six and Chapter Seven.

In short, Chapter Four will act as an interlocutor from the current to the new, representing a further new contribution.

CHAPTER FOUR

THEORY

AND

RESEARCH ARCHETYPE

TRANSFORMATION

THEORY AND RESEARCH ARCHETYPE TRANSFORMATION

EXISTING NON-EMPRICAL LITERATURE



EXISTING CULTURAL STUDIES (REVISITED)



ORIGINAL NON-EMPRICAL UNIFIED CULTURE MODEL

- ELEMENTARY FORMS (FISKE)
- CULTURAL SYNDROMES (TRIANDIS)
- CHINESE SOCIETAL BEHAVIOUR (REDDING)
- CHINESE SOCIAL BEHAVIOUR (REDDING)
- WESTERN SOCIETAL BEHAVIOUR (HISTORY)
- WESTERN SOCIAL BEHAVIOUR (HISTORY)





ORIGINAL SOCIETAL SYNDROMES MODEL

- VERTICAL POWER ETHOS (NEW)
- HORIZONTAL ALTRIMUM (NEW)
- CONVENTIONAL ORTHODOXY (NEW)



INTERMEDIATION PRIMARY PATH MODEL

- SOCIETAL SYNDROMES (BROUGHT DOWN)
- (MODERATORS)  
- KNOWLEDGE BUILDING
 - KNOWLEDGE DISCOVERY
 - PRODUCT-PROCESS CONFORMANCE OUTCOMES



HYPOTHESES FOR EMPIRICAL TESTING

CHAPTER FOUR

THEORY AND RESEARCH ARCHETYPE TRANSFORMATION

'We think of people with whom we share, with whom we obey and with whom we are equal' - Triandis

4.1 INTRODUCTION

Chapter Two assessed the influence of cultural antecedents of Knowledge Discovery on new product development from the literature. Chapter Three provided additional support through its review of the relevant historiographies. The seminal studies of three prominent contributors: viz. Alan Page Fiske, Harry Triandis and S. Gordon Redding guided the development of a new unification model; newly articulating *the broader field* pertaining to prime cultural antecedents; rather than merely representing one isolated perspective. In this framework, the past literature applied various terminologies in the quest to describe verticality, horizontality and conventionality from the particular perspective of each researcher. Integration of past studies facilitated a more comprehensive understanding of the scope of the latent values, in order to *prepare* new scales of empirical assessment.

Chapter Three emphasised the need to ensure constructs applied to societies are enduring. Consequently, cultural anthropological themes and historiographical themes are sustained

throughout the current chapter, Chapter Four, which operates, as an interlocutor, bridging three prime non-empirical contributions (The Field¹) to original empirical research.

Some minor repetition of earlier presented material and diagrams was deemed essential to better facilitate the understanding of new empirical depictions.

4.2 SCOPE OF CHAPTER FOUR

4.2.1 Revisiting the Modelling the Non-Empirical Literature

Chapter Four extends Chapter Three and provides definitions for the component structures of the contributions made by Fiske, Triandis and Redding.

Fiske's Elementary Forms are:

- Communal Sharing
- Authority Ranking
- Equity Matching
- Market Pricing

All Elementary Forms (Fiske 1991) are variable in response to the environment encountered. These forms are not mutually exclusive and can all be present at once, in a given culture, to varying degrees. Moreover, Fiske's Elementary Forms are compatible with the Triandis' Cultural Syndromes.

¹ The Field represents unification of multiple contributions, rather than isolated development one study.

The combination of both these researchers work can yield sophisticated non-empirical models. Triandis (1994, pp. 151-152) was able to construct localised patterns with different emphasis, as features of social relations, including individualism and collectivism, as initially recognised by Triandis (1994), and further developed by the Thesis, also, in Chapter Three.

Triandis' (1994) Culture Syndromes are:

- Cultural Complexity
- Tight versus Loose Cultures
- Individualism –Collectivism

Further, in Chapter Two, a distinction was made between local manifestations, as identified by Redding (1990), supporting two tier (two-level) modelling (Figure 2.6). The two distinct levels identified by Redding (1990) are:

- Society (at large)
- Social Behaviour (e.g. the workplace)

Significantly, Redding's (1990) differentiated the effects of these influences over society (large group) and social behaviour (small groups, $N \leq 150$) finds stanchion in the cultural-anthropological literature (Dunbar 1996) (Figure 2.6) . Please refer to Figure 2.9.

Also, Figures 2.10 and 2.11 show how the submissions of Triandis, Fiske and Redding, can be fused, to better reflect cultural anthropological protocols and to establish both large group and small group (Dunbar 1996) measurement of structures (Pike 1954). Complete integration required additional histological citations, as shown in Chapter Two and Chapter Three, because Redding (1990) concentrated on Chinese society and Chinese social behaviour.

Consequently, Western complementarities were cited to complete the original non-empirical model. Herein, the new integrated, non-empirical models extend Triandis, Fiske and Redding, using, as examples, Chinese society and Western society. Moreover, as previously stated, constructs respecting History are enduring, rather than transient.

4.2.2 Interlude on Modelling Archetypes Applied

4.2.2.1 Non-Empirical Models

As previously indicated in the Thesis, the extant contributions of individuals are too limited to represent *The Field of Cultural Antecedents* of investigation pertaining to non-empirical models of cultural antecedents. Herein, a complete non-empirical representation of *The Field of Cultural Antecedents* must have all the following attributes:

- *Etic* representation (universal)
- Localised representation/manifestation of etic
- Reflect Society-at Large Behaviour
- Reflect Small Groups ($N \leq 150$: e.g. the workplace)
- Be enduring, rather than contemporaneous
- Unification of multiple sources (e.g. three sources)

The Thesis argues that no existing non-empirical model on its own shall suffice to translate into a suitable non-empirical archetype *cum* template, to translate non-empirical archetypes, from the literature regarding *The Field of Cultural Antecedents*; to achieve valid, comprehensive empirical models, for Chinese society and Western society.

Further, the embeddedness of non-empirical constructs must be ascertained, to ensure Culture is measured, rather than viewed as a passing trend. Understanding the History behind each construct serves this purpose and assists and complements rigorous scale development.

Further, historical investigations led to the new discovery of the contra relationship Limited and Bounded Trust (Redding 1990) or Non-Trust (Silin1976) and Pluralism.

The aforementioned represents the rationale behind creating an original integrated non-empirical model, *before* attempting quantitative measures and empirical modelling.

4.2.2.2 Template for Empirical Models

The new non-empirical model is revisited in the current Chapter: wherein, developed definitions of the existing terminologies are offered. Additional literature sources are provided to assess the assertions and validity of the three key non-empirical authors; viz. Fiske, Triandis and Redding. Anecdotal inclusions are provided for the same purpose. Empirical operationalisation of the new integrated non-empirical model required transliteration of nomenclature to better reflect latent variables associated with quantifiable scales, as measured in Chapter Six and Chapter Seven.

While the two new meta-constructs of Anglo-Western Dynamic Transformationalism and Han-Chinese Traditionalism remain retained, new terminologies are adopted for the cultural dimensions: i.e., Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy in (a) Society (not country) and (b) the Workplace in Society, for Anglo-Western Dynamic Transformationalism and Han-Chinese Traditionalism. The factors *underlying* each Cultural Syndrome are identified, as constructs, in Table 4.1, page 160. Also, please note, *Anglo-Western* society and *Han-Chinese* society are tighter designations than Chinese society and Western society, respectively. The narrower focus facilitates homogeneity and high integrity. Else put, two core cultures are isolated to avoid cross-acculturation distortions.

The presence or absence of Pluralism is highlighted as a moderator on Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy, in the quantifiable model. The presence of Pluralism is held to aid Knowledge Building and Knowledge Discovery in New Product-Process Development.

Having shown the rationale for transmutation and transliteration before operationalising the non empirical literature and having built a fully workable integrated model of the *The Field of Cultural Antecedents* more relevant to quantitative analyses, we next consider the new Intermediation Primary Path Model. This model begins with the original empirically tested (Chapter Six and Chapter Seven) Societal Syndromes, based on the survey items presented in Chapter Five. The new Culture Model is extended to another original model to embrace the influence of Cultural Syndromes on Knowledge Management in New Product-Process Development.

4.2.3 Investigation One: Introduction to Intermediation Primary Path Model

The new Intermediation Primary Path Model recognises the following sequence of events

- Societal Syndromes (Vertical Power Ethos, Horizontal Altruism, Conventional Orthodoxy). Each Societal Syndrome is variable and all societies can be measured as moderators (as tested) against a posited ideal value set (as tested).
- Knowledge Building which is based on factor analyses is comprised of Knowledge Sharing and Creative Synergies.
- Knowledge Discovery. The greater the transformation required, the greater the dependency on Knowledge Building to achieve innovation.
- Product-Process Conformance Outcomes. The Product-Process Conformance Outcomes constructs recognise performance against the original, intended plan, not

merely performance, which might be found high in a study, against a de-scoped plan, to disguise deficiencies. Herein, the Thesis *does not* concur with the common measure of performance, as optimal. Deficiencies can ‘fall between the cracks,’ prior to measurement.

Moreover, the Intermediation Primary Path Model provides a backbone or core pathway against which moderators can be measured. The thesis is especially interested in Anglo-Western society vis-à-vis Han-Chinese society and Product Transformation Requirements as a moderator of Intermediation Primary Path Model measures.

4.2.4 Investigation Two: Introduction to Cross-Cultural Moderation Models

The Cross-Cultural Model posits Sino-Homoeostatic Traditionalism and Western Dynamic Transformationalism (as interceded by Pluralism versus Limited & Bounded Trust (Redding 1990) and Non-Trust (Silin 1976), as moderators of the Intermediation Primary Path Model. Normative Western culture is held to be more likely to engender novel, innovative solutions than Chinese culture.

Western society is held by the Thesis, to be endowed with the requisite measures of key Cultural Syndromes to facilitate Knowledge Building and Knowledge Discovery in New Product-Process Development and typically shall outperform Chinese innovative development, especially where open Knowledge Sharing and Creative Synergies are essential. However, the Thesis does not claim the West has found the optimal solution. Rather, relative to Han Chinese society, Anglo Western society better approximates necessary measures of the new Cultural Syndromes offered. The empirical results of the Thesis offered in Chapter Five and Chapter Six, confirm this assertion, as based on the hypotheses submitted later in this chapter.

Next, we introduce Product Transformation Requisites.

4.2.5 Investigation Three: Introduction to Product Transformation Requisites

Moderation Model

The thesis confirmed (Chapter Six) high Knowledge Discovery is dependent on higher levels of Knowledge Building (Knowledge Sharing and Creative Synergies). The degree of the product-process transformation required sets the bar for the level of Knowledge Discovery to be achieved. The Thesis maintains that the Anglo-Western product-process development teams would perform better at all levels of product-process transformation. Empirical testing found the basic proposition to be confirmed, except Han Chinese teams outperformed Anglo Western teams, where the need for product-process transformation did not exist. Both societies found the highest levels of product-process transformation challenging.

Next, we move onto the Body of the Chapter, which is partitioned as follows:

1. Return into Cultural Studies
2. Knowledge Building
3. Knowledge Discovery in Product-Process Development
4. Final Product Conformance Outcomes in New Product-Process Development
5. Summarising the Intermediation Primary Path Model
6. Hypotheses relating to Intermediation Primary Path Model (Investigation One)
7. Hypotheses relating to the Cross-Cultural Model (Investigation Two)
8. Hypotheses relating to Product-Process Transformation Requisites (Investigation Three)
9. Summation and Conclusions

INVESTIGATION ONE: INTERMEDIATION PRIMARY PATH MODELS

4.3 RETURNING TO CULTURAL STUDIES

Returning to Cultural Studies, we revisit the three major contributions of Alan Page Fiske, Harry Triandis and S. Gordon Redding in greater detail:

4.3.1 Revising Cultural Studies

Fiske (1991) has convincingly introduced four elementary forms of human relationships²: Communal Sharing, Authority Ranking, Equity Matching and Market Pricing drawn from manifestations of ‘sharing, hierarchy, equality and proportion’ (Fiske 1990, 1992 in Triandis 1994) in societies. In his analysis of cultural syndromes, Triandis (1994) recognised Fiske’s (1990, 1992) contention that four Elementary Forms represent four patterns, each overall pattern is *etic*, yet, the substantive depiction of each pattern is localised. In this fashion, Figures 2.9 and 2.10 demonstrate how the distinctive representations of *etic* Elementary Forms (Fiske 1990, 1992) were differentiated between Asian Collectivism and Western Individualism.

Triandis (1994) maintained Elementary Forms can be attuned to elaborate cultural syndromes: e.g., Cultural Complexity, Tight versus Loose Cultures and Individualism-Collectivism. Triandis (1994, p. 2) maintained that a cultural syndrome is ‘a pattern of belief, attitudes, self-definitions and values organised around some theme that can be identified in a society’. Societies present many different kind of groups based on shared enduring relationships and association that can be modelled as a uniform archetype.

² By way of elaboration, Relational Models can apply all elementary forms to domains of investigation, including Reciprocal Exchange, Decision Making and the (Discernment) Constitution of Groups. For the purpose of the current study, Domain constituents exist at a deeper shell. However, enjoinment of Fiske to Triandis and Redding was required to be made at the level of Elementary, for reasons of complementarily and parsimony.

Of course, observations and data from a country can be methodologically processed and a model constructed. But, what is the worth of the content? How unadulterated are the data? Does the latent variable under each datum truly converge on a *single outcome* for the *same* reason? If a physical science researcher questioned: *what is the best conductor of electricity to use when building a superconducting particle accelerator?*

The best answer shall be *situation specific*. It does not suffice to know what metals conduct electricity - stop. One needs to know that silver (*Argentum*) is a better conductor than electricity, but is far more expensive than Copper (*Cyprium*). Conversely, Copper is an *adequate* conductor for many purposes. Thus, if one is building a superconducting particle accelerator, a cost benefit analysis is likely to show copper should be used on conventional wiring, yet, silver (or gold or indium) can be used on superconducting magnets. Thus, merely knowing copper and silver conduct electricity does not answer the question previously posed.

Likewise, an *overarching* acquaintance of matters by a researcher or manager does not suffice for optimal solutions. Instead, one must isolate key constituents (constructs) into divergent homogeneous sets and relate the homogeneous solutions towards the optimal solution, in a manner most fit for purpose.

In the same vein the Thesis posits that knowing the *broad* cultural characteristics of a country does not adequately identify the *specific* values of societal groups, therein, contained. True convergent homogeneous constructs must be isolated and contributions weighed in context with the task at hand. The Thesis argues that homogeneous societal constructs (with attendant dimensions) are better suited for determining new product-process development measures than the culturally heterogeneous measure, 'country'. It follows, convergent homogenous

measures (society) should be used in preference to heterogeneous measures (e.g. countries), especially regarding comparative analyses.

In this frame, not all countries have enduring uniform archetypes. Dissimilar ethnic groups and competing religious groups sharing the same general location, often exhibit disharmony e.g., in the Western Reformation or the modern day Middle East. In a single country, group disharmony is the very antitheses of the uniform archetype. Cultural homogeneity can be lacking in a single country. Moreover, values might *not* be ‘organised around the same patterns of belief, attitudes, self-definitions and values’ (Triandis 1994, p.2).

As a result one might ask: what is a trustworthy unit of measure to better identify hygienic cultural archetypes and to avoid data corruption by cross-acculturation? In response, the Thesis posits, ‘society’ in relation to common ecological and historical legacies, to be a superior measure for a particular country or nation.

Similarly, Triandis (1994) points to culture as a product of ecology. In this line of thinking, specific societies share ecologies and histories to allow the identification of constructs, having quantifiable homogenous latent variables, which differ from the distinct quantifiable homogenous latent variables of other societies. As applied in the Thesis, the new term, ‘Societal Syndrome,’ should be regarded as a parsimonious representation of *Society arising from Ecology and History*. Accordingly, reformulating Triandis’ (1994) definition to better fit the current purpose; a Societal Syndrome is defined as:

‘A shared archetype of approaches, attitudes, self-characterisations and normative values that are organised around common dimensions that can be identified as having arisen from the legacies of a congruent ecology and comparable histories.’

– Peter Sinclair 2010

The designated definition of Societal Syndromes complements and sustains quantitative analyses requiring discernment between syndromes and the measurement of the convergence of dimensions with Societal Syndromes across societies, including Anglo Western society and Han Chinese society.

The three Societal Syndromes tested in the Thesis are Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy, which are extracted from the combined non-empirical contributions of Fiske, Triandis and Redding specifically, backed by the general literature on cultural antecedents. As shown in the Measurement Model hypothesised dimensions converged on each Cultural Syndromes, as expected.

Also, history plays an important role in the formation of societal culture. Triandis (1994), as an exemplar, notes the shift in Japanese social behaviour from militarism to the competitive behaviour of Japan Inc. Yet, the Thesis would maintain the rise of fiefdoms³, after the collapse of slavery with the sacking of Rome (410 AD) and ultimate fall of the Western Roman Empire (476 AD), would be a better example, because a third civilisation arose, from the conflict between two other civilizations: e.g., Ancient Rome and the Visigoths (Toynbee, 1958). Subsequently, the degree of persistent Latinisation in past history remains a determinant of cultural variance in the substrata of European societies⁴, even today.

At the level of small groups, Gupta (1976) and Sen (1962 in Triandis1994) observed Islanders women, who are clan field workers, employing harsh toilet training on infants

³ Fiefdom is a vestige of slavery around which new social relationships grew with new leaders. Japan Inc. is a vicissitude: The Zaibutsu were not removed during Western occupation and often the same families the Keitsu. In Japan Inc., the Emperor has the same lineage.

⁴ Herein, the borders of countries change more often than underlying culture.

carried on their backs. As a result of the severe training, Andamanian Islander babies can typically control themselves within ‘six months’ of birth (Triandis 1994). Accordingly, obsessive-compulsive (Freud 1905, in Triandis 1994) cleanliness is a defining characteristic of Andamanian Islanders over generations (Triandis 1994). Thus, socio-ecological conditions prime intergenerational behaviour.

Likewise, in historical China, Confucianism remained persistent, because conquering invaders allowed the tenets of the advanced Han Chinese bureaucracy to remain in place under less sophisticated culturally-distant foreign overlordship. In this way, relationships between ecology, history and culture are deeply entwined so that ecology and history can determine the kind and pace of change in societies. Consequently, as theoretical constructs, Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy are deemed by the Thesis to exhibit a familiar disposition to the aforementioned examples.

4.3.2 Integration of Fiske’s Elementary Forms and Triandis’ Culture Syndromes

Fiske clearly identified four elementary forms of social behaviour; *vis.* Community Sharing, Authority Ranking, Equality Matching and Market Pricing; which, can be used in non-empirical investigation of cross-cultural manifestations. Triandis (1994) has recognised the value of Fiske’s efforts, which underpin the development of Cultural Syndromes, arising from Fiske’s four elementary forms. Triandis posited the non empirical substrata of Asian Collectivism and Western Individualism, as an example.

Figure 4.1 restates Figures 2.12 and 2.13⁵, in a truncated format, as posited by the Thesis. For Han Chinese society and Anglo Western society, the contributions of Fiske and Triandis accommodately interlock and complement the phenomena appraised. Said phenomena

⁵ The terminologies used were clarified in Chapter Two.

demonstrated an original comparison, based on the *existing* non-empirical affirmations of Fiske and Triandis, from the Literature Review. The thesis developed the devised integrated format, as a prototype, to guide empirical investigation towards an enhanced research design, more suitable for empirical analyses.

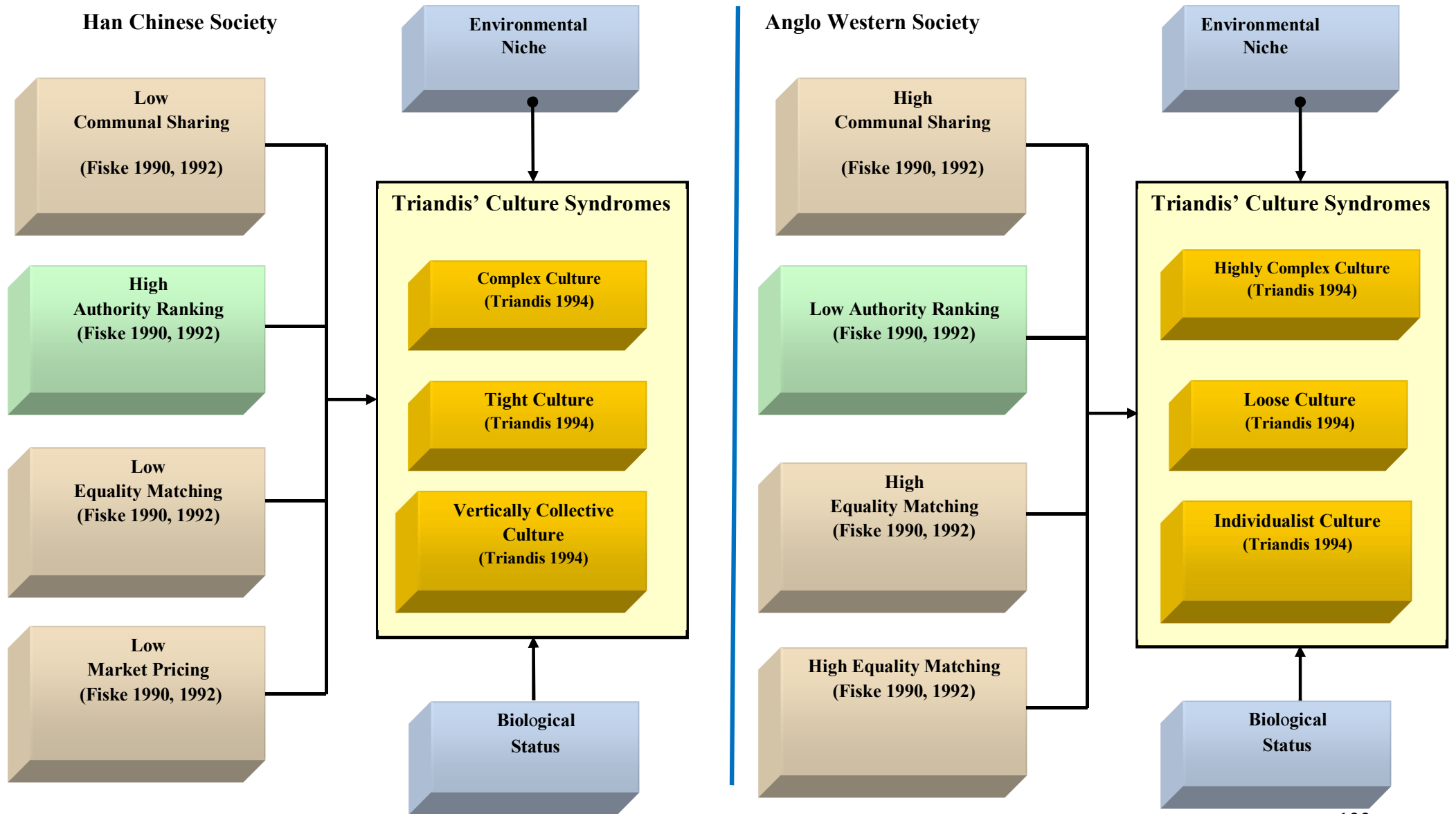
For Han Chinese society and Anglo Western society, the Elementary Forms and Cultural Syndromes, shown in Figure 4.1⁶, represent cultural phenomena required for the development of new enhanced Cultural Syndromes; viz. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy; as reported in Chapter Six and Chapter Seven.

From page 135, the Thesis revisits measures Triandis' (1994) Culture Syndromes, commencing with Social Complexity.

-Please turn page-

⁶ Please note the division. Side-by-side comparison is intended.

Figure 4.1: Integration of Fiske's Elementary Forms and Triandis' Culture Syndromes



4.3.3 Social Complexity - Triandis

Both Han-Chinese society and Anglo-Western society measure high to very high in social complexity (Triandis 1994). Both societies present high measures on the following key complexity indices *cum* attributes (Carbeiro 1970, Lomax and Berkowitz 1972, Murdock and Provost 1973, in Triandis 1994, p. 156):

- Literacy
- Bureaucracy
- Agriculture
- Urbanisation
- Technology
- Transportation systems
- High population densities
- Political systems
- Social Stratification

Both China and the West are at least *second generation* complex societies arising in the fifth century in large measure from earlier ancient complex civilisations (McNeill 1991, Quigley 1961, Toynbee 1958). The Sinic civilisation transmuted into the Chinese and Japanese civilizations. The complex universal states of the Sinic civilisation were the Ts'in Empire and the Han Empire (Toynbee 1958). Western civilization grew from the Roman Empire and Hellenic affiliations (Toynbee 1958).

High complexity in technology is especially associated with the West, after the Great Divergence (c.1760)⁷. Information-based societies are very complex, owing to the need to integrate knowledge (Triandis 1994) to achieve Creative Synergies.

⁷ Before that time Europe was undifferentiated from China in terms of 'energy use *per capita*' achieved (Pomeranz 2000, p.44).

4.3.3.1 Tight versus Loose Cultures - Triandis

Triandis (1994) presents Japan as a ‘tight’ culture. For example, a student was killed by a teacher for being two minutes late for class and the press was hesitant to overtly criticise the teacher’s extreme punishment in response to a minor misdemeanour. This indicates the lack of intolerance of any deviation from the rules. Similarly, in China for two thousand years the *Xiaojing*⁸ in the absence of independent statute law the family unit applied the Confucian familial code to a ‘myriad of self-controlling codes’ throughout ‘the (entire Chinese) social fabric,’ emphasising unequal rank and very strict adherence to tight norms. Obedience was demanded and divergence harshly punished (Redding, 1990, pp. 128-129). In recent times, the Tiananmen⁹ Square Incident (1989) in Beijing, involved extreme measures against pro-democracy protesters, to enforce the *status quo* and quash a rival philosophy¹⁰. Likewise, in Singapore, for a minor act of vandalism, an eighteen year old was sentenced to six strokes of the *Wotan* cane delivered by a martial arts expert¹¹. Similarly, Hsu (1970, in Hamilton 1984, p. 417) reports that in 1865:

‘Chin-cheng’s wife had the insolence to beat her mother-in-law. This was as such a heinous crime that the following punishment was meted out. Cheng and his wife were both skinned alive ... their skin was displayed at the city gates of various towns and the bones burnt to ashes¹².’

Tight cultures are intolerant of any departure from traditional norms and tend to reinforce societal homogeneity (Triandis 1994, Hofstede 1984, Pelto 1968). On the other hand, in loose cultures (e.g. Australia and the United States) norms are less evident, because looseness

⁸ Book of Filial Piety.

⁹ Gate of Heavenly Peace.

¹⁰ Fear of Rival Kingdoms by Chinese leaders.

¹¹ *Fay Michael Peter v. Public Prosecutor (1994)*.

¹² The punishment extended to many male relatives and teachers and the Cheng land was laid to waste in perpetuity and their nine month old baby was renamed Hsu (1970, in Hamilton 1984, p. 417).

accommodates conflict (Triandis 1994). For example, Western heterogeneity supports greater acceptance of *otherness*.

4.3.3.2 Individualism and Collectivism

Individualism and Collectivism were introduced in Chapter Two. Figure 2.8 and Figure 2.9 provided detailed representations of the relationship of Fiske's elementary forms (1990) and Triandis' Cultural Syndromes (1994) pertaining to Asian Collectivism and Western Individualism, respectively.

Triandis (1994) reveals two forms of collectivism. Communal Sharing (Fiske 1990, p. 164) underlies 'interdependence' in collectivistic activities or, Authority Ranking (Fiske 1990, pp.164-165) underpins 'oneness,' which is associated with member identification towards the goals of the in-group. In this frame, Han China remains understood by the Thesis to be a vertical collectivist society, because:

- In-group ranks are structured hierarchically
- Member expectations centre on the same 'salient fate'
- The veracity of the in group is exalted over individualism (Hui and Triandis 1986, in Triandis 1994)
- Out-groups are deemed foreign and are kept at a distance except where practical (Redding 1990, Silin 1976)

The literature indicates that the Thesis interdependency in Han China is found in tightly circumscribed groups, especially the family or work group. Individuals do not *break away* to form strong horizontal attachments with out-groups. Hofstede (2001, p. 226) refers to the sense of in-groups being 'we-groups' and out-groups being 'they-groups'; in collectivist societies a reliance-loyalty relationship develops between the member and the group.

Individuals, therefore, work towards the interests of the group rather than the self (Trompenaars, 1998). In Han China when employing the terms interdependency and co-operation to horizontal collectivism, one must realise ‘horizontal’ denotes the close relationship between each member and the other members of the in-group, according to the collective values of the in-group; rather than horizontal openness and Horizontal Altruism towards outsiders. Hofstede (2001, p. 225) notes:

‘Collectivism stands for a society in which the people from birth onwards are integrated into strong, cohesive in-groups, which throughout a people’s lifetime (sic) continue to protect them in exchange for uncompromising loyalty’

‘Cohesive in-groups’ (2001, p. 225) are tightly circumscribed. While *guanxi* and minimal non-familial ties might exist, the Han Chinese collectivist resiliently avoids ‘fox friends and dog cronies’ (Hsu 1981, p.43). *Hao jen* (good relationship-connections) relates not so much to interpersonal closeness, as it does to fulfilling *jen-ch’ing* (human obligations) towards the norms of the in-group, governed by *li*, in context with individual commitment (Silin 1976). In this frame, the ‘networked self’ fits into a social web transcending personal ego by engaging the universe¹³ and by having the group supplant the self (Redding pp. 62-63).

Emotionally, collectivist’s are context reliant, empathic and focus on the needs of the in-group (Markus and Kitayama 1991). For the collectivist, the underlying values include security, obedience, duty and in-group harmony and persistence (Triandis 1994, p. 168).

On the other hand, individualists act independently of context, while focusing on private goals, rights and privileges (Markus and Kitayama 1991). The unpinning values of

¹³ Daoist concept.

individualistic cultures include achievement, competition, autonomy, fair exchange, truth and persistence (Triandis 1994, p. 168, Schwartz 1990, in Triandis, McCusker and Hui 1990).

Hofstede (2001, p. 225) notes:

‘Individualism stands for a society in which the ties between individuals are loose: Everyone is expected to look after himself/herself and his/her immediate family only.’

Thus, Hofstede (1984, 2001) maintains that Individualism is contra to Collectivism. Normatively individualistic societies, such as the Anglo West, have opposite values and norms to collectivist societies: e.g. Han Chinese society. Herein, we can contrast the overarching descriptions of strong Individualism and strong Collectivism, respectively, as provided by Hsu (1983, pp. 4-5) and Baker (1979, pp. 26-27):

‘The most rugged ingredient of rugged individualism is self-reliance ... Self reliance has two attributes. The first is fierce competitiveness. The rugged individual must advance or regress according to his own efforts and luck. When an individual advances, it necessarily means that others are regressing by comparison even though they may not have slipped at all in absolute terms.’

Alternatively, in Han-China,

‘The individual alive is the personification of all his forbears and of his descendants yet unknown’.

The thesis recognises extreme polarities might exist, on occasion, and the essences stated are real; however, it does not agree with Hofstede (1984, 2001) that manifestations of Individualism and Collectivism are necessarily on opposite sides of the same continuum. Consequently, the Thesis adopts the perspective of Trompenaars (1998, p. 53), that ‘true’

cultural dimensions should be regarded ‘complementary, not opposing, preferences’¹⁴. Therefore, empirical measurement in research design applied in the Thesis, distinguished between the two traits: viz. Vertical Power Ethos and Horizontal Altruism, as posited. Akin to Trompenaars (1998), yet, unlike Hofstede (1984, 2001), Triandis (1994) sees cultural attributes as admixtures having prevailing tendencies, rather than presenting as absolutes. The Thesis concurs with Trompenaars and Triandis. In recognition of this, the Thesis separate measures of vertical dimensionality and horizontal dimensionality were developed and composites were constructed for comparisons against an ideal value set¹⁵.

In summary, Triandis (1994) Cultural Syndromes, viz. Cultural Complexity, Tight versus Loose Culture and Individualism-Collectivism are derivable from Fiske’s (1990, 1992) Elementary Forms. Anglo Western society and Han Chinese society are distinguished as shown in Figure 4.1. However, the new non-empirical model is incomplete. Unification shall require expression as patterns of societal culture in society at large and patterns of social behaviour in the workplace, as identified by Redding (1990) and developed in the next section.

-Please turne page-

¹⁴ The Western Jury System would contain elements of both Individualism and Collectivism whereby all individuals have a voice but are required to achieve a group consensus.

¹⁵ Anglo Western Dynamic Transformationalism and Sino Homeostatic Traditionalism were gauged against proximity to the hypothetical meta-construct of low Vertical Power Ethos, high Horizontal Altruism an low Conventional Orthodoxy.

4.4 SOCIETAL CULTURE AND SOCIAL BEHAVIOUR

As discussed and illustrated in Figure Chinese Capitalism is founded on Paternalism, Personalism and Insecurity, having deep roots in Chinese history (Redding 1990). From Redding's non-empirical contribution, one can readily identify two tiers (levels) of expression: i.e. Societal Culture and Social Behaviour. High Vertical Order, low Horizontal Order and high Traditionalism in Society at Large emanate from Complex Culture, Tight Culture and Vertically Collective Culture syndromes (Triandis 1994). Moreover, at the workplace in society; Personal Secretness, High Personal Control and high Patrimonialism stem from the same three cultural syndromes.

Limited and Bounded Trust (Redding 1990) is held to have the same cultural heritage, herein, having affect at the two levels of Societal Culture and Social Behaviour (Group $n < 150$). Limited and Bounded Trust is assumed to be engrained in Chinese society owing to Insecurity and familialism (Redding 1990) and non-trust (Silin 1976).

Competitiveness in China did not nurture horizontal co-operation; unlike in the West, which has been pluralistic, especially from the eleventh century of the Common Era. Pluralism is held to mitigate the negative influence of hierarchical social structures and promote the sharing, secretion and diffusion of personal knowledge to achieve common needs. In the context of the absence of Pluralism, Familialism and Limited and Bonded Trust (Redding 1990) restrain knowledge proliferation to the detriment of development activities.

As noted in the next section, Western Pluralism, which had roots in the eleventh century (McNeill 1991), acted as a conduit to knowledge dissemination in the Enlightenment and Great Divergence. We now review Western Pluralism as a counterpart to Chinese Familialism and Limited and Bounded Trust (Redding 1990). The identification of the presence of Pluralism or the absence of Pluralism is necessary to establish the relationship between Triandis' (1994) Cultural Syndromes and Redding's (1990) patterns of Societal Culture and Social Behaviour.

4.5 PLURALISM

'Medieval academic science and medieval technology were in fact two almost completely independent' (Crombie 1961, p. 29)

The West's eighteenth century engagement with the Great Divergence marked the transition from feudal Pluralism and is often used to justify the claim that the West *vis-à-vis* other civilisation to be more advanced technologically owing to:

- Superior application of scientific method (Function Theory to Technique)
- Co-operative mutualism arising from feudal Pluralism

Prior to the Great Divergence, Western society was restrained by 'an incomplete dialogue between theoretical concepts and procedures on one hand and, practical quantifying procedures in contact with the data of observation on the other' (Crombie 1961, p.29 to link theory to instrumentation. Jin, Fan and Lui (1996) note:

'The cultural atmosphere of ancient China, in particular the mode of thinking characterized by direct perceptive extrapolation, brought disastrous consequences to

scientific experiments. In those fields in which direct perceptive extrapolation could produce a satisfactory explanation, the word experiment was taken as synonymous with experience. As a result, though the ancient Chinese scientists attached great importance to practice on the one hand, they neglected experiment on the other, for they could not get anything more out of experiment than experience. In those areas where direct perceptive extrapolation could not ensure a thorough understanding of a problem, experiments were totally subjected to the mystic concept of “induction between heaven and man” ’ - Jin, Fan, Fan and Lui (1986)

‘Direct perceptive extrapolation’ (Jin, Fan and Lui 1996) is referred to as *Chan* in the Chinese manner of thought. Prior to Confucianism gaining sway, Daoism,¹⁶ as established by Li Er (Lao Zi)¹⁷, saw the World in flux, and, therefore, it was impossible to fasten-down continuously transmuting facts. Thus, Lu (in Alon 2003, p.3), states China vis-à-vis the West:

‘The Chinese mode of thinking influenced by Taoism (Daoism) differs from the mode of thinking influenced by Greek and Roman cultures. These two modes of thinking ... have a huge gap between them.’

¹⁶ The Way in Daoism does not fit well with Confucian authoritarian Patrimonialism. Lao Zi (老來子 or ‘Old Master) said in relation to letting go (*wu wei er zhi*) one should not interfere to have inaction (*wu wei*) achieve balance. The Chinese and Japanese civilisations share a Sinic parent. Yet, it would seem that *wu wei er zhi* was squashed in latter Chinese dynasties, owing to the dominance of Confucian cardinal relationships. In Japan, as is evidenced by the *Ringi* System, the original tenets of *wu wei er zhi* remain strong.

¹⁷ Li Er (李洱) authored the book of Chinese Daoist philosophy, *Dao De Jing* (道德經) or Truthful Way and Virtuous Way in Life (Ong, 2005). Regarding observation the *Dao De Jing*:

By the eternity of unknown existence
Comprehend the common essence of things;
By the eternity of Existence
Observe the apparent differences.
These two came from the same origin — the unknown
But with different names.
They all are called the ‘profoundness’.
Profoundly and profoundly it is the entrance
From which come all wonders. – Lao Zi, (Trans., Tang Zi-Chang, 1969)

Likewise, until the Great Divergence, the West was restrained by Aristotelian style frameworks, wherein, classifications were made, in terms of observations. Further, Crombie (1961, p. 15) states physics was, ‘explicitly qualitative ...’ having. ‘... its explanations in terms of direct classification of immediate experience’. Even by the mid-eighteen century, neither, China nor the West was proficient at modern science.

Niven (1968) and Jin, Fan and Lui (1996) distinguish between technology and modern science arguing that prowess in developing technologies should not be mistaken for modern science as was developed after the Great Divergence (c. 1760). Chinese technological inventions¹⁸ related to state unification and social need (Jin, Fan and Lui 1996)¹⁹.

-Please turn page-

¹⁸ The invention of the compass, gunpowder, and type-case printing.

¹⁹ ‘The technological development of a society is determined by the social need for technology. Inventions emerged to satisfy the social need to impose a strong and unified state institution. Paper, compass, and printing are used for social communication (transportation). Though the making of gunpowder originated from alchemy, it became a technique after the Tang Dynasty mainly because of the need for a single unified state. It is clearly recorded that gunpowder was first applied to weapons in the Song Dynasty. In the early years of the Northern Song Dynasty, firearms were used to suppress the peasant uprisings led by Li Shun and Wang Xiaobo. Meanwhile, Europe was greatly fragmented. Its small divisions were relatively independent economic-cultural units with very weak interrelations. In sharp contrast to this, ever since the first emperor of the Qin Dynasty conquered six other states and assumed absolute authority, the form of a unified and centralized feudal universal state had always predominated in the social structure of China. Powerful and unified administrative control, frequent exchanges in the fields of domestic economy, commerce, and trade and a unified culture and belief, all called for, among other things, developed techniques for communication and transportation, for cultural exchanges and dissemination, for powerful military forces, for the type of calendar that "tells people the time," for land-measuring and cartography, and for building palaces that would demonstrate the majesty of imperial power. We term all these the unifying technology.’ Jin, Fan and Lui (1996, p.143). Chinese unification *vis-à-vis* Western (European) fragmentation assisted China to pioneer some of the World’s most significant inventions ahead of the West, before the fifteenth century and hundreds of years before the Great Divergence.

Inclusion 4.1: Systematic Experiment

Dear Sir²⁰,

Development of Western Science is based on two great achievements, the invention of the formal logical system (in Euclidean geometry) by the Greek philosophers, and the discovery of the possibility of finding out casual relationships by systematic experiment (Renaissance). In my opinion one need not be astonished that the Chinese sages did not make these steps. The astonishing thing is that these discoveries were made at all.

Sincerely yours,

Albert Einstein

(Einstein 1953, in Needham 1969, p. 43)

The West's interaction with Islamic influenced *Córdoba* (Spain) was productive, owing to (a) the Muslims being more advanced technologically than the Middle Ages West and (b) the Islam to West transfer of Ancient Greek epistemologies and the conveyance of the Attic Greek²¹ language known to Islamic scholars (McNeill 1991, Quigley 1961, Toynbee 1958). As a result, knowledge lost during the last years of the Roman Empire and Dark Ages was regained by the West²². As Wells (1937, p. 626) states:

‘...a century or so in advance of the West, there grew up the Moslem world at a number of centres, at Basra, at Kufa, at Bagdad and Cairo, and at Cordoba. At Cordoba in particular there a great number of Christian students and the influence of Arab philosophy coming way of Spain upon the universities of Paris, Oxford, and North Italy, and upon Western European thought generally, was very considerable indeed.’

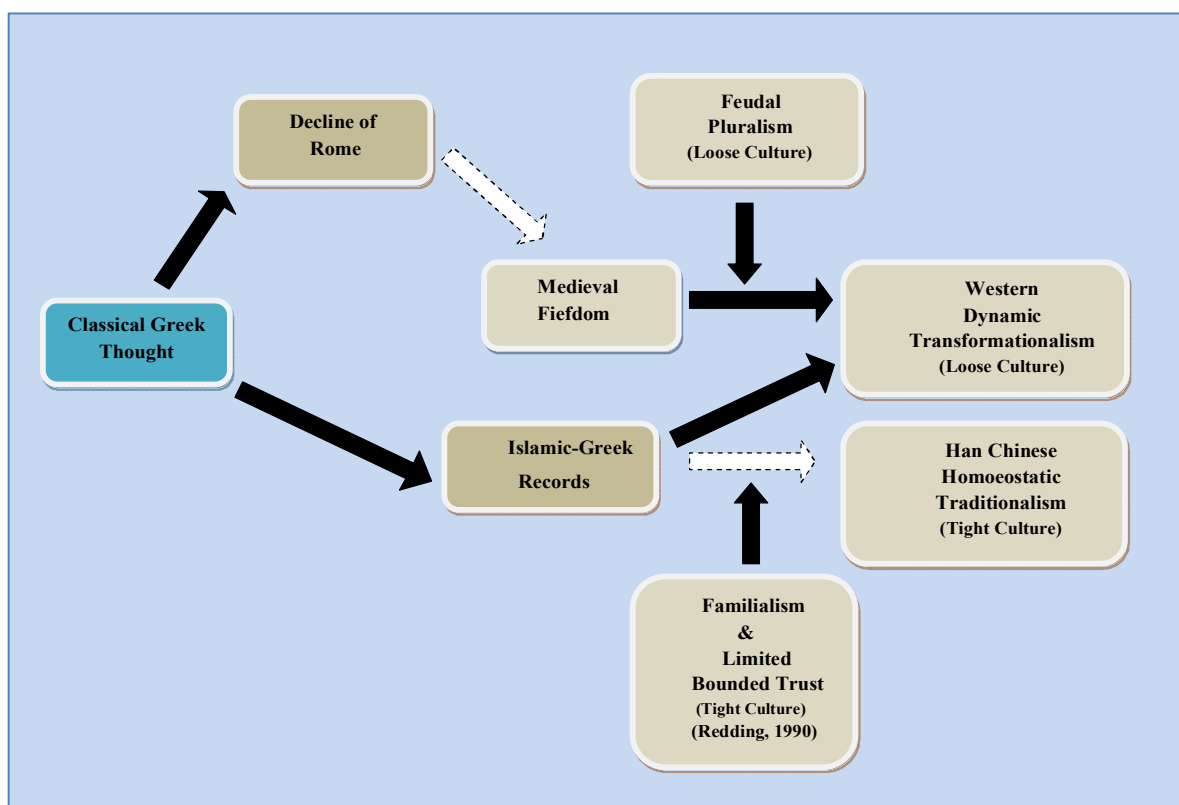
²⁰ Letter to J. S. Switzer, 23 Apr 1953, Einstein Archive 61-38, The Jewish National & University Library, The Hebrew University Jerusalem, Israel

²¹ Scholarly Court Greek as opposed to *Koine* (Common) Greek (Toynbee 1958).

²² Also, Chinese society vis-à-vis Western society did not have a prolonged Dark Ages (Jin, Fan and Lui, 1986). Confucian Traditionalism succeeded over the more experimentally inclined Mohists.

The full benefit of the knowledge transfer from Islam to the West ripened in the Enlightenment. During this period the shackles of the Medieval Christian Church and the Monarchical State rule had been loosened, to free the potential of Pluralism from feudal bondage to create loose, open societies in the West.

Figure 4.2: Effects of Western Feudal Pluralism vis-à-vis Chinese Familialism and Limited & Bounded Trust



The Thesis maintains that the mutualism and co-operation characteristics of feudal Pluralism carried forward to the Enlightenment and permitted modern forms of high Horizontal Altruism in the West, as shown in Figure 4.2. The Thesis posits, in loose (Triandis 1994) Western culture, high Horizontal Altruism, unlike in traditional China allowed Islamic

thought and Ancient Greek epistemologies to achieve traction and spread, because of the presence of the aforesaid Pluralism.

Córdoba did receive students from the non-pluralistic East (Wells 1937), yet Islamic thought and Ancient Greek epistemologies did not make inroads into China. As such, the Thesis maintains familialism (derived from Confucius) and ‘limited bounded trust’ has (Redding 1990) impeded scientific progress in tight China. In this frame, the tight culture of traditional China did not allow broad communication of knowledge available from Middle Ages Islam. This is unlike the loose West, where pluralism facilitated the Enlightenment and the Great Divergence.

In consideration of the aforementioned, Figure 4.2 shows the comparative histories outlined in this section, where dotted arrows indicate a failure of knowledge transmission. For centuries, the West did not advance as quickly in technology, as did China and Islam, because of (a) the decline of the Roman Empire and (b) the absence of Attic language scholarship²³ (Toynbee 1958).

The Greco-Roman legacy left to the Medieval West was deficient. However, in the thirteen century, Attic Greek scholarship became available to tight China and the loose West, via Islamic erudition²⁴:

- In tight Chinese society, familialism together with limited and bounded trust (Redding 1990) contained Horizontal Altruism and stemmed the sharing-out of knowledge which encouraged the development of closed Sino Homeostatic Traditionalism.
- Alternatively, mutualism and Pluralism, indicative of a loose culture, outlived Feudalism: wherein, the Attic Greek Phoenix arose from its ashes in the

²³ The Attic Greek of Philip of Macedon did not survive the duration of the Roman Empire in the Western path of the Common Era.

²⁴ Attic Greek scholarship preserved by the Moslems can be thought of as a baseball, and Western pluralism as a catcher’s mitt.

Enlightenment and the Great Divergence to fuel loose Western Dynamic Transformationalism.

In summation, the development of modern knowledge from classical knowledge was lost, and then rediscovered in the loose Anglo West, to flourish, owing to Pluralism, after democratic forms of governance replaced the institutions of Church and Monarchy. On the other hand, tight China did not have the apposite sociological infrastructure to comport new knowledge and spread reformation to society at large. Within these frames, we have the *origins* of Western Dynamic Transformationalism and the *continuance* of Sino Homeostatic Traditionalism. The West made a sustained break that China (and other societies) did not²⁵.

4.6 INTERLUDE REGARDING DEVELOPMENT

Thus far, while there has been some foreshadowing of the empirical model, discourse has primarily been determined by the extant literature. Herein, there was detailed discussion of cultural antecedents in the Thesis and related supporting histologies, moving from the generic picture to focus on the *integration* of the three seminal non-empirical socio-anthropological studies of Fiske (1990, 1992), Triandis 1994 and Redding 1990). The new integrated non-empirical model served as a springboard, to develop original empirical models that will be tested in Chapter Six and Chapter Seven. Familialism and Limited and Bounded Trust (Redding 1990) were assessed as they hindered the spread of knowledge throughout Chinese society and internal communities of practice.

Neither Triandis (1994) nor Fiske (1990. 1992) endeavoured to differentiate between Society-at-Large and small groups of less than 150 people: e.g. the workplace. On the other hand,

²⁵ China did have periods of renewal throughout various dynasties however these were not sustained (Gernet 1999, Trans. Foster and Hartman). Propagation would have required high horizontal non-familial openness, which is not indigenous to Han Chinese society..

Redding (1990) did make a distinction between patterns of societal culture and patterns of social behaviour. For example, measures of Vertical Order, Horizontal Order and Traditionalism in Societal Culture and measures of Personal Secretness, Personal Control and Patrimonialism indicative of social behaviour (Redding 1990).

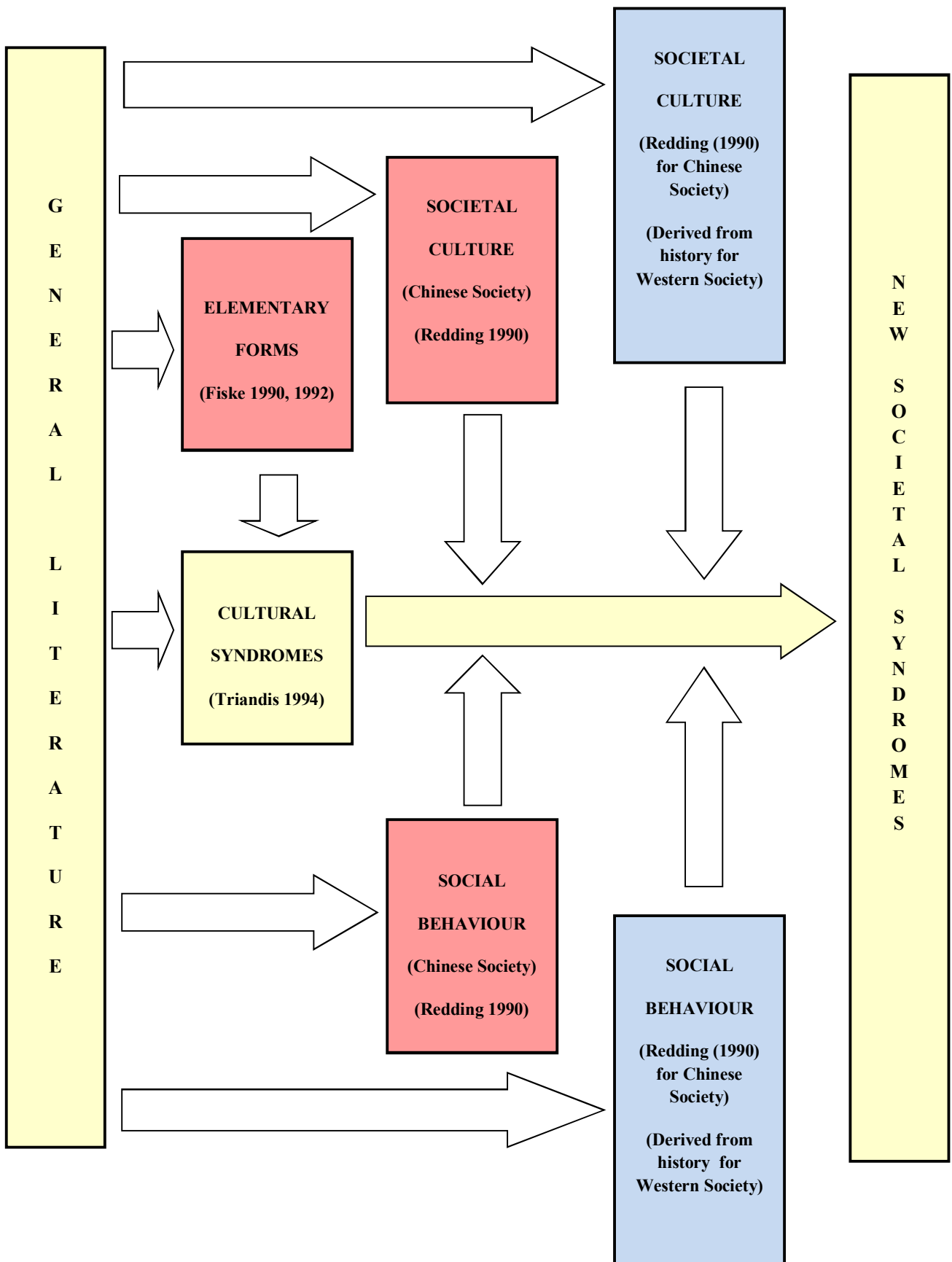
The aforementioned constructs plus consideration of Limited and Bounded Trust (Redding 1990) *vis-à-vis* Pluralism, as expressed both in society at large and in the workplace allow for initial insights into the constitution of Anglo Western Dynamic Transformationalism and Han Chinese Traditionalism. Thus, for the first time, this Thesis has synthesised three influential contributions; viz. Fiske (1990, 1992), Triandis (1994) and Redding (1990); as a critical, must-do, intermediate step of achieving original empirical research.

The new²⁶ incorporated non-empirical model can readily direct the construction of original empirical models of Anglo Western Dynamic Transformationalism and Han Chinese Traditionalism. The Societal Syndromes measured and reported in Chapter Six and Chapter Seven were Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy. Each Societal Syndrome is comprised of dimensions (factors). The Thesis proposes the Anglo Western society and Han Chinese society shall be highly differentiated on all measures.

-Please turn page-

²⁶ It is argued that use of only one established empirical model would not ensure generalised representation of the non-empirical literature and lower internal validity. Thus, the sum of the aggregated parts yields more than each study (severally to achieve *gestalt* – this part doesn't make sense).

Figure 4.3 Bridging the Literature to New Societal Syndromes



Supporting an original contribution, Figure 4.3 provides an overview of the high-level relationships between the general literature and the new Societal Syndromes: Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy. The general literature provided a valuable foundation from which cultural antecedents are constructed in societies and throughout history. The *Sum of the Part and more (Gestalt)* supports new non-empirical constitutions to facilitate original empirical research design and quantitative assessment of data and structural equation modelling of relationships between constructs.

Such an approach is rational, because understanding of cultural antecedents pertaining to the Anglo West and Han China requires investigation of phenomena that have developed over long periods of history. Whereas, the Nation State is a comparatively recent phenomenon as Greenfield (2004, p. 228) notes: ‘a backward glance at history reveals just how transient, and relatively new, the concept of the nation state actually is’.

The new syndromes required an elaborate research design based on surveys of new product developers and non new product developers in Anglo Western and Han Chinese society. Above, we pre-empt a quantitative study, which develops new cultural antecedents; while acknowledging and respecting Triandis’ concept of a syndrome. ‘Society’ is offered ahead of ‘nation’ or ‘country,’ as the correct unit of measure to encapsulate grounded cultural traits.

The Thesis maintains earlier business studies researchers, whom identify ‘country’ or ‘nation,’ are measuring a political system or an economic system, *within* a society or *over* multiple societies. Cultural antecedents are more enduring than city-states, feudal systems or nation states! Culture is far more fundamental and resilient.

Consequently, survey questions *directly* addressed societal factors and did not skew towards a business discipline (e.g. Human Resources Management) in a chosen company within ‘countries’: e.g. Hofstede. Instead, true cultural antecedents were captured and rigorously tested. Stress was placed on the contribution of eminent sociologists and anthropologists less well known to business studies disciplines. In this frame, culture adopts a top-down perspective, applying the science of its faculties; rather than only extrapolating culture bottom-up from localised business studies’ findings.

4.7 CONSTRUCTING AN ORIGINAL CULTURAL STUDIES MODEL

The purpose of this section is to introduce and explain new constructions. The new constructs introduced are indebted to the non empirical literature; empirical methodologies required for operationalisation, new terminologies and designations. Consequently, not only are relationships revisited but new terms, more in touch with societal constructs and underlying factors are explicated.

Figures 4.4 and 4.5 are joined on the coupling designated ‘A’. Figure 4.4 revisits the non empirical constructs of Fiske (1990, 1992), Triandis (1994) and Redding (1990). A measure (e.g. high or low) of each construct is provided. Figure 4.5 recognises input from the extant literature from McNeill (1963) and Pye (1965) which is *not* manifested in China where pluralism does not flourish.

Figure 4.5 illustrates that the Thesis Limited and Bounded Trust (Redding 1990) is evident in Chinese society, which emanates from Confucianism, familialism and Insecurity characteristic of the Chinese environment throughout dynastic and modern eras. Pluralism, as

identified by McNeill (1963) in the West, did not eventuate from non familial horizontal social relations in Chinese history. Moral behaviour conducive with rank was emphasised throughout Chinese history.

Furthermore, Chinese kinship and community practices were originally were tied to competition in the production of agricultural in order to survive limited (McNeill 1963) and non-trust in the horizontal order towards social peers, which delimited societal flexibility and social behaviour. Given these cultural restraints, the Thesis posits Chinese individuals shall be personal knowledge retentive and unwilling to share knowledge with others to facilitate Creative Synergies. In confirmation, as detailed in Chapters Six and Seven, the Thesis found after rigorous quantitative analyses that Sino Homeostatic Traditionalism is constituted by the new societal syndromes having the following measures; high Vertical Power Ethos, limited Horizontal Altruism and high Conventional Orthodoxy in Han Chinese Society (as shown below). Han Chinese society is a tighter measure than multicultural Chinese society.

Figures 4.6 and 4.7 joined on the coupling designated 'B'. Figure 4.6 revisits the non-empirical constructs of; Fiske (1990, 1992), Triandis 1994) and Redding (1990). Figure 4.6 includes culture-shaping input from the extant literature from McNeill (1963) and Pye (1965). Pluralism thrives. Mutualism and co-operation stem from Pluralism to displace Limited and Bounded Trust (Redding 1990).

Figure 4.4: For China - Reprise of the Relationship of Non-Empirical Contributions

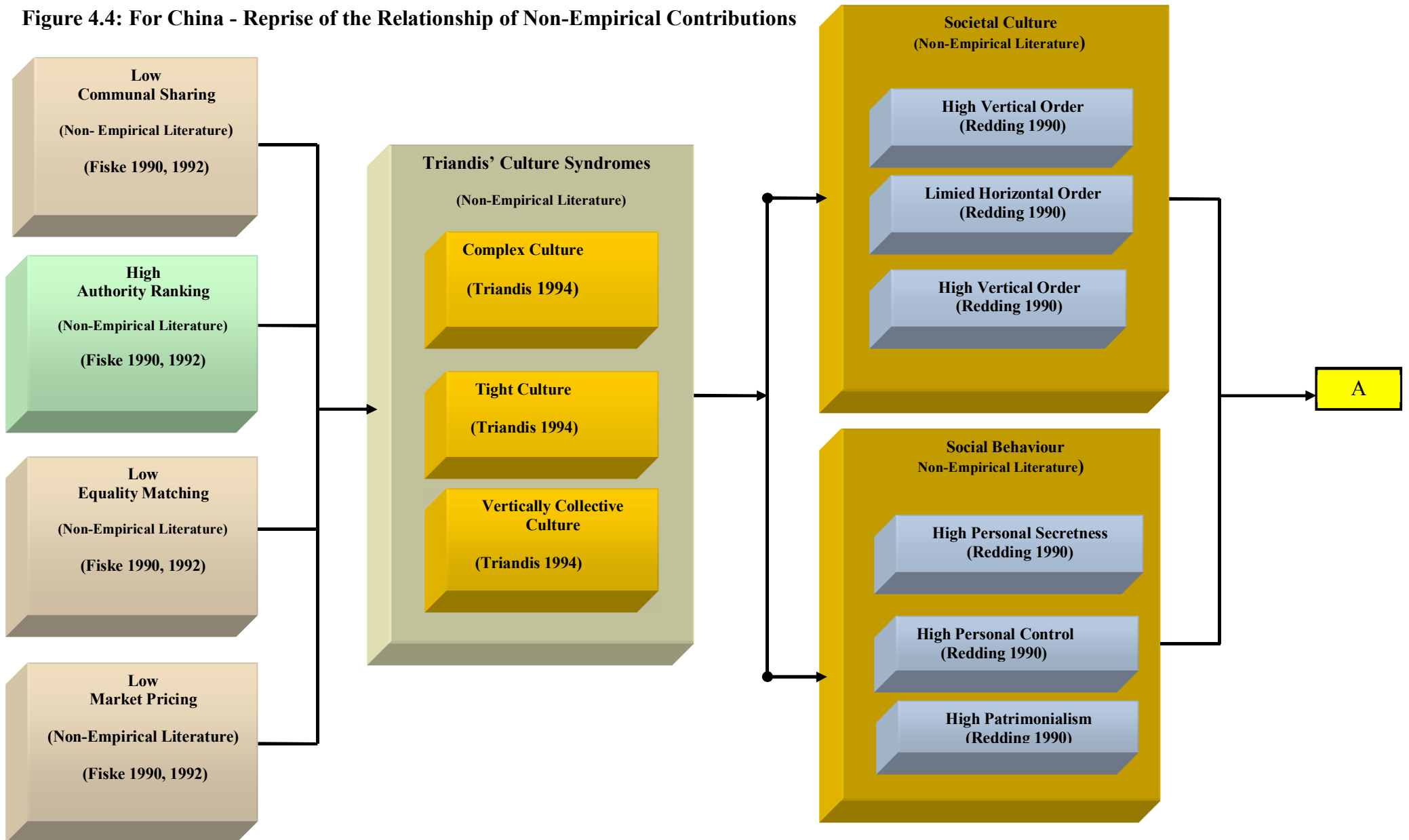


Figure 4.5: For China - Effects of the Absence of Pluralism Stemming from Relationship of Non-Empirical Contributions

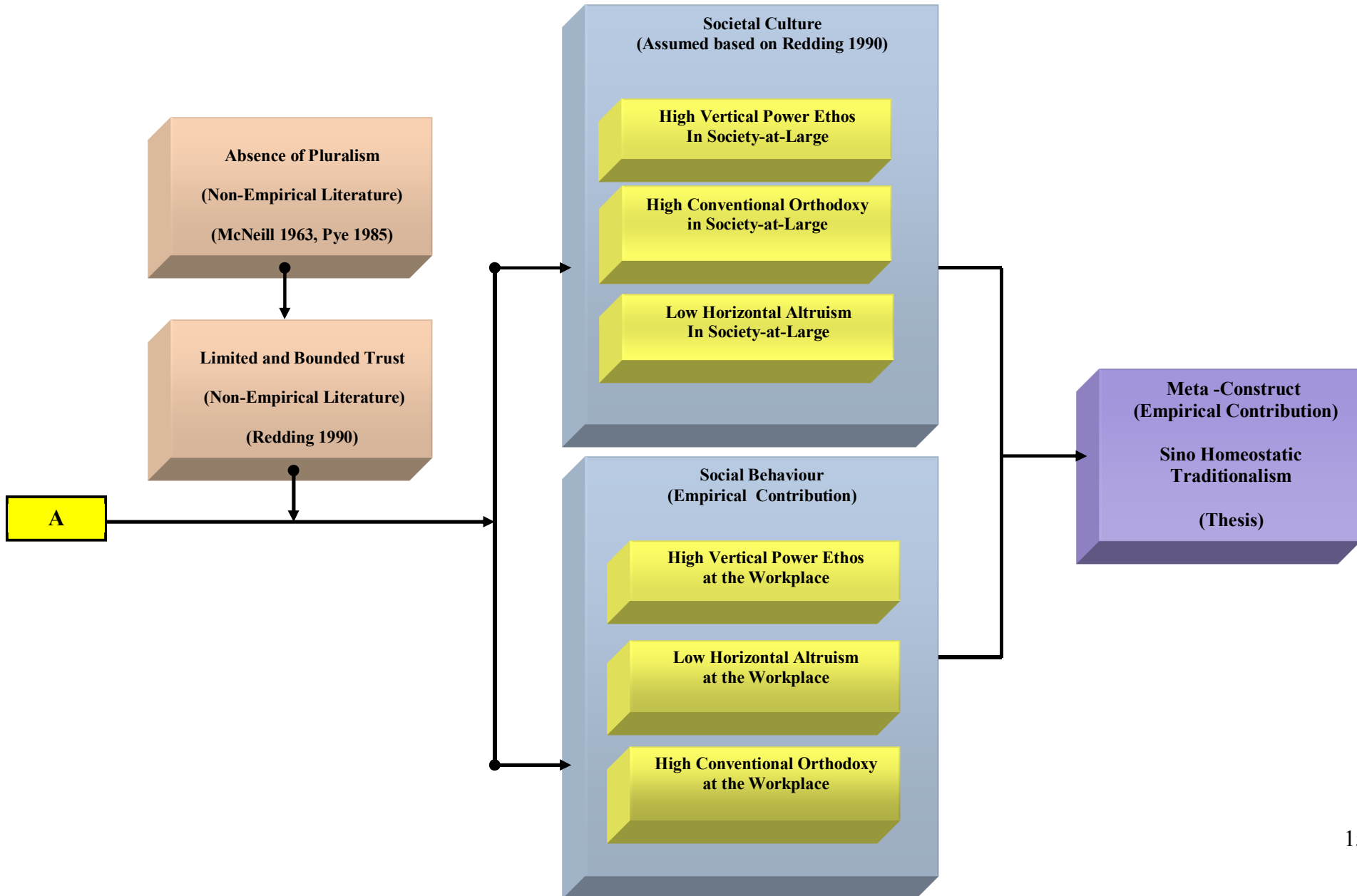


Figure 4.6: For The West - Reprise of the Relationship of Non-Empirical Contributions

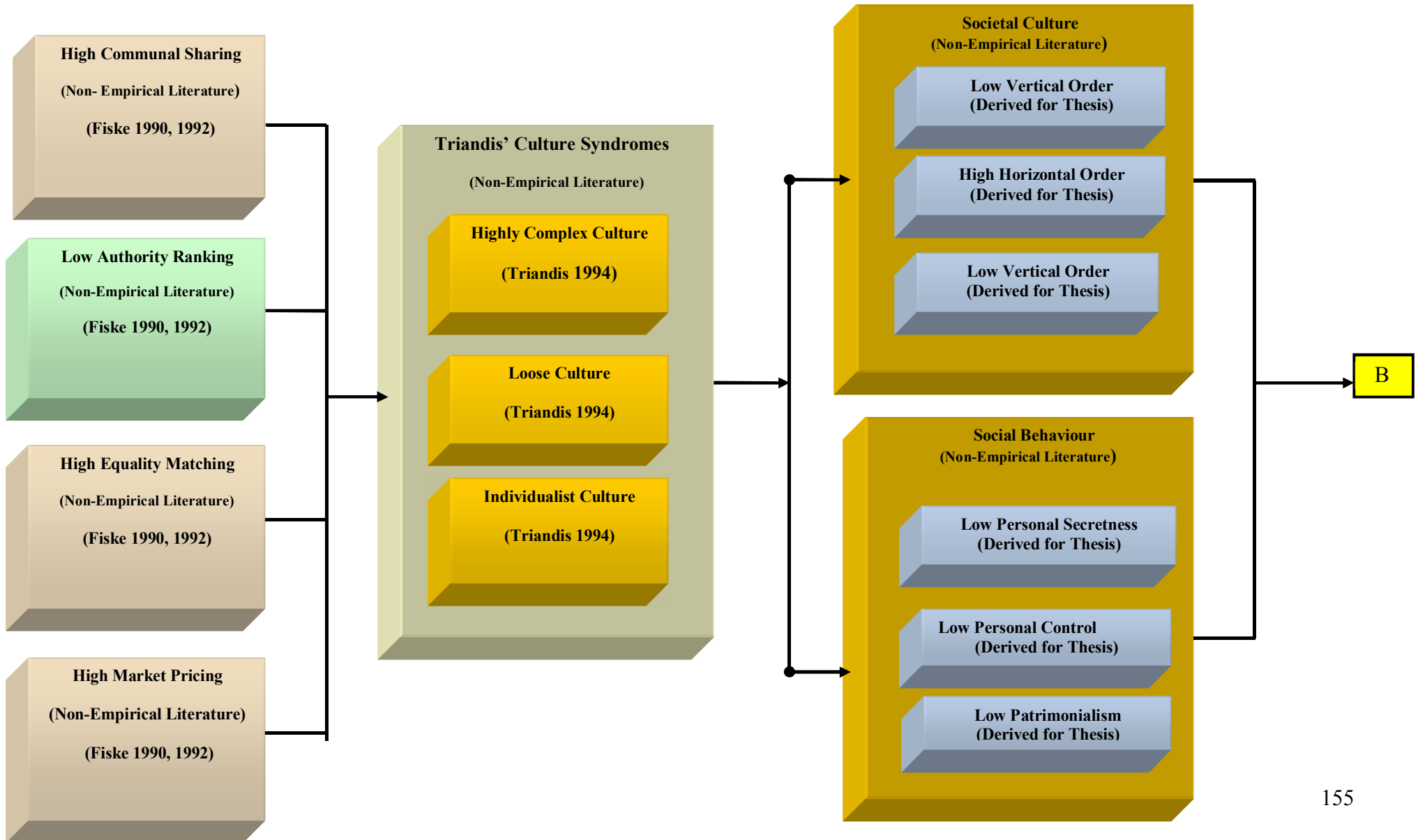
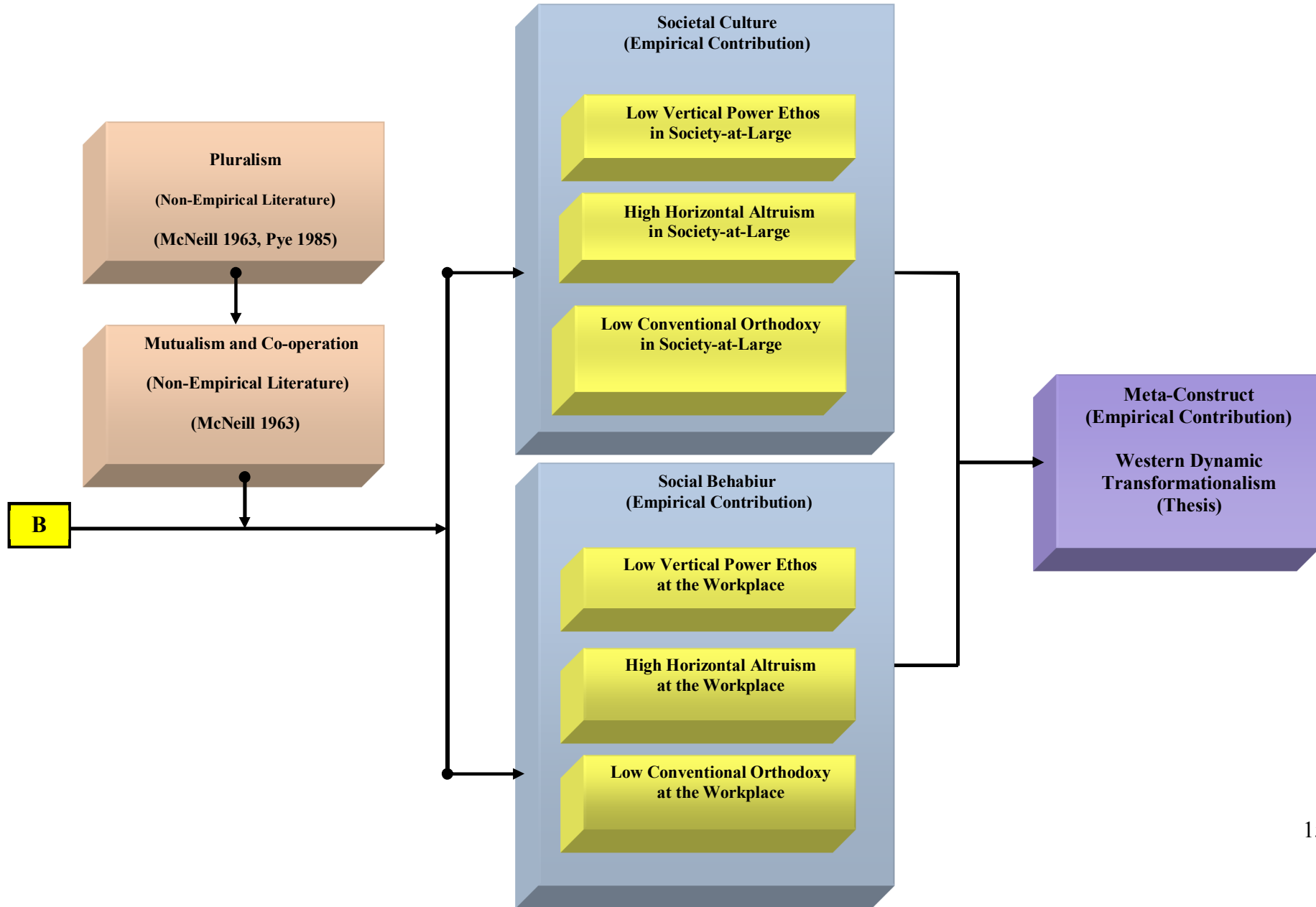


Figure 4.7: For The West - Effects of the Presence of Pluralism Stemming from the Relationship of Non-Empirical Contributions



Pluralism, as identified by McNeill (1963) in the West, emerges as high cross-familial horizontal social relations in history related to village life and common agricultural needs requiring sharing of expensive animal power. The West inherited robust legal systems from the defunct Roman Empire. Western Medieval legal systems extended past Roman justice to include ‘trial by peers,’ (a horizontal relationship). Judicial equality was sought out of respect for ‘common freedom’ as Bloch (1967, p. 368, Trans. Manyon) notes ‘The right to be tried by one’s “peers” was never disputed in the case of persons of even the most modest rank – despite the introduction of hierarchic distinctions.’

Bloch (1962, p. 368, Trans. Manyon) cites the *Momementa Gilshallae Londoniensis*, (1, p. 66), wherein, it is stated of ‘good men and true:’ ‘The court passes judgment not the t lord’. Consequently, we find Henry Plantagenet calling: ‘Quick, quick, hasten ye to get me a judgement’ of vassals to condemn Thomas Becket (Roger of Hoveden, *Chronica*, Vol. 1, p. 228, in Bloch 1962, p. 369, Trans. Manyon).

Western kinship and community practices were originally tied to (a) co-operation in agricultural production in order to survive²⁷ (McNeill 1963), and (b) trust in the horizontal order towards social peers.

Given these cultural freedoms, the Thesis posits Western individuals shall be open to personal knowledge in collaborative endeavours in order to facilitate Creative Synergies. In confirmation, as detailed in Chapters Six and Seven, the Thesis found after rigorous quantitative analyses that

²⁷ Triandis (1994) notes that culture is a product of ecology. Chinese society and Western society present two different solutions to a common human need – survival.

Western Dynamic Transformationalism, is constituted of the new societal syndromes having the following measures; Low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy, as shown in Figure 4.7.

In summation, Figures 4.4 through to 4.7 outlined the transition from the extant literature to the original models confirmed in Chapter Six and Chapter Seven. When extended from a *proposed* non empirical perspective to *proven* empirical perspective, the disparate characteristics of Anglo Western Dynamic Transformationalism and Han Chinese Traditionalism are found to exist.

Next, for Cultural Studies, we go beyond the extant literature and explore original constructs: wherein, data are assessed in the Measurement Modelling Chapter (Chapter Six) and relationships established in the Structural Modelling Chapter (Chapter Seven).

4.8 ESTABLISHING ORIGINAL SOCIETAL SYNDROMES

The measurement model develops three new key cultural antecedents, known as societal syndromes. Societal syndromes identify normative behaviour pertinent to each society measured. By applying the measurement model, theorists and practitioners in marketing and other disciplines, to a greater extent than in the past, shall become able to comprehend *how* the cultures of society-at-large and workplace-in-society operate in an international environment. The benefit for theorists shall include improved insights into how societal syndromes vary. Business practitioners will be able to enjoin the new comprehensive societal syndromes to larger business

models and thus be better guided to towards profitable commercial solutions. For example, elsewhere in the Thesis the three societal syndromes are modelled as antecedents to Knowledge Sharing and creative strategies in new product-process development. The case used in this the Thesis is an exemplar. The full scope of application is broader than international marketing.

The central role of society in many theoretical problems and business applications proffers the research findings highly relevant to many workplaces and multiple academic disciplines, making the model a significant contribution to research and practice. For example, the measurement model is not restricted in application to Anglo Western society and Han Chinese society, where in future studies, other societies could be compared. The factors underlying the three new societal syndromes follow:

Table 4.1: Main Constructs and Underlying Factors

MAIN CONSTRUCT	SCALE/FACTOR	SCALE/FACTOR	SCALE/FACTOR
Vertical Power Ethos	Vertical Secrecy	Vertical Deference	Patrimonialism
Horizontal Altruism	Horizontal Inclusiveness	Horizontal Mutualism	Horizontal Reciprocation
Conventional Orthodoxy	Langsyne Attachment	<i>A priori</i> Validation	In-Role Conformity

Table 4.1 summarises the main constructs of the Cultural Studies investigation and shows the underlying factors tested. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy were measured at the levels of society at large and in the workplace in Chapter Six and Chapter Seven. Chapter Five provides details of the attendant research design, including underlying survey questions (items).

4.8.1 Vertical Power Ethos

Vertical Power Ethos (VPE) offers an alternative to Power Distance (Hofstede 1984, Mulder, 1977). Vertical Power Ethos recognises Vertical Order, Control and Patrimonialism (Redding) and Authority Ranking (Fiske) and refines these themes, for both, society at large and for social behaviour at the workplace.

The Vertical Power Ethos societal syndrome was found by empirical testing to be comprised of three new scales:

- 1. Vertical Secrecy** applied questions pertaining to top-down concealment of personal information known to the leaders, as superordinates. Respondents were asked to assess their leaders to find out if they were typically secretive, censors of facts and willing to impart their knowledge to subordinates. When applied to workplace teams, questions probed whether management was open or retentive regarding contributing key information required for new product-process development.
- 2. Vertical Deference** examined the degree to which subordinates referred to a higher authority when making decisions and interpreting events. This scale measured the scope of subordinates to take action and make interpretations independent to superordinate direction. Within workplace teams, respondents rejoined the extent deference to superordinates' interpretation over professional standards. Team members were asked to comment on the extent to which management consulted with subordinates before setting objectives.

3. Patrimonialism was investigated to ascertain the extent by which leaders and superordinates were perceived to exhibit father-like authoritative behaviours and control towards followers and subordinates. In the workplace Patrimonialism referred to the scale of father-like control over operations that is the degree to which managers oversaw operations of subordinates, as junior family-like members.

‘I think people have an understanding of organisational structure. Everyone can understand this kind of system. For Chinese we have more obedience than the Westerners. When the structure tells you this, we are more obedient’ – (Heung²⁸ in Redding 1990, p. 186)

Comment: Vertical Secrecy, Vertical Deference and Patrimonialism collectively present a perpendicular dimension of society at large and in the workplace, originally denoted as Vertical Power Ethos.

The Vertical Power Ethos, which is empirically tested in the Thesis, construct extends the notion of vertical discipline posited as high Vertical Order (Redding 1990, pp. 183-188) in Confucian settings. According to Redding (1990, p. 184) Paternalism is a legacy of Chinese social history to be manifested as a ‘strong vertical order’ at the level of society and ‘Patrimonialism’ at the workplace. In this frame, ‘hierarchy’ provides legitimacy to organisations’ (Sung²⁹ in Redding 1990, p. 186). Hierarchy and the level of top-down direction and subordinate followership are reflected more generally in the cross-cultural dimension, ‘power distance (Hofstede 1984). In response, the Thesis has consolidated and expanded these older notions to build empirical factors

²⁸ Nom be plum used to identify interviewee by Redding (1990).

²⁹ Nom be plum used to identify interviewee by Redding (1990)

applicable to all societies and now newly tested in Han-Chinese society and the Anglo Western society.

4.8.2 Horizontal Altruism

Horizontal Altruism develops the antithesis of Limited and Bounded Trust (Redding, 1984) and Communal Sharing and Equity Matching (Fiske, 1991) into an incorporated model for empirical investigation, cultivating these early contributions for original quantitative analyses having application in society at large and in the workplace. The broad framework for the Horizontal Altruism construct was based on the socio-biological contributions of Wilson (1978) and Travers (1971) pertaining to altruistic behaviour in animals, wherein, altruistic and self-serving behaviours are exhibited or inhibited. As previously noted, Pluralism supports high Horizontal Altruism in Anglo Western society and Limited and Bounded Trust restrains Horizontal Altruism.

The Horizontal Altruism societal syndrome is comprised of three original scales:

- 1. Horizontal Inclusiveness** questions concerned in-group versus out-group affiliation. Questions posed in the surveys focused on obligation-based lateral relationships, including ethnic associations. In the workplace, teams were probed regarding the extent to which they worked with or were resistant to collaborating with outside teams.

2. **Horizontal Mutualism** related the level of the inclination to collaborate with others to achieve a *shared* beneficial result. Respondents were asked how quickly coalitions are formed with other societies for mutual gain and how willing their society was to cooperate toward shared goals, rather than concentrating on their own separate goals. In the workplace, respondents were asked to indicate their willingness to share helpful information with business partners. In China, Redding (1990, p.82) related the ‘Personalism,’ as a historical inheritance, as a an urge to control others based on rank (Confucius) and self confidence exhibiting ‘limited but adequate horizontal co-operation ... within a minimally integrated society’ having merely passable connections with other groups at the workplace. Likewise Weber (1951, p. 244) maintained: ‘Chinese gentlemen ... distrusted others as generally as he believed others mistrusted him.’

Loyalty to an emperor figure at the Chinese workplace imitates the Confucian Emperor-Subject and Father-Son cardinal relationships, wherein, any conflict between *hsiao* (filial piety) and *chung* (rank) must be managed (Silin 1976). Wherein, roles are solidified.

Sociologically, in Chinese society, the non-trust of non-familial others, alliances and partnerships are offset by *guanxi* (functional connections), employer-employee rankings, loyalties and bonding, within the inward looking Confucian apparatus. Thus, insecurities towards the outwards are counterbalanced by ‘personalistic obligation ties’ (Redding 1990, p. 184). Yet, personal obligations in the Chinese workplace are not as absolute as familial attachments (Redding 1976). Thus, by way of extension, peripheral lateral relationships are controlled with caution, including associations with non-Chinese collaborators. The Thesis holds these Chinese characteristics are *not* universal. Herein,

hypotheses posited by the Thesis for Western society forecasted high levels of mutual co-operation, based on histological predispositions explained in the literature review..

The Horizontal Altruism construct also recognises the support of Communal Sharing and Equity Matching (Fiske, 1991, pp. 42-49), representing equivalence in relationship structures and linear ordering, respectively. As Communal Sharing does not closely match open co-operation as naïve investigation might suggest. Chinese society is held by the Thesis to demonstrate low Communal Sharing. Collective co-operation by subordinates as clearly known in the Japanese *Ringi* is impeded by superordinate intrusions (Chen 1995, Redding 1990). On the other hand, lateral socialisations are maintained by the Thesis to present high Communal Sharing in Western society.

In China, high Authority Ranking is posited by the Thesis to override autonomous decision making, owing to ‘authoritative fiat or decree,’ whereby the will of the leader is to command and subordinates obey orders and display loyalty even where superior professional alternative solutions are available. Fiske (1991, p. 44) argues, in collectivist societies, social identity and the relational self, the Self is ‘defined in terms of superior rank and prerogative or, inferiority and servitude’. In contrast to China, the Thesis accepts high communal sharing and low authority ranking are associated with the democratic and egalitarian markers of Western society (Chen 1995, Hsu 1981).

3. Horizontal Reciprocation examined partiality towards lateral reciprocity between (a) in-groups (e.g. teams or organisations) and out-groups (e.g. other teams or other organisations) and (b) towards trust at the beginning of new relationships and (c) the give-and-take exchange of favours. At their the workplaces, respondents were asked if they would give and not take in proprietary knowledge exchanges and if their organisation sought an unequal share of benefits from business and affiliated partnerships.

‘The Chinese find it very difficult to come to terms with neutral objective relationships, where they cannot read “trustworthiness” and tend to work towards creating trust beforehand.’ (Redding 1990, p.68)

Comment: In familial-based societies trust in the family is absolute (Redding 1990, pp. 66-67), but lessens the further the relationships move away from the domestic centre; for example from Chinese immediate family to clan, to dialect groups, to ethnicity, and lastly to other races (Chen 1995, Redding 1990, Silin 1976). There are serially diminishing ‘concentric circles of obligations’ from the centre where trust towards others varies (Redding 1990). As noted in the Literature Review, for the Chinese, the foundations for non-trust and the absence of exchange with non-familial parties, has its roots as far back as the eleventh century (McNeill, 1963). Histological studies suggest that Western societies, including Anglo-Western society, exhibit lateral altruism and exchange altruism and trust in partnership (McNeill, 1963, Toynbee, 1958, Weber 1905, in Baehr and Wells, Eds., 2002).

4.8.3 Conventional Orthodoxy

Conventional Orthodoxy recognises Archaism, Traditionalism and Conservatism (Redding, 1990) and Conformity (Bond, 1993). Herein, the penchant to refer to past precedent before taking action is evaluated by developers. As was outlined previously in the literature review innovations in historical China have tended towards achieving greater precision and improvement of known existing technologies rather than starting low on the learning curves applying to new uncertain technologies. Alternatively, Western society was shown in the literature review to be profoundly influenced by its path through history towards the modern scientific method which applies Science to Application, especially during the period of the Enlightenment and the Great Divergence, which were key reinforcers of the Industrial Revolution.

The Vertical Power Ethos societal syndrome was held to be comprised of three scales. Two new scales; viz. Langsyne Attachment and a priori Validation were developed. The third scale, In-Role Conformity represents an extension of the Smith et. al (1993) ‘Conformity’ scale, revised to have application in society at large and in the workplace.

The three key dimensions of Conventional Orthodoxy follow:

1. **Langsyne Attachment** refers to the inclination to take the past into serious consideration prior to advancing with new innovations, whereby connections with the past largely determine future avenues of development. Respondents were rated on their

attachment to the ancient³⁰ past in decision making and the degree to which nostalgia asserted a contemporary influence. In the workplace, respondents were asked within the context of new product-process development if any attachment to contemporary progress or fondness of ancient traditions were used to ascertain present-day progress. The Langsyne Attachment was developed as a measure of reminiscence.

2. ***A priori* Validation** addresses the inclination to confirm the authenticity of the present in terms of the past. Respondents were asked if innovative ideas were suppressed when conflicting with ancient ideas and the extent to which new solutions need to be legitimised by justification connected to ancient ways. In the workplace, respondents were asked how judgements clashed with ancient values and how this was administered in the context of new product-process development and whether work practices evolved independent of ancient ways. *A priori* Validation was developed as a measure of substantiation.

3. **In-Role Conformity** further develops the valuable contribution of Smith et al. Respondents were rated the level of conformity to familial norms and social norms and obligations to towards family and society obligations at the workplace.

The Chinese affinity towards vertical dimensionality and horizontal dimensionality is held to be complemented by an archaist dimension. Han Chinese society is held to elevate traditionalism; while, Anglo-Western society is held to be transformational and more accommodating of novel

³⁰ The term 'ancient' was found in pre-testing to better capture cultural antecedents than the term 'past,' which was associated with changes in company policy over far smaller time frames than required.

techniques. In Chinese society it is posited where there is focus on one leader or a few powerful leaders overseeing restricted Horizontal Altruism, this overt superordinate oversight and control approaches concentrates corporate-knowledge capacity too narrowly, thus limiting the potential of a broader set of contributors. In this way, high In-Role Conformity binds high Vertical Power Ethos and low Horizontal Altruism making transformation away from the *status quo* very demanding.

On the other hand, low Vertical Power Ethos and high Horizontal Altruism coupled with subdued reverence for the past allows a more open and exposed outlook, having greater potential for managing transformation from earlier practices. The thesis found a positive affinity towards a contemporary focus vis-à-vis archaism supports innovation and new developments.

4.9 CONCLUDING REMARKS ON ORIGINAL CULTURAL SYNDROMES

The Thesis characterised the qualities of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy and associated factors of Anglo Western society and Han Chinese society, which is empirically confirmed in Chapter Six and Chapter Seven.

The confirmation of the new Societal Constructs has (a) immediate benefit for studies pursued by the Thesis, and (b) high potential for future Culture Studies in International Marketing and other disciplines, where assessing the influence of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy has merit. Given the proliferation of transnational corporations

emanating from different parts of the world, reliance on empirically confirmed Cultural Antecedents is already high and still growing.

Confirmation of the Cultural Syndromes met an essential requirement of the Thesis and allows the development of an extended model incorporating (a) the influence of Cultural Syndromes on new-product process development having Knowledge Discovery, as an intermediary, (b) Anglo Western society vis-à-vis Han Chinese society as moderators, and (c) the new product-process transformation requisites, within Anglo Western society vis-à-vis Han Chinese society, as embedded moderators.

As will be demonstrated in Chapter Six, the *main effects* of all Cultural Syndromes posited were statistically proven correct. Next, we review Knowledge Sharing and Creative Synergies in Knowledge Building, as dependents of Cultural Syndromes.

4.10 KNOWLEDGE BUILDING IN NEW PRODUCT-PROCESS DEVELOPMENT TEAMS

Having considered the newly developed Cultural Syndromes; viz. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy, next we review Knowledge Building, which factor analysis indicated to be comprised of Knowing Sharing and Creative Synergies. The thesis asserts that Knowledge Building is influenced by Cultural Syndromes.

The thesis proposes that the Ideal Value Set for Cultural Syndromes is low Vertical Power, high Horizontal Altruism and low Conventional Orthodoxy. Moreover, it was confirmed, as expected, that Anglo Western Dynamic Transformationalism measures closer to the Ideal Value Set for Cultural Syndromes than Sino Homeostatic Transformationalism. High Knowledge Building was found to accompany the Ideal Value Set for Culture Syndromes. Empirical findings for this are detailed in Chapter Six and Chapter Seven.

The final survey evaluated individual personal knowledge contribution and collaboration in new product-process development teams³¹. In the final survey, individual personal knowledge was defined as, ‘knowledge held by particular individuals and needed by the new product-process development team’. It was found that ‘not all people are equally willing to share their individual personal knowledge with others’. Herein, ‘some people willingly share personal knowledge,’ while, ‘others are personal knowledge retentive’. In this structure, general knowledge did not count as individual personal knowledge, because there would be no knowledge dependency on specific individuals.

Knowledge Building was found by factor analyses to be constituted of Knowledge Sharing and Creative Synergies:

- 1. Knowledge Sharing** referred to the amount of individual personal knowledge made available to the new product-process development team. Respondents reported on the capacity of personal knowledge available for decision making and the discussion of alternative approaches. Likewise, respondents commented on the willingness of team members to be active contributors. The tendency to conceal and hide personal knowledge

³¹ Non-new product developers were not surveyed.

was measured. Also, the affinity to keep honest open channels of communications was considered.

2. **Creative Synergies** arising from Knowledge Sharing were determined. Respondents informed how Creative Synergies were derived from sharing experiences and the facility of personal know-how sharing to achieve innovative synthesis.

The Thesis holds that Knowledge Building; viz. Knowledge Sharing and Creative Synergies, determines the magnitude of Knowledge Discovery.

Next, we explore Knowledge Discovery in New Product-Process Development. The degree of Knowledge Discovery in New Product-Process Development achieved was found to be reliant on the level of Knowledge Building.

4.11 KNOWLEDGE DISCOVERY IN NEW PRODUCT-PROCESS DEVELOPMENT

Knowledge Discovery in New Product-Process Development is deemed by the Thesis to directly affect Knowledge Building; viz. Knowledge Sharing and Creative Synergies. The higher the Knowledge Sharing the higher the Creative Synergies, the higher Knowledge Discovery is accomplished. At the Marketing and Research and Development Interface two paths emerge from the Knowledge Building and Knowledge Discovery dyad, they are *product* development (marketing) and *process* development (research and development).

Product encompasses tangible goods and intangible services. Product development includes the capture of consumer, business and supplier requirements and strategy for implementation of the Marketing Plan; plus, marketing-related change management and the translation of marketing requirements for Research and Development specialists (in particular) and other relevant areas. New *product* development is reasoned to be associated with Marketing specialists.

Process includes technical design review and analyses, manufacturing specifications and management, plus, technology selection and management. This includes process-related change management and the implementation of resource planning to facilitate the final production plan, and, if applicable, original equipment design. New *process* development is judged to be the domain of Research and Development specialists.

In the final survey, respondents were asked to comment separately on new *product* development and new *process* development, as each process is distinct. In this context respondents were asked to what extent personal knowledge contribution led to:

- Innovative ideas
- Problem solving, and
- New enterprise knowledge captured.

The Thesis asserts the higher product-process transformation required, then, the greater reliance on innovation, problem solving and new enterprise knowledge captured. Transformation refers to the magnitude of conversion, modification, novel detection and development required to bring product-process development to successful fruition. Owing to the disparate cross-cultural influence of the three new cultural syndromes on the Knowledge Discovery and Knowledge

Building dyad, the hypotheses tested, maintained that Knowledge Discovery emerging from Knowledge Building is higher in Anglo Western Society than in Han Chinese society, based on the idea that Western society would measure closer to the proposed optimal value set for the three new cultural syndromes.

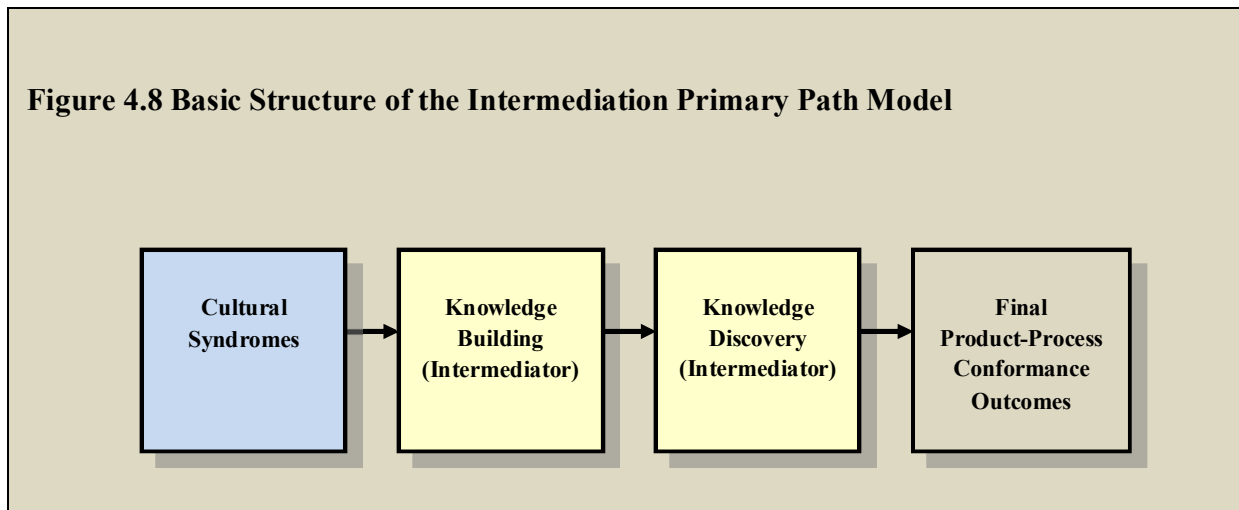
In this section, we discussed the relationship of Knowledge Building to Knowledge Discovery, as tested by the final survey instrument. We considered innovative idea creation, problem solving and new product capture in Knowledge Discovery in new product-process development. Lastly, it was foreshadowed that Anglo Western society is in most respects better positioned to manage high product-process development than would Han Chinese society.

Next, we consider the Knowledge Discovery in New Product-Process Outcomes.

4.12 FINAL CONFORMANCE OUTCOMES IN PRODUCT-PROCESS DEVELOPMENT

Final Product Conformance Outcomes tested measures of the ultimate dependent variables. Final Process Conformance Outcomes necessarily precede Final Product Outcomes, because Research and Development issues must be resolved before final tangible goods and intangible services are achieved. ‘Conformance’ outcomes are tested in lieu of ‘performance outcomes in recognition of real world project management situations. Conformance outcomes refer to final performance against initial plan, thus, recognising product de-scoping and reconsideration planning, which are common in product-process development. Conformance therefore measures not only

performance, but also matches achievements to original intentions. The Basic (Non-Moderated) Intermediation Primary Path Model is shown in Figure 4.8, over the page.



4.13 SUMMARISED OUTLINE OF INTERMEDIATION PRIMARY PATH MODELS

In recent sections, we have reviewed:

- Cultural Syndromes (Main Effects)
- Knowledge Building
- Knowledge Discovery in New Product Development
- Final Conformance Outcomes in Product-Process Development

The model tested is a primary path model against which moderators in separate studies can be tested. Moreover, Knowledge Building and Knowledge Discovery processes are held, for the first time, to *intermediate* between Cultural Syndromes and Final Conformance Outcomes in Product-Process Development.

A more comprehensive depiction of the generic Intermediation Primary Path Model, recognising specific Cultural Syndromes is depicted in Figure 4.9. Herein, the hypothetical ideal measures for the Constructs are asserted to be low for Vertical Power Ethos; high for Horizontal Altruism and low for Conventional Orthodoxy. ‘Ideal,’ in this context means facilitating Knowledge Sharing and Creative Synergies necessary to attain innovative capacities easing syncretion³² skills, as in case of the Anglo West. Otherwise the scope of self-generated knowledge based development is limited.

Yet, Optimal Final Conformance Outcomes in Product Process Development, from an ideal value, is an abstract concept, towards which, all societies may be measured but none completely achieve. However, societies open to personal Knowledge Sharing in social behaviour and amiable to knowledge transfer across society at large are held to be better placed to approximate Optimal Final Conformance Outcomes.

³² The facility to meld or reconcile existing forms (e.g. technologies). A Japanese invention, the *Walkman* combines the concept of the transistor radio and head phones.

**HYPOTHESES RELATING TO THE INTERMEDIATION
PRIMARYPATH MODEL**

4.14 HYPOTHESES RELATING TO THE INTERMEDIATION PRIMARY PATH MODEL

4.14.1 Hypotheses pertaining to Societal Syndrome Internal Relationships

Hypotheses (H_1-H_8) assessed the three societal syndromes; viz. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy, in society at large and in the workplace.

Hypotheses H_1-H_8 , were worded as follows:

H_1 : A positive relationship shall exist between Vertical Power Ethos in Society and Vertical Power Ethos at the Workplace, for Anglo-Western Society and Han-Chinese Society combined.

H_2 : A negative relationship shall exist between Vertical Power Ethos in Society and Horizontal Altruism in Society, for Anglo-Western Society and Han-Chinese Society combined.

H_3 : A negative relationship shall exist between Vertical Power Ethos at the Workplace and Horizontal Altruism at the Workplace.

H_4 : A positive relationship shall exist between Horizontal Altruism in Society and Horizontal Altruism at the Workplace, for Anglo-Western Society and Han-Chinese Society combined.

H_5 : A positive relationship shall exist between Conventional Orthodoxy in Society and Conventional Orthodoxy at the Workplace, for Anglo-Western Society and Han-Chinese Society combined.

H_6 : A positive relationship shall exist between Conventional Orthodoxy in Society and Vertical Power Ethos in Society, for Anglo-Western Society and Han-Chinese Society combined.

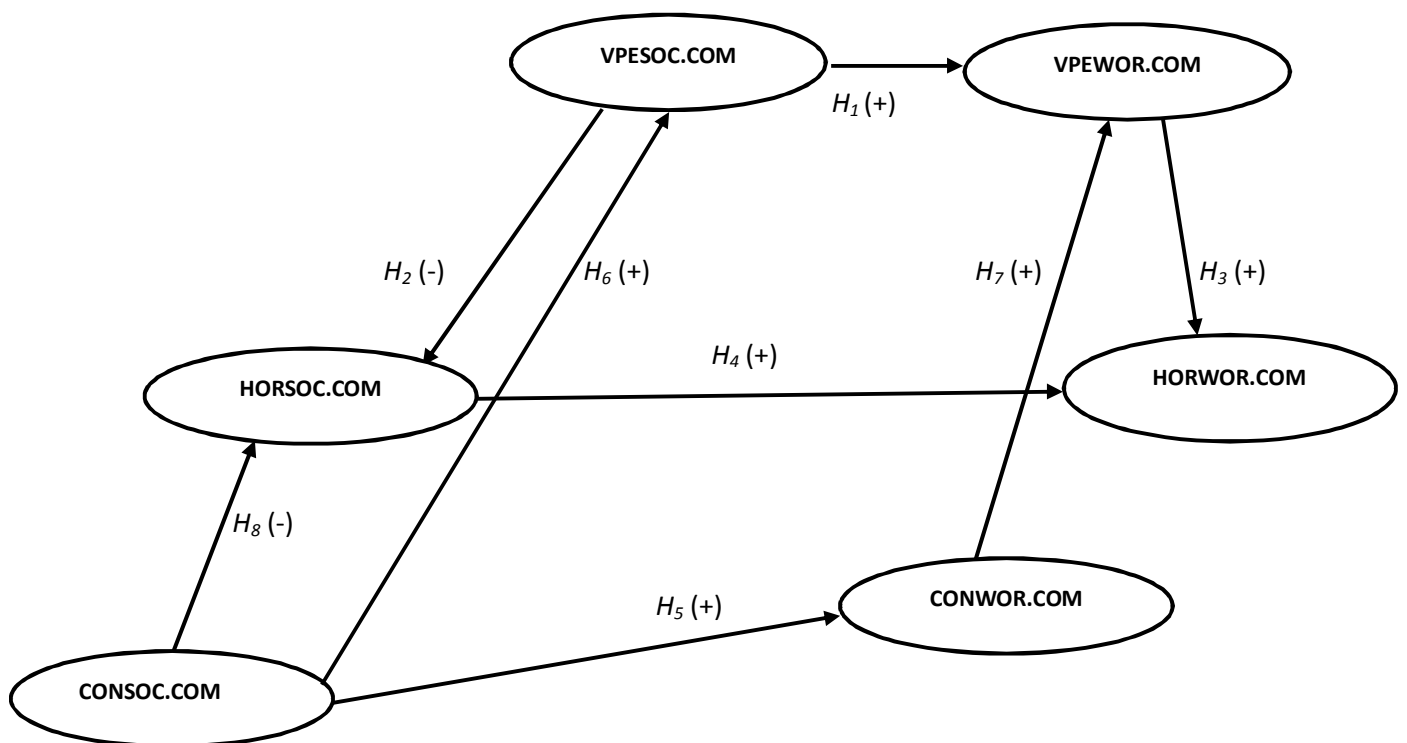
***H₇*: A positive relationship shall exist between Conventional Orthodoxy at the Workplace and Vertical Power Ethos in Society for Anglo-Western Society and Han-Chinese Society combined.**

***H₈*: A negative relationship shall exist between Conventional Orthodoxy in Society and Horizontal in Society, for Anglo-Western Society and Han-Chinese Society combined**

Comment:

Table 7.1 provides the T-Scores (Bootstrapping) and Path Coefficients of *H₁-H₈*. The results obtained from empirical analyses supported the Thesis (hypotheses). The abovementioned relationships pertain to the ‘internal’ structure between the three new cultural syndromes.

Figure 4.10: Internal Relationships of Posited Society Syndromes



Only significant relationships are shown in Figure 4.10; e.g. Vertical Power Ethos (VPE), Horizontal Altruism (HOR) and Conventional Orthodoxy (CON). The extension COM

represents Anglo Western Society and Han Chinese Society combined. Society (SOC) and workplace (WOR) are represented designating broad and localised influencers.

Having a common ecology, Cultural Syndromes in society and in the workplace have positive (+) relationships. Likewise, Vertical Power Ethos and Conventional Orthodoxy are positively related. Elsewhere, Vertical Power Ethos and Conventional Orthodoxy are negatively related (-) to Horizontal Altruism. The Thesis maintains that Horizontal Altruism, which is held to be associated with Pluralism, has an inverse effect on Knowledge Building; viz. Knowledge Sharing and Creative Synergies than do Vertical Power Ethos and Conventional Orthodoxy.

The Thesis maintains that high Vertical Power Ethos or high Conventional Orthodoxy thwarts high Horizontal Altruism. Thus, when Horizontal Altruism is restrained Knowledge Building is compromised.

Next, the hypotheses relating to Knowledge Building are presented.

4.14.2 Hypotheses pertaining to Knowledge Building

Hypotheses H_9 - H_{11} measured the effect of the three original cultural constructs on Knowledge Building: viz. Knowledge Sharing and Creative Synergies. Hypotheses H_9 - H_{11} , were worded as follows:

H_9 : The lower Vertical Power Ethos; the higher the Knowledge Building contributed to New Product-Process teams.

$-H_{9a}$: The lower Vertical Power Ethos in Society; the higher the Knowledge Sharing contributed to New Product-Process teams in society at large.

$-H_{9b}$: The lower Vertical Power Ethos in Society; the higher the Knowledge Sharing contributed to New Product-Process teams at the workplace.

***H₁₀*: The higher Horizontal Altruism in Society; the higher the Knowledge Building contributed to New Product-Process teams.**

-H_{10a}: The higher Horizontal in Society; the higher the Knowledge Sharing contributed to New Product-Process teams.

-H_{10b}: The higher Horizontal in Society; the higher the Creative Synergies contributed to New Product-Process teams.

***H₁₁*: The lower Conventional Orthodoxy at the workplace; the higher Personal Commitment to Knowledge Building contributed to New Product-Process teams.**

-H_{11a}: The lower Conventional Orthodoxy at the workplace; the higher the Knowledge Sharing contributed to New Product-Process teams.

-H_{11b}: The lower Conventional Orthodoxy at the workplace; the higher the Creative Synergies contributed to New Product-Process teams.

Comment:

Tables 7.2 through to 7.4 provide the T-Scores (Bootstrapping) and Path Coefficients of *H₉*-*H₁₁*. The results realised from empirical analyses supported the Thesis. Hypotheses *H₉*-*H₁₁* enjoin hypotheses *H₁*-*H₈* in Figure 4.10.

As introduced in the previous section, Knowledge Building is held by the Thesis, to be affected directly and indirectly by the three new Societal Syndromes. Knowledge Sharing and Creative Synergies were posited, to respond positively to low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy. Conversely, high Vertical Power Ethos, low Horizontal Altruism and low Conventional Orthodoxy, independently or collectively, were held to impede Knowledge Building, especially where new knowledge generation is required.

The Integrated Intermediation Primary Path Model is shown in Figure 4.11, without moderation effects.

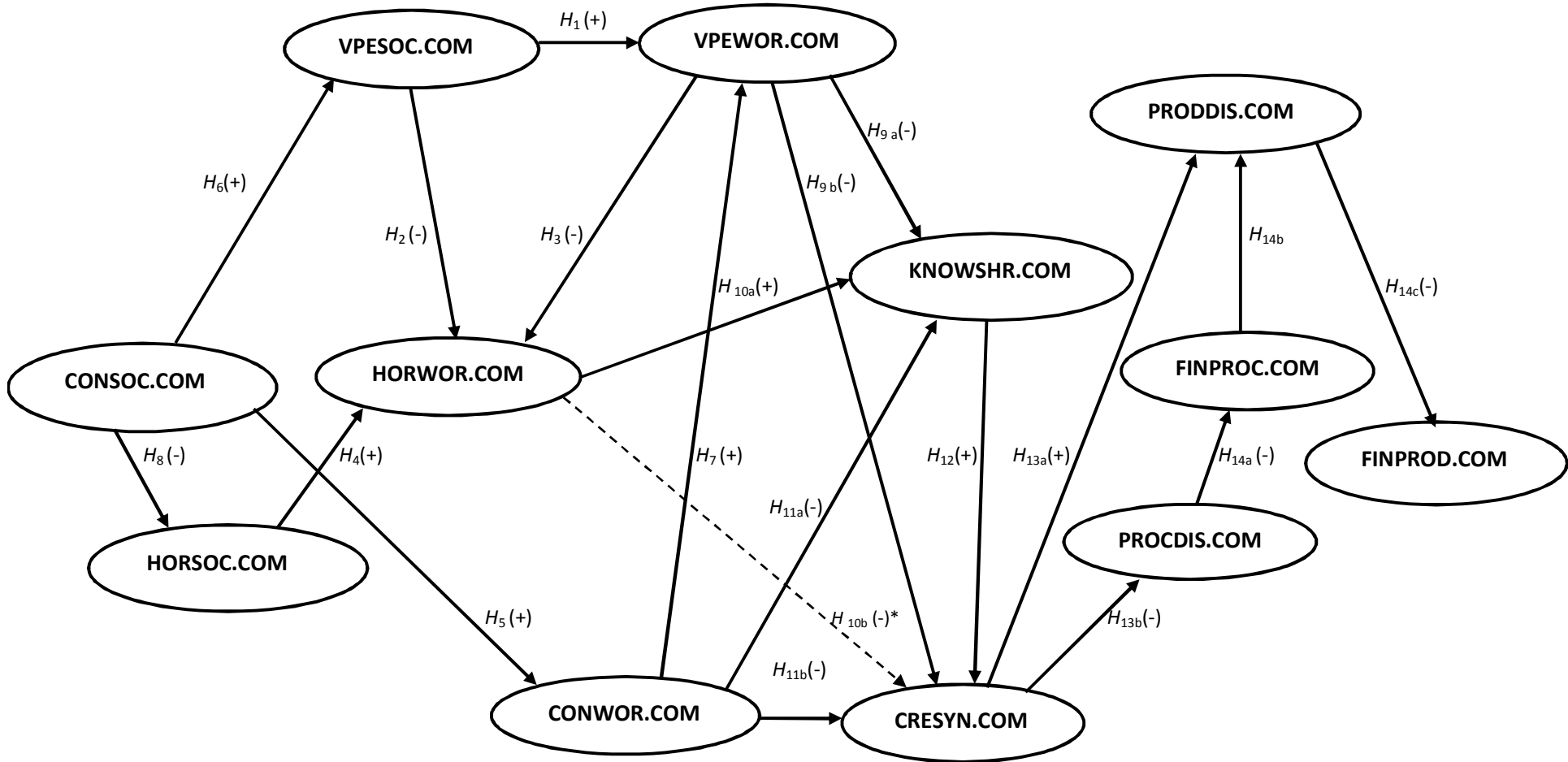
The relationships illustrated in Figure 4.12 were confirmed in relation to Knowledge Sharing (KNOWSHR) and Creative Synergies (CRESYN) in terms of their involvement in new product-process development, as hypothesised. The thesis assumes the small group (e.g. the workplace) to represent the tier (level) of interaction for individuals in society and where Knowledge Sharing and Creative Synergies primarily take place, including, new product-process development activities.

As defined and developed in the next section, Product and Process are distinct paths ultimately leading to Final *Process* Conformance Outcomes and Final *Product* Conformance Outcomes in new product-process development.

Figure: 4.11:

Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Hypotheses

(N=306, Sample 500)



* For information only. Hypothesis H_{10b} not supported.

4.14.3 Hypotheses pertaining to Knowledge Discovery

***H₁₂, H₁₃*: The higher Personal Commitment to Knowledge Building; the higher the Product-Process Discovery achieved**

- *H₁₂*: The higher Personal Commitment to Knowledge Sharing; the higher Product Creative Synergies achieved.
- *H_{13a}*: The higher Personal Commitment to Creative Synergies; the higher Product Discovery achieved.
- *H_{13b}*: The higher Personal Commitment to Creative Synergies; the higher Process Discovery achieved.

Comment:

Knowledge Building, arises from Societal Syndromes and extends to the relationships between Knowledge Building and Knowledge Discovery.

The thesis holds that Knowledge Discovery for Product (PRODDIS) and Process (PROCDIS) is in harmony with the Marketing and R & D Interface. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy *in the workplace*, directly interface with Knowledge Sharing and Creative Synergies, through personal interaction.

Higher Knowledge Discovery was held to complement high Knowledge Building; viz. Knowledge Sharing and Creative Synergies. The greater the level of dependence on personal knowledge contribution in new product-process development: The greater the need for Knowledge Building

and Knowledge Discovery. By way of extension, the Thesis assumes societies favouring high Knowledge Sharing and high Creative Synergies shall be better prepared to achieve higher levels of product transformation, as hypothesised..

Table 7.5 provides the T-Scores (Bootstrapping) and Path Coefficients of H_{12} . The results obtained from the empirical analyses supported the Thesis.

4.14.4 Hypotheses pertaining to Final Product-Process Outcomes

H_{14} : The higher Product-Process Discovery; the higher Final Product-Process Outcomes achieved

- H_{14a} : The higher Process Discovery; the higher Final Process Discovery Conformance Outcomes achieved.

- H_{14b} : The higher Final Process Discovery Conformance Outcomes; the higher Product Discovery achieved.

- H_{14c} : The higher Product Discovery; the higher Final Product Discovery Outcomes achieved.

Comment:

Figures 4.11 and 4.12 include Final Process Conformance Outcomes and Final Product Conformance Outcomes, representative of the contributors to new product-process development at the Marketing and R & D Interface. Factor analyses confirmed this distinction. Logically, all underlying processes must find completion, *before*, all product requirements are met. Hypotheses

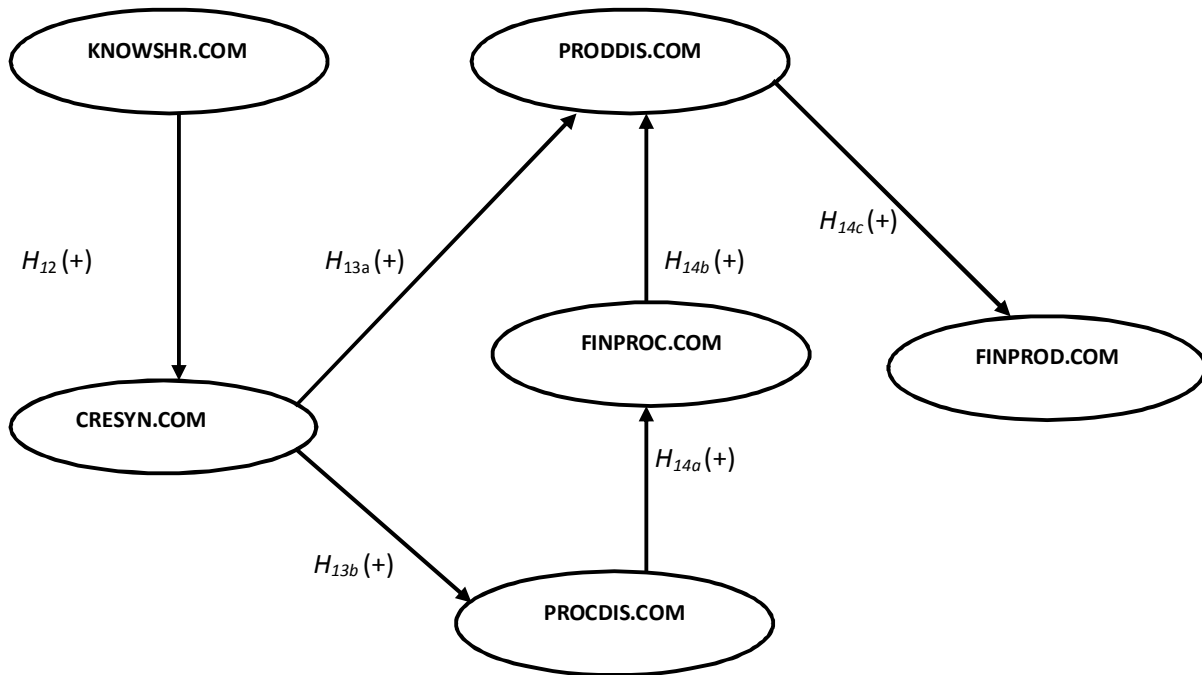
H_{14} extends hypotheses H_{12-13} were regarded highly intermeshed and taken to be under the umbrella of H_{14} .

Regarding Final Product-Process Conformance Outcomes, respondents were asked, how well *actual product* related results or *actual process* related results *compared* against previously planned *pre-launch expectations* in relation to the following categories of measure:

- Planned quality requirements
- Planned features
- Effectiveness
- Efficiency
- Efficacy

Product or process quality represented a measure for excellence or superiority, and product or process features representing the number of characteristics provided. Effectiveness referred to how capably desired events and conditions were achieved. Efficiency denoted the total useful output achieved to the effort expended, Efficacy signified the capacity to bring about intended results: i.e. the facilities available to the team to achieve the intended results.

Figure 4.12: Relationships of Knowledge Building from Societal Syndromes & Knowledge Discovery from Knowledge Building to Final Product-Process Conformance Outcomes



The thesis maintains high Knowledge Discovery supports high Final Process Conformance Outcomes and ultimately high Final Product Conformance Outcomes. Moreover, the Thesis holds that societies shall be unequal in achieving Knowledge Discovery, in the first instance; and, high Final Process Conformance Outcomes and eventually Final Product Conformance Outcomes, in the second instance.

T-Scores (Bootstrapping) and Path Coefficients of H_{13} - H_{14} are presented in Table 7.6 and Table 7.7

Figure 4.12 shows the Intermediation Primary Path Model³³, reduced, and, starting from Knowledge Sharing through to Final Product Conformance Outcomes including hypotheses posed and tested. Herein, the results realised from empirical analyses supported the Thesis.

Next, the Thesis deliberates on two moderation effects that affect the course of the Intermediation Primary Path Model.

-Please turn page-

³³ Without moderators.

INVESTIGATION TWO: SOCIETAL MODERATION

4.15. MAIN EFFECTS MODEL FOR ALL PRODUCT TRANSFORMATION CATEGORIES OF ANGLO WESTERN SOCIETY AND HAN CHINESE SOCIETY COMBINED – INCLUDING HYPOTHESES

The two moderation effects tested were:

- (a) Anglo-Western Society vis-à-vis Han Chinese Society on the Intermediation Primary Path, designated as Cross-Culture Models.
- (b) Product-Process Transformation Required of Marketing Projects in Anglo Western Society vis-à-vis Han Chinese Society on the Intermediation Primary Path Model, designated as Product-Process Transformation Models.

Next, the thesis will deliberate on the Cross-Cultural Models, while acknowledging the Literature Review cited and discussed in Chapter Two and Chapter Three. Product-Process Transformation Required as moderator shall be addressed later in the thesis

4.15.1 Introduction to Cross-Culture Models

In Chapter Two and Chapter Three, the Thesis took its direction from the established socio-anthropological literature, complemented by deep histories. A number of key sources were reviewed with a specific focus on Alan Page Fiske (1990, 1992), Harry Triandis (1994) and S. Gordon Redding (1990), which proved critical in establishing the original integrated model derived from those informed authors. Other contributors assessed by the Thesis knowledgeable on China vis-à-vis West comparisons were included (e.g. Jin, Fan and Liu 1996, Min Chen 1995, Francis L.K. Hsu 1981, 1983, Robert Silin 1976). The Thesis acknowledges these sources in building an original integrated empirical model at two tiers (levels) of society and in the workplace.

In the Thesis developing this two tier model emphasising the themes of society at large and in the workplace, it would be remiss to not recognise the underlying role of the individual. Using the Chinese individual, as an example, we next explore the axiomatic characteristics:

Bond (1987) provides important insights into the 'Psychology of the Chinese People,' articulating many Chinese cultural traits. Bond was a primary contributor to Leung *et al.* (2002) in applying factor analyses which identified three Social Axioms: (1) Cynicism, (2) Social Complexity and Reward for Application and, (3) Fate Control. This work also recognises the contribution of Rotter (1966). Leung *et al.* (2002) define Social Axioms as:

'...generalised beliefs about oneself, the social and physical environment, or the spiritual world, and are in a form of an assertion about the relationship between two entities or concepts'. (Leung *et al.* 2002, p. 289)

Each individual indicates a belief and exhibits a particularistic function based on their understanding of the operation of the cultural system and their role (e.g. rank) within their cultural systems and environmental domains (Leung *et al.* 2002, Schwartz 1992).

Axiomatic behaviour is more strongly associated with survival and pragmatism than personal ideation, self-determination or conviction (Leung *et al.* 2002). Thus, 'personal' responses to Chinese cardinal relationships would be exemplar of knowing one's place. What is important here

is not to the normative attitude of each individual in a transaction, but, rather, the axiomatic association.

Thus, knowing utility, and behaving accordingly, does not necessarily indicate personal sanction of the system or roles played, as Leung *et al.* (2002) comments. Albeit, when one is not an overt player, the Chinese individual will attempt to gain secondary control ‘to associate or closely assign himself with other individuals, groups or institutions in order to participate psychologically in the influence they exert’ (Bond 1987, p. 102). The bottom-up real influence of typical subordinate Chinese individuals would be small, because of the level of high power distance present (Hofstede 1984, Mulder 1972). Any benefit for each low rank individual would be derived from ‘indwelling’ (Polanyi 1966) in the experience of superordinate persons or groups. These groups are a product ecology and history, whereby, social behaviour shapes the individual. Social Axioms are the mortar between cultural bricks.

Any future study applying a three-level (society, social behaviour, individual) Hierarchical Linear Model, should review Bond (1987) and Leung *et al.*, (2002) in the course of their research design deliberations. Leung *et al.* (2002) appear casually aware of of the need to distinguish between universal behaviour and, the emphasis on variable representations of universal behaviour in a specific cultural environment.

The purpose of the current study is to measure and understand higher-order socio-cultural constructs in societies (not countries) and the effects of behaviour on groups in terms of the how

the world functions, rather than an individual's 'view of how the world functions' (Leung *et al.*, p. 289). For example, the effect of personal knowledge contribution is measured in the Thesis by seeking to understand the normative consequence on a group, which is made known, as a product of the outward behaviour of individuals, determined by internal schema. Thus, with the two-tier (two-level) model posited, Societal Syndromes are guided recipients of the personal Social Axioms, which are the condition sets directing each individual's code according to Hofstede's (1984, p.9) 'collective programming of the mind' regarding Culture's manifestations.

Hofstede's (1984) major contribution has been adopted by many marketing researchers, as the benchmark study for explaining the relationships between cultural antecedents and business studies problems. Maintaining 'horses for courses,' to be preferable over too higher generalisation, the Thesis does not concur.

Though Hofstede's (1984) study had a large sample size (n=116,000) and is informative, the associated IBM HERMES studies were designed for Human Resource Management purposes, using a societally heterogeneous unit of measure (i.e. country). It is argued that the Thesis the once valuable and elsewhere applicable contribution for its time, today, requires revision based on cultural anthropology.

Nonetheless, in relation to Hofstede (1984) and Bond (1987), the Thesis comments on Nataka and Sivakumar's (1996) propositional contribution and Sharma's (2010) empirical contribution:

Nataka and Sivakumar (1996) offered Hofstede's (1984) constructs in context with new product development. These authors viewed the understanding of (national) cultural dimensions as essential to achieving success in the face of 'increasing globalisation'; adding that their propositions were 'tentative and needing to be researched empirically'(p. 67).

Furthermore, Nataka and Sivakumar (1996) alluded to the significance of culture at (a) the *initiation* stage and (b) the *implementation* stage of new product development. Low Power Distance, low Masculinity and low Uncertainty Avoidance dimensions, when associated with high Individualism, were said to be characteristic of Western nations (Nakata and Sivakumar 1996). Western cultures are identified as having *initiating* potential. Cultures displaying opposites to the aforementioned representations were deemed to be *implementing* cultures. In faint agreement³⁴, the Thesis acknowledges Nakata and Sivakumar's (1996) early outline as a preliminary attempt to address important Marketing matters.

The Thesis acknowledges Nakata and Sivakumar's (1996) identification of culturally-based distinctive competencies relating to differences in contribution potential at different stages of the new product development life cycle. Yet, the Thesis maintains new product development global environment research issues, as identified by Nakata and Sivakumar (1996), are better addressed by integrated socio-anthropologically-based inputs into structural equation models. Moreover, it is argued that Fiske, Triandis and Redding provide important new factors that need to be taken into account in the empirical testing of these phenomena. In relation to the need for further revision,

³⁴ The general notion is informative yet better-quality constructs can be advanced to represent latent variables.

Nakata and Sivakumar (1996, p. 69) state, 'though Hofstede (1984) and Bond and colleagues (1987) instruments provide excellent starting points for studying culture factors, they may require modification'.

The challenge in-part has been addressed by Sharma (2010), whose contribution is noteworthy and deserving of recognition. Sharma effectively reworked Hofstede's (1984) and Bond's (1987) cultural dimensions (Individualism, Power distance, Uncertainty avoidance, Masculinity and Long-term orientation) into original re-workings based on Hofstede's (1984) older variables.

Herein, Sharma (2010, p. 788) notes in relation to Hofstede's (1984) work:

'Hence, despite reporting high reliabilities of these scales and significant findings about their relationships, it is not clear these studies actually measure the relevant cultural dimensions and if the observed effects indeed reflect the influence of the these cultural dimensions, as expected.'

Sharma's (2010) empirical analysis provided significant results for local (Hong Kong) shoppers and Western shoppers, identifying clear and statistically significant differences between Chinese and Western individuals regarding the posited consumer level variables. The Sharma (2010) study has stayed within the orbit of Hofstede (1984) and Bond (1987), while focusing solely on *personal behaviour in a consumer environment*.

Sharma (2010) saw the potential for a more generalised model. The thesis agrees, but, adds the requirement for stronger foundation in the cultural-behavioural sciences. Any new generalised

model must integrate major cultural anthropological studies and histories, to avoid the risk of superficiality or short-lived contemporary application. It is argued that fundamental constructs must remain tethered to more appropriate specialist disciplines, from which to build enduring key variables, to assess both societies and groups: e.g., Anglo Western society vis-à-vis Han Chinese society and product-process development, respectively. Within this broader scope, interviewing shoppers does not present the rigour required of the present purpose and does not establish the deep theoretical foundation required of a culture-based analysis.

In response, this Thesis with its emphasis on society and socio-anthropology in history seeks to offer a *new generation of models*, to explain the influence of culture on new product (and process) development:

- (a) To respond to Nakata and Sivakumar's (1996) call for empirical models (but from Hofstede).
- (b) To renew and replace the Hofstede (1984) based contribution in relation to new product (and process) development.
- (c) To provide a new cohort of rigorous proven enhanced socio-anthropology in history based models to succeed the very recent application of the modified Hofstede-style model contributed by Sharma (2010).

In sum, the Thesis acknowledges Hofstede's (1984) pioneering contribution and appreciates erstwhile research endeavours seeking to enhance Hofstede's cultural dimensions. Yet, the Thesis maintains a better understanding of the influence of cultural antecedents is achieved by a *new generation of models* having more logical theoretical foundations and more advanced quantitative

techniques employed, during the achievement of operationalisation. Research findings in Chapter Six and Chapter Seven provide support to the aforementioned assertions.

4.15.2 Contrasting Cultural Syndromes in Anglo Western and Han Chinese Societies

The Cross-Culture Model assessed comparative moderation effects of Anglo-Western society and Han Chinese society on the earlier presented Intermediation Primary Path Model. This generic model did not distinguish between Anglo-Western society and Han Chinese society on the basis of the level of product-process transformation required. Overall, the aggregated main effects were measured and key relationships established. Based on the Literature Review and new theories offered it was expected that Anglo Western Dynamic Transformationalism would achieve more favourable global Product-Process Conformance Outcomes than Sino Homeostatic Traditionalism. This was confirmed as reported in Chapter Six and Chapter Seven.

Reflecting on the Intermediation Primary Path Model and Anglo Western Dynamic Transformationalism (WDT) vis-à-vis Sino Homeostatic Traditionalism (SHT), Figure 4.13 and Figure 4.14 show the confirmed (Chapter Five and Chapter Six) differences and comparative paths of Anglo-Western society and Han Chinese society. It is imperative to recognise in these comparisons, while the Anglo West maintains a closer proximity to the posited ideal value set vis-à-vis Han Chinese society, it does so, *without* the Thesis claiming the Anglo West *fully* achieves maximum measures. Since, *circa* the mid-eighteen century, the Anglo West seems clothed in the Golden Fleece, however, the fit is not perfect.

Figure 4.13: Hypothesised Moderation Effect of Anglo Western Society on Intermediation Primary Path Model

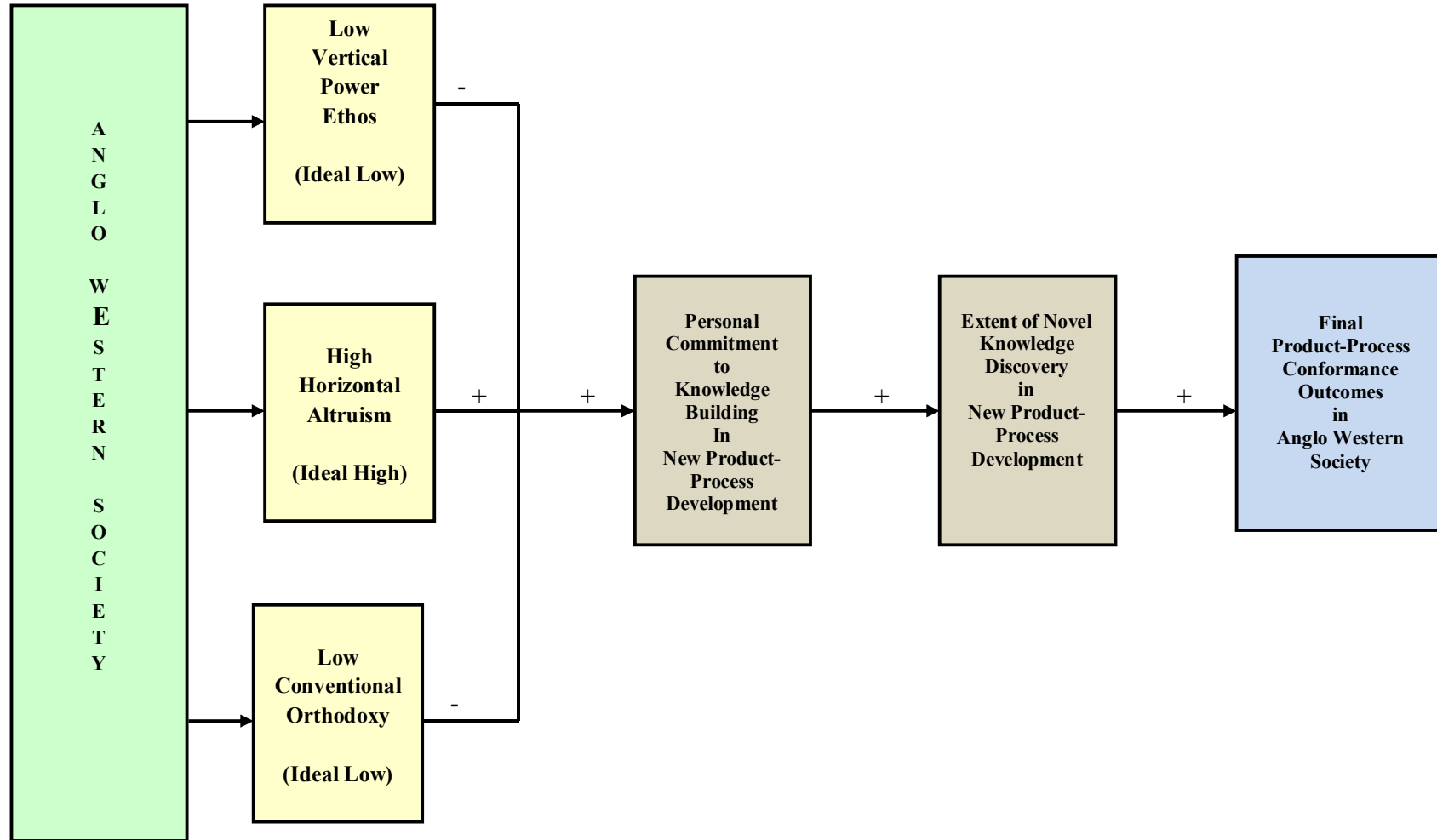
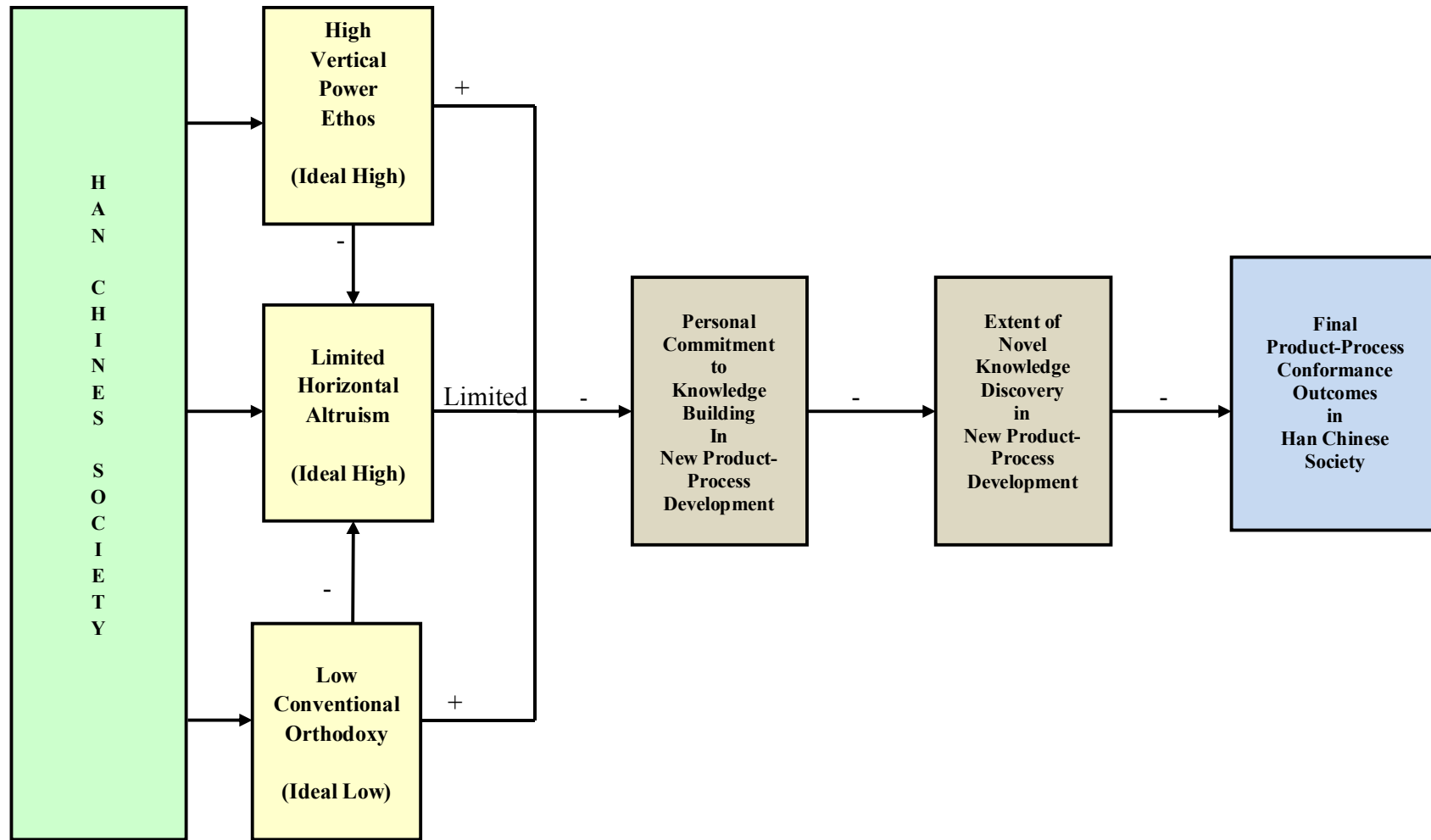


Figure 4.14: Hypothesised Moderation Effect of Han-Chinese Society on Intermediation Primary Path Model



As shall be empirically confirmed in Chapter Five and Chapter Six, Anglo-Western society better approximates the ideal value set for the three new Cultural Syndromes: Vertical Power Ethos (-), Horizontal Altruism (+) and Conventional Orthodoxy (-). Herein, composite affects of Anglo-Western society (WDT) moderators on Knowledge Building and Knowledge Discovery facilitate higher Final Product-Process Conformance. However, the composite affects of Han Chinese society (SHT) moderators on Knowledge Building and Knowledge Discovery alleviate higher Final Product-Process Conformance. Table 4.2 compares and summarises Anglo-Western and Han-Chinese Culture moderation effects, when overlaid along the Intermediation Primary Path Model structure.

Table 4.2 Anglo-Western and Han-Chinese Culture Moderation Model Relationships

Cultural Syndromes	Anglo-Western Society	Han Chinese Society
Vertical Power Ethos in Society	Lower	Higher
Vertical Power Ethos at the Workplace	Lower	Higher
Horizontal Altruism in Society	Higher	Lower
Horizontal Altruism at the Workplace	Higher	Lower
Conventional Orthodoxy in Society	Lower	Higher
Conventional Orthodoxy at the Workplace	Lower	Higher

↓

Intermediation	Anglo-Western Society	Han Chinese Society
Knowledge Building	Higher	Lower
Knowledge Discovery	Higher	Lower

↓

Conformance	Anglo-Western Society	Han Chinese Society
Final Process Outcomes	Higher	Lower
Final Product Outcomes	Higher	Lower

Table 4.2 also outlines the posited structure of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy on the intermediation primary path model in terms of the cultural syndromes in Anglo Western Society and Han Chinese Society, which are held to moderate Knowledge Building. Knowledge Discovery in New Product-Process Development is an intermediate variable responding to Knowledge Building. Successful Final Product-Process Performance Outcomes rely on the extent of Knowledge Discovery achieved. Consistent with Table 4.1, the immediately following hypotheses H_{16-21} are offered, by the Thesis, in relation to the moderation effects of Anglo Western society and Han Chinese society, on the Intermediation Primary Path Model.

4.15.3 Hypotheses pertaining to Anglo-Western and Han-Chinese Culture Moderation Model Relationships

H_{15} Vertical Power Ethos shall measure higher in Han Chinese society than in Anglo-Western society.

H_{15a} Vertical Power Ethos shall measure higher in Han Chinese society, in society-at-large, than in Anglo-Western society.

H_{15b} Vertical Power Ethos shall measure higher in Han Chinese society, at the workplace, than in Anglo-Western society.

H_{16} Horizontal Altruism shall measure less in Han Chinese society than in Anglo-Western society.

H_{16a} Horizontal Altruism shall measure less in Han Chinese society, in society-at-large, than in Anglo-Western society.

H_{16b} Horizontal Altruism shall measure less in Han Chinese society, at the workplace, than in Anglo-Western society.

H_{17} Conventional Orthodoxy shall measure higher in Han Chinese society than in Anglo-Western society.

H_{17a} Conventional Orthodoxy shall measure higher in Han Chinese society, in society-at-large, than in Anglo-Western society.

H_{17b} Conventional Orthodoxy shall measure higher in Han Chinese society, at the workplace, than in Anglo-Western society.

***H₁₈* Knowledge Building shall measure higher in Anglo-Western Society than in Han Chinese**

H_{18a} Knowledge Sharing shall measure higher in Anglo-Western Society than in Han Chinese

H_{18b} Creative Synergies shall measure higher in Anglo-Western Society than in Han Chinese

***H₁₉*: Product Discovery arising Creative Synergies and Final Process Conformance Outcomes shall measure higher in Anglo-Western Society than in Han Chinese**

-H_{19a}: Product Discovery arising Creative Synergies shall measure higher in Anglo-Western Society than in Han Chinese

-H_{19b}: Product Discovery arising Final Conformance Outcomes shall measure higher in Anglo-Western Society than in Han Chinese

***H₂₀*: Final Process Conformance Outcomes arising from Process Discovery shall measure higher in Anglo-Western Society than Han Chinese Society**

***H₂₁*: Final Product Conformance Outcomes arising from Product Discovery shall measure higher in Anglo-Western Society than Han Chinese Society**

Thus, Hypotheses *H₁₅*- *H₂₁*, relate to the moderation path effects of Anglo Western Society vis-à-vis Han Chinese society on the Intermediation Primary Path Model. In the next section, we shall focus on the Type and Extent of change pertaining to Product-Process Transformation Required, as a moderator of Product-Process Conformance Outcomes. Chapter Five and Chapter Six provide empirical results favourable to the hypotheses posed. Table 7.8 provides detailed cross-societal path coefficients for *H₁₅*- *H₂₁*.

***H₂₂*: Vertical Power Ethos shall measure higher independent means in Han-Chinese Society than in Anglo-Western society**

***H₂₃*: Horizontal Altruism shall measure lower Independent Means in Han-Chinese Society than in Anglo-Western Society**

***H₂₄*: Conventional Orthodoxy shall measure higher independent means in Han-Chinese Society than in Anglo-Western Society**

H_{22} - H_{24} measure absolute relationships between Anglo-Western society and Han Chinese society. Findings were disposed to be favourable to the Thesis, as disclosed in Chapter Seven.

Next, we discuss, as propositions, the moderating effects of product-process transformation on the intermediation primary path model.

-Please turn page-

INVESTIGATION THREE: PRODUCT-PROCESS TRANSFORMATION

~

A PROPOSITIONAL STUDY

4.16 PRODUCT-PROCESS TRANSFORMATION REQUISITE MODELS FOR ANGLO WESTERN SOCIETY AND HAN CHINESE SOCIETY

4.16.1 Preface to Product-Process Transformation Moderation Model

The Thesis (P_1 , P_3) proposes not all product-process development is equally dependent on the extent of Knowledge Discovery required, to achieve the desired final new product development outcomes. Instead, the Thesis contends the level of Knowledge Discovery required, goes hand-in-hand with the level of product process transformation necessary. Herein, the scope of the product-process transformation demanded of the product-process project calls into play the level of demand, for the level of Knowledge Discovery to be achieved. The findings from a preliminary study presented in Chapter Eight, gives weight to these assertions.

In this way, the Thesis contends that transformation requiring the copying of a known product-process shall be less dependent on new Knowledge Discovery than developing a new core product or process. Likewise, developing a new core product shall be less dependent on new product discovery than conducting advanced ground breaking research. In summation, the higher the level of product-process transformation, the greater the demand placed on higher Knowledge Building and higher Knowledge Discovery.

The Product-Process Transformation Requisites Models for Anglo Western society and Han Chinese society, for the first time, empirically contrasts the comparative capacity of Anglo Western society and Han Chinese society, to achieve various stepped-levels of product-process transformation complexity.

The survey classifiers were designated as follows:

- **Advanced Research into New Product-Process Development:** Significantly extends the scope of industry-level product-process development.
- **New Core Product-Process Development:** A fundamental break with previous product-process generations at your organisation.
- **New Generation Product-Process Development:** A significant modification requiring untried augmentation.
- **Minor incremental Product-Process Enhancement:** A minor modification using existing product-process competencies.
- **Copied Product-Process:** An existing product-process copied to a new environment

Propositions P_1 through to P_3 posit the relationships of Product-Process Transformation to the Intermediation Primary Path Model constructs.

4.16.2 Propositions³⁵ Pertaining to Product –Process Transformation Moderation Model

P_1 : The level of Product-Process Transformation Required moderates the localised relationship between Societal Syndromes and Knowledge Building in societies. Specifically, the path coefficients of Anglo-Western society and Han-Chinese society shall indicate moderation and cross-cultural elasticity.

- P_2 : The level of Product-Process Transformation required shall not moderate the *etic* relationship between Knowledge Sharing and Creative Synergies. Specifically, the path coefficients of Anglo-Western society and Han-Chinese society shall not indicate moderation.

³⁵ Sample sizes were too small on segmentation to justify hypotheses.

- P_3 : The differential between the independent means between Angl-Western Society and Han-Chinese shall tend to widen, as the complexity of Product-Process Transformation Required increases in a linear fashion.

Propositions P_1 - P_3 relate *embedded* moderation effects of Product-Process Transformation Required *within* the moderation effects of Anglo Western Society vis-à-vis Han Chinese society on the Intermediation Primary Path Model. The overall tenet being that Anglo Western society is better situated to achieve higher levels of Product-Process Transformation Required, because the former more often achieves Knowledge Sharing and Creative Synergies in novel situations. The greater the dependency of personal knowledge contribution, as required of intermediate to advanced product-process development, the greater the constraining influence of knowledge retentive environments: e.g., Han Chinese society. Chapter Five and Chapter Six provide empirical results favourable to the hypotheses posed. Tables 7.10 -7.15, provide findings derived from the statistical analyses of P_1 - P_3 .

4.17 SUMMARY AND CONCLUSIONS: THEORY AND RESEARCH ARCHETYPE TRANSFORMATION

Chapter Four revised extant non-empirical contributions to enhance new Cultural Studies theory by emphasising the high worth of socio-anthropological and histological knowledge. Foundation constructs were transmuted and transliterated to create schema more appropriate to empirical analyses.

Creation of a new unified cultural model required integrating and transforming Elementary Forms (Fiske 1991), Cultural Syndromes (Triandis 1994), Redding (1990) theory, plus, socio-anthropological and histological augmentation. Chapter Four extended the Literature Review Part I and the Literature Review Part II, as an interlocutor, to the Research Methodology chapter (Chapter Five), which necessarily requires a framework supporting enduring scales. Sino Homeostatic Traditionalism (SHT) and Western Dynamic Transformationalism (WDT) are held to be reliably stable over time in lieu of known alternative constructs, which are held to be contemporaneously contained theory and scales.

The original contribution of the non-empirical unified culture model was the first step in the archetype transformation required to create the original societal syndromes model required. This established Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy as new Cultural Syndromes, having wide application, including Anglo-West *vis-à-vis* Han Chinese cross-cultural evaluation and measurement.

The new original Societal Syndromes were first applied to the Intermediation Primary Path Model. The thesis proposed, as a hypothetical abstract, an Ideal Value Set for Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy. Moreover, Chapter Four proposed that Anglo Western society displayed an orientation towards the Ideal Value Set, much more so than Han Chinese society, to achieve high Knowledge Building (Knowledge Sharing and Creative Synergies) and high New Product-Process Knowledge Discovery. Anglo Western society and Han Chinese society were posited as moderators of the Intermediation Primary Path Model.

Not all Product-Process Conformance Outcomes are equally attainable, owing to variations in dependency on personal knowledge contribution, in face of the level of Product-Process Transformation Required, which is a second moderator on the Intermediation Primary Path Model.

On the innovation continuum, copied product-processes and minor incremental product-product processes having minor incremental enhancements are held not heavily reliant on Knowledge Sharing and Creative Synergies. On the other hand, with higher levels of Product-Process Transformation Required, Han Chinese society shall be highly challenged by new generation product-process development and advanced new product-process development research.

Furthermore, Pluralism was found to be a contra influencer to Limited Bounded Trust (Redding 1990) and Non Trust (1976). The Western and Japanese (control) societies were found to exhibit less top-down interference than in Chinese society. In the West and Japan, open Knowledge Sharing occurs to achieve consensus on the best solution to be given assent by executive management. Alternatively, in Chinese society, where rank-based cardinal relationship templates dominate, subordinates are obedient and compliant.

Three separate empirical investigations, employing multitudinous statistical techniques and structural equation modelling, are tested. The first study establishes the Intermediation Primary Path Model, which includes the new Cultural Syndromes and other original constructs. The other two studies investigate the moderation effects of (a) Anglo-Western society vis-à-vis Chinese society and (b) Product-Process Transformation Requirements on the Intermediation Primary Path Model.

The hypotheses and propositions, to be tested, include:

- Hypotheses H_1 - H_{14} , relate to Cultural Syndromes and the Intermediation Primary Path Model
- Hypotheses H_{15} - H_{24} , attach to Anglo-Western vis-à-vis Han Chinese moderation of the Intermediation Primary Path Model
- *Propositions* P_1 - P_3 , connect to Product-Process Transformation Requirements regarding Anglo-Western vis-à-vis Han Chinese in moderation of the Intermediation Primary Path Model

4.18 NEXT CHAPTER

Looking forward in the Thesis; overall, as evidenced in Chapter Six through to Chapter Eight, the hypotheses and propositions were proven as posited, with only minor deviation.

The next chapter, Chapter Five, articulates the Research Methodologies applied. Chapter Five will set the scene for rigorous original empirical testing throughout the Thesis, which will be presented in Volume II.

**Exploring the Comparative Effects of Societal Syndromes
on
Knowledge Discovery
in
New Product-Process Development**
~
Contrasting Anglo-Western Society and Han-Chinese Society

by

Peter James Sinclair

Volume II

Submitted to Marketing Discipline Group, UTS Business School
in partial fulfilment of the requirements for the degree of

Doctor of Philosophy in Marketing

at the

University of Technology, Sydney

September, 2012

© 2012 Peter James Sinclair. All rights reserved. Permission is herein granted to the University of Technology, Sydney to store; and, after **28 September 2013**, to copy and circulate for non-commercial purposes at the University's own discretion, the above title and content contained therein, upon the request of academic researchers, students and educational institutions. Title and authorship must be attributed.

Certificate of Authorship and Originality

I, Peter James Sinclair, hereby certify that the work in this thesis has not been previously been submitted for another degree, nor has the work been submitted as the part of any other degree. Furthermore, I certify that the thesis was written by me and that any sources cited in the preparation of the thesis have been fully and rightfully acknowledged.

Thesis Author..... Peter James Sinclair
28 September 2012

TABLE OF CONTENTS

VOLUME ONE

CHAPTER ONE: INTRODUCTION AND THESIS OUTLINE

1.1 JUSTIFICATION FOR THESIS	2
1.2 OUTLINE OF THESIS	6
1.3 FORMAT OF LITERATURE REVIEW	7
1.3.1 Establishing the Current State of Understanding	7
1.3.2 Establishing Deep Histological Understanding	7
1.3.3 Theory and Archetype Transformation	8
1.3.4 Research Design and Methodology	8
1.3.5 Assessment of Measurement Models	9
1.3.6 Structural Modelling and Further Assessment	9
1.3.7 Conclusions and Discussion	10
1.4 NEXT CHAPTER	10

CHAPTER TWO: LITERATURE REVIEW – PART ONE

2.1 INTRODUCTION	12
2.1.1 Chapter Synopsis	12
2.1.2 Preface to Literature Review	13
2.2 THREE PARENT DISCIPLINES	19
2.2.1 Knowledge Management	19
2.2.1.1 Definitions of Knowledge Management	19
2.2.1.2 Trends towards a Knowledge Based Economy	24
2.2.1.3 Innovation	31
2.2.1.4 Knowledge Sharing and Information Flow	33
2.2.1.5 Japanese Management Systems	35
2.3 THREE PARENT DISCIPLINES	38
2.3.1 Preface to New Product Development in Marketing	38
2.3.2 Definitions of New Product Development	40
2.3.3 Cross-functional Team Research in New Product Development	42
2.3.4 Innovation in New Product Development	46
2.4 CULTURAL STUDIES	49
2.4.1 Ecology	49
2.4.2 Culture's Foundations	50
2.4.3 Defining Culture	52

2.5 DEVELOPING A NEW INTERGRATIVE QUALITATIVE MODEL	61
2.5.1 Three Perspectives On Culture’s Constituent Parts	61
2.5.1.1 Fiske’s Four Elementary Forms of Social Reality	62
2.5.1.2 Triandis’ Cultural Syndromes	71
2.5.1.3 Redding’s Chinese Capitalism	75
2.5.2 Non-Empirical Models: Integrating Seminal Culture Literature: Anglo-West And Han-China	79
2.6 LITERATURE REVIEW PART I: SUMMARY AND CONCLUSIONS	84
2.7 NEXT CHAPTER	86

CHAPTER THREE: LITERATURE REVIEW – PART TWO
--

3.1 INTRODUCTION	88
3.1.1 Chapter Synopsis	88
3.1.2 Scope of the Literature Review for Chapter Three	89
 	90
3.2 VERTICAL ORDER IN TRADITIONAL CHINESE HISTORY	
3.2.1 Contrasts in History	90
3.2.2 The <i>li</i> and <i>wu lun</i>	95
3.3 HORIZONTAL ORDER IN CHINESE HISTORY	101

3.4	CONTRASTING SINO-HOMEOSTATIC AND WESTERN DYNAMIC TRANSFORMATIONALISM	108
3.5	LITERATURE REVIEW PART II: SUMMARY AND CONCLUSIONS	114
3.6	NEXT CHAPTER	115

**CHAPTER FOUR: THEORY AND RESEARCH ARCHETYPE
TRANSFORMATION**

4.1	INTRODUCTION	118
4.2	SCOPE OF CHAPTER FOUR	119
4.2.1	Revisiting the Modelling of the Non-Empirical Literature	119
4.2.2	Interlude on Modelling Archetypes Applied	121
4.2.2.1	Non-Empirical Models	121
4.2.2.2	Template for Empirical Models	122
4.2.3	Investigation One: Introduction to Intermediation Primary Path Model	123
4.2.4	Investigation Two: Introduction to Cross-Cultural Moderation Model	124
4.2.5	Investigation Three: Introduction to Product Transformation Requisites Moderation Model	125

4.3	RETURNING TO CULTURAL STUDIES	127
4.3.1	Revising Cultural Studies	127
4.3.2	Integration of Fiske’s Elementary Forms and Triandis’ Culture Syndrome	131
4.3.3	Social Complexity - Triandis	134
4.3.3.1	Tight versus Loose Cultures - Triandis	135
4.3.3.2	Individualism and Collectivism	136
4.4	SOCIETAL CULTURE AND SOCIAL BEHAVIOUR	140
4.5	PLURALISM	141
4.6	INTERLUDE REGARDING DEVELOPMENT	147
4.7	CONSTRUCTING AN ORIGINAL CULTURAL STUDIES MODEL	151
4.8	INTERLUDE REGARDING DEVELOPMENT	158
4.8.1	Vertical Power Ethos	160
4.8.2	Horizontal Altruism	162
4.8.3	Conventional Orthodoxy	166
4.9	CONCLUDING REMARKS ON ORIGINAL CULTURAL SYNDROMES	168
4.10	KNOWLEDGE BUILDING IN NEW PRODUCT DEVELOPMENT TEAMS	169

4.11	KNOWLEDGE DISCOVERY IN NEW PRODUCT- PROCESS DEVELOPMENT	171
4.12	FINAL CONFORMANCE OUTCOMES IN PRODUCT- PROCESS	173
4.13	SUMMARISED OUTLINE OF INTERMEDIATION PRIMARY PATH MODELS	174
4.14	HYPOTHESES RELATING TO THE INTERMEDIATION PRIMARY PATH MODEL	178
14.14.1	Hypotheses pertaining to Societal Syndrome Internal Relationships	178
14.14.2	Hypotheses pertaining to Knowledge Building	180
14.14.3	Hypotheses pertaining to Knowledge Discovery	183
14.14.4	Hypotheses pertaining to Final Product-Process Outcomes	184
4.15	MAIN EFFECTS MODEL FOR ALL PRODUCT TRANSFORMATION CATEGORIES OF ANGLO WESTERN SOCIETY AND HAN CHINESE SOCIETY COMBINED - INCLUDING HYPOTHESES	189
14.15.1	Introduction to Cross-Culture Models	189
14.15.2	Contrasting Cultural Syndromes in Anglo Western and Han Chinese Societies	196
14.15.3	Hypotheses pertaining to Anglo-Western and Han-Chinese Culture Moderation Model Relationships	200
4.16	PRODUCT-PROCESS TRANSFORMATION REQUISITE MODELS FOR ANGLO WESTERN SOCIETY AND HAN CHINESE SOCIETY	204
4.16.1	Preface to Product-Process Transformation Moderation	204
4.16.2	Propositions Pertaining to Product-Process Transformation	205

4.17 SUMMARY AND CONCLUSIONS: THEORY AND RESEARCH ARCHETYPE TRANSFORMATION	206
4.18 NEXT CHAPTER	209

-Please turn page-

TABLE OF CONTENTS

VOLUME TWO

CHAPTER FIVE: RESEARCH METHODOLOGY

5.1	INTRODUCTION	212
5.1.1	Chapter Synopsis	212
5.1.2	Scope of Chapter Five	213
5.1.3	Reflective Model Adopted	215
5.2	BUSINESS PROBLEMS	217
5.3	RESEARCH PROBLEMS	219
5.4	RESEARCH QUESTION	219
5.4.1	Research Question Posed	219
5.4.2	Research Issues	220
5.5	RESIGN DESIGN	224
5.5.1	Outline for the Operation of Constructs and the Creation of New Scales	224
5.5.2	Determination of Measures	225

5.5.3	Generation of Item Pool	226
5.5.4	Expert Panel Revision	227
5.6	PRETESTING THE SURVEY INSTRUMENT	229
5.7	FINAL SURVEY INSTRUMENTS	231
5.7.2.	Data Collection and Sampling	233
5.7.3.	Respondents	234
5.7.3.1	New Product-Process Developers	234
5.7.3.2	Non New Product-Process Developers	237
5.8	MEASUREMENT OF THE THEORETICAL CONSTRUCTS	244
5.9	ORIGINAL MODELS	246
5.9.1	Measurement Models - Societal Syndromes Study	246
5.9.2	Structural Equation Modelling -Three Investigations	247
5.9.2.1	Intermediation Primary Path Model	249
5.9.2.2	Two Moderation Models	250
5.9.3	<i>Post hoc</i> Test for Common Method Variance	255
5.10	SUMMARY AND CONCLUSIONS	255
5.11	NEXT CHAPTER	259

CHAPTER SIX – ASSESSMENT OF MEASUREMENT MODELS

6.1	INTRODUCTION	262
6.1.1	Chapter Synopsis	262
6.1.2	Contributions of Societal Syndromes	262
6.1.3	Statement of Scope	265
6.1.4	Outline of Chapter Six	266
6.2	THEORETICAL FOUNDATIONS OF PSYCHOMETRIC MEASURES	267
6.2.1	Measurement	268
6.2.2	Reliability	270
6.2.3	Validity	276
6.2.4	Content Validity and Dimensionality	278
6.2.5	Criterion-Related Validity	280
6.2.6	Convergence Validity and Discriminate Validity	280
6.2.7	Nomological Networks	281
6.2.8	Dimension Specification and Confirmatory Factor Analysis Specification	282
6.2.9	Interim Summary: Psychometric Theory	284
6.3	RELIABILITY AND DIMENSIONALITY	285

6.4	PRINCIPAL AXIS FACTORING	291
6.4.1	Two Group Analysis of Degree of Variance: Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy	294
6.5	THEORY OF MEASURES OF GOODNESS-OF-FIT	297
6.5.1	Confirmatory Factor Analyses	297
6.5.2	Goodness-of-Fit	298
6.5.3	Interim Summary and Interpretation: Goodness-of-Fit (Theory)	303
6.6	ANALYSES OF GOODNESS OF FIT AND CFA ANALYSES OF DIMENSIONALITY	304
6.6.1	Vertical Power Ethos	304
6.6.1.1	VPESOC.AW: VPE in Society-at-Large in Anglo-Western Society	304
6.6.1.2	HORWOR.AW: HOR at the Workplace for Anglo-Western Society	306
6.6.1.3	VPESOC.HC: HOR in Han-Chinese Society-at-Large	307
6.6.1.4	VPEWOR.HC: VPE at the Workplace in Han-Chinese Society	309
6.6.2	Horizontal Altruism	310
6.6.2.1	HORSOC.AW: HOR in Society-at-Large in Anglo-Western Society	311
6.6.2.2	HORWOR.AW: HOR at the Workplace for Anglo-Western Society	312
6.6.2.3	HORSOC.HC: HOR in Society-at-Large for Han-Chinese Society	314
6.6.2.4	HORWOR.HC: HOR at the Workplace in Han-Chinese Society-at-Large	315
6.6.3	Conventional Orthodoxy	317

6.6.3.1	CONSOC.AW: CON in Society-at-Large in Anglo-Western Society	317
6.6.3.2	CONWOR.AW: CON at the Workplace in Anglo-Western Society	319
6.6.3.3	CONSOC.HC: CON in Society-at-Large for Han-Chinese Society	321
6.6.3.4	CONWOR.HC: HOR at the Workplace for Han-Chinese Society	322
6.7	CONTRASTING ANGLO-WESTERN SOCIETY AND HAN-CHINESE SOCIETY PRELIMINARY MEASURES	325
6.7.1	Vertical Power Ethos	325
6.7.2	Horizontal Altruism	326
6.7.3	Conventional Orthodoxy	327
6.8	INTERIM SUMMARY AND INTERPRETATION: ANALYSES OF GOODNESS OF FIT AND CFA ANALYSES OF DIMENSIONALITY	328
6.9	CONCLUDING REMARKS ON MEASUREMENT MODELS	330
6.10	NEXT CHAPTER	332

CHAPTER SEVEN: TESTING THE STRUCTURE OF THE PATH MODELS

7.1	INTRODUCTION	335
7.2	TWO GROUP ANALYSIS OF THE DEGREE OF VARIANCE: CREATIVE SYNERGIES, KNOWLEDGE SHARING, PRODUCT-PPROCESS DISCOVERY, FINAL PROCESS OUTCOMES AND FINAL PRODUCT OUTCOMES	339
7.3	INVESTIGATION ONE: INTERMEDIATION PRIMARY PATH MODEL	341
7.3.1	Overview of Intermediation Primary Path Model	341
7.3.2	Societal Syndromes Schema Intra-relationships - Hypotheses H ₁ - H ₈	352
7.3.3	Societal Syndromes to Knowledge Building Relationships - Hypotheses H ₉ - H ₁₁	359
7.3.4	Knowledge Building Schema Intra-Relationship - Hypothesis H ₁₂	365
7.3.5	Creative Synergies to Knowledge Discovery Relationships - Hypothesis H ₁₃	370
7.3.6	Knowledge Discovery Relationships to Final Product-Process Relationships - Hypothesis H ₁₄	373

7.3.7	Investigation One : Summary Of Findings	375
7.4	INVESTIGATION TWO: MODERATION EFFECTS OF SOCIETY: CONTRASTING ANGLO-WESTERN SOCIETY AND HAN-CHINESE SOCIETY	376
7.4.1	Introduction	376
7.4.2	Contrasting Anglo-Western and Han-Chinese Moderation Effects on the Intermediation Primary Path Model	377
7.4.2.1	Introduction to the Moderation Effects of Society	377
7.4.2.2	Cross-Society Path Coefficients and T Score Moderation Effects $H_{15} - H_{21}$	378
7.4.2.3	Moderation Effects: Hypotheses $H_{15} - H_{21}$	380
7.5	CONTRASTING ANGLO-WESTERN AND HAN-CHINESE COMPARATIVE INDEPENDENT MEANS ON INTERMEDIATION PRIMARY PATH MODEL	389
7.5.1	Cross-Cultural Manifestations	389
7.5.2	Evaluation of Comparative Independent Means	394
7.6	CONCLUDING REMARKS ON INVESTIGATIONS ONE AND TWO	395
7.7	NEXT CHAPTER	403

-Please Turn Page-

TABLE OF CONTENTS

VOLUME THREE

CHAPTER EIGHT: PROPOSITIONAL STUDY: EXPLORING THE EFFECTS OF PRODUCT PROCESS TRANSFORMATION

8.1 REVISION OF EARLIER INVESTIGATIONS	405
8.2 RATIONALE FOR MEASURING PRODUCT-PROCESS TRANSFORMATION	406
8.3 PROPOSITIONAL NATURE OF QUANTITATIVE RESULT	408
8.4 PROPOSITIONS REGARDING THE MODERATING EFFECTS OF PROCESS TRANSFORMATION	409
8.5 MAIDEN FINDINGS FOR PRODUCT-PROCESS INFORMATION DEVELOPMENT	418
8.6 NEXT CHAPTER	422

CHAPTER NINE: DISCUSSION, CONCLUSIONS AND FURTHER STUDIES

9.1	OUTLINE OF CHAPTER NINE	424
9.2	ADDRESSING RESEARCH PROBLEMS	426
9.3	DISCUSSION DRAWN FROM RESEARCH ISSUES	431
9.3.1	Can societal syndromes be derived from collected research data?	431
9.3.2	Can societal measures be differentiated between Anglo-Western society and Han-Chinese society?	431
9.3.3	How do posited societal syndromes relate Knowledge Sharing and Creative Synergies in Anglo-Western society and Han-Chinese society?	432
9.3.4	How do Knowledge Sharing and Creative Synergies in knowledge building relate to product-process conformance outcomes in Anglo-Western society and Han Chinese society?	433
9.3.5	How does the extent of Product-Process Transformation Required by management relate to new product conformance in Anglo-Western society and Han-Chinese society?	433
9.3.6	How can societal syndromes be best applied by international marketers in Anglo-Western society and Han-Chinese society in new product-process development?	434
9.4	CONTRIBUTIONS AND IMPLICATIONS	434
9.4.1	Contributions to Methodology	434
9.4.2	Major Cultural Anthropological Studies Integrated and Operationalised	436
9.4.3	Operation of Latent High Horizontal Altruism Revealed	437

9.4.4	Knowledge-Based Intermediation Effects Confirmed	439
9.4.5	Anglo-Western and Han-Chinese Societal Moderation Effects on the Intermediation Primary Path Model Established	441
9.4.6	Effects of Product-Process Transformation on the Intermediation Primary Path Model Established in Anglo-Western Society an Han-Chinese society	443
9.5	ADDRESSING THE RESEARCH QUESTION	444
9.5.1	Framework for Answering the Research Question	444
9.5.2	Answering the Research Question	446
9.6	SUMMARY OF MAIN IMPLCATIONS	447
9.6.1	Implications for Theory	447
9.6.2	Implications for Practice	449
9.6.3	Implications for achieving Product-Trade Advantage	452
9.7	LIMITATIONS	454
9.8	FUTURE RESEARCH STUDIES	456
9.8.1	Introduction to Future Research Studies	456
9.8.2	Future Research Design Approaches	456
9.8.3	Specific Future Research Recommendation	458
9.9	REGARDING APPENDICES	460
	BIBLIOGRAPHY	461

LIST OF TABLES

VOLUME ONE

Table 3.1	Vertical Order, Horizontal Order and Traditionalism in China and the West	89
Table 3.2	Antecedents to Sino Homeostatic Traditionalism and Western Dynamic Transformationalism	109
Table 4.1	Main Constructs and Underlying Factors	159
Table 4.2	Anglo-Western and Han-Chinese Culture Moderation Model Relationships	199

VOLUME TWO

Table 5.1	Format of Surveys	231
Table 5.1.1	Survey Formats (a)	231
Table 5.1.2	Survey Formats (b)	232
Table 5.2	Anglo Western and Han Chinese Sample Sets	234
Table 5.3	Product Transformation Categories	252
Table 6.1	Recommended Levels of Cronbach alphas from the Literature	273
Table 6.2	Main Constructs and Associated Dimensions (Scales/Factors) (Reprise)	278
Table 6.3	Measurement Data For Vertical Power Ethos in Society at Large (SOC) and Workplace (WOR)	288
Table 6.4	Measurement Data: For Horizontal Altruism in Society at Large (SOC) and Workplace (WOR)	289

Table 6.5	For Conventional Orthodoxy in Society at Large (SOC) and Workplace (WOR)	290
Table 6.6	Vertical Power Ethos (Eigenvalues)	292
Table 6.7	Horizontal Altruism (Eigenvalues)	293
Table 6.8	Conventional Orthodoxy (Eigenvalues)	293
Table 6.9	The Factor Models For Invariance In Society: Anglo-West And Han-China - Societal Syndromes	295
Table 6.10	The Factor Models For Invariance at the Workplace: Anglo-West And Han-China -Societal Syndromes	296
Table 7.1	The Factor Models For Invariance: Anglo-West And Han-China Society - Knowledge Building & Product-Process Development	340
Table 7.2	Intermediation Path Model -Full Correlation Matric - Both Societies Combined and All Product Transformation	351
Table 7.3	Intra-relationships within Societal Syndrome Paths (H ₁ - H ₈)	353
Table 7.4	Vertical Power Ethos to Knowledge Building (H ₉)	362
Table 7.5	Horizontal Altruism in the Workplace and Knowledge Building (H ₁₀)	363
Table 7.6	Conventional Orthodoxy in the Workplace and Knowledge Building (H ₁₁)	364
Table 7.7	Knowledge Sharing to Creative Synergies (H ₁₂)	369
Table 7.8	Creative Synergies to Product and Process Discovery (H ₁₃)	373
Table 7.9	Product-Process Discovery and Final Product-Process Outcomes (H ₁₄)	375
Table 7.10	Cross-Societal Path Coefficients and T score Moderation Effects (H ₁₅ - H ₂₁)	379
Table 7.11	Cross-societal Independent Means of Anglo-Western Society and Han-Chinese (H ₂₂ -H ₂₄)	390

VOLUME THREE

Table 8.1	Societal Syndromes and Knowledge Building by Level of Product-Process Transformation (P ₁)	410
Table 8.2	Creative and Knowledge Building by Level of Product-Process Transformation (P ₂)	412
Table 8.3	Evaluation of Comparative Independent Means by Product Transformation the society - for Cultural Syndromes (P ₃)	414
Table 8.4	Evaluation of Comparative Independent Means by Product Transformation the society - for Knowledge Building (P ₃)	415
Table 8.5	Evaluation of Comparative Independent Means by Product-Process Transformation in Product-Process Discovery	416
Table 8.6	Evaluation of Comparative Independent Means by Product-Process Transformation in Final Product-Process Conformance Outcomes	417

~

LIST OF FIGURES

VOLUME ONE

Figure 2.1	Outline of Disciplines & Studies – Literature Review	14
Figure 2.2	Generic Attributes of Product-Process Conformance (Four Steps)	17
Figure 2.3	Japanese Decision Making Processes (Fakuda 1988)	37
Figure 2.4	Product Decisions and Planning and Knowledge-based Innovation	39
Figure 2.5	Dissimilar Environments and Normative Behaviours Exhibited	51
Figure 2.6	Necessity for Two-Level Analysis of Societal Domains	64
Figure 2.7	Communal Sharing and Authority Ranking and Asian Collectivism	67
Figure 2.8	Relationships of Equality Matching and Market Pricing in Western Society	70
Figure 2.9	The Spirit of Chinese Capitalism (Redding 1990)	76
Figure 2.10	Literature Integration – New Model for Chinese Society	82
Figure 2.11	Literature Integration – New Model for Western Society	83
Figure 3.1	Primary Effects of Sino-Homeostatic Traditionalism and Western-Dynamic Transformationalism	112
Figure 3.2	Detailed Effects of Western Dynamic Transformationalism and Sino-Homeostatic Traditionalism on Knowledge-based Products	113
Figure 4.1	Integration of Fiske’s Elementary Forms and Triandis’ Culture Syndromes	133
Figure 4.2	Effects of Western Feudal Pluralism vis-à-vis Chinese Familialism and Limited & Bounded Trust	145

Figure 4.3	Bridging the Literature to New Societal Syndromes	149
Figure 4.4	For China - Effects of the Absence of Pluralism Stemming from Relationship of Non-Empirical Contributions (Part A)	153
Figure 4.5	For China - Effects of the Absence of Pluralism Stemming from Relationship of Non-Empirical Contributions (Part B)	154
Figure 4.6	For The West - Reprise of the Relationship of Non-Empirical Contributions (Part A)	155
Figure 4.7	For The West - Effects of the Presence of Pluralism Stemming from the Relationship of Non-Empirical Contributions (Part B)	156
Figure 4.8	Basic Structure of the Intermediation Primary Path Model	174
Figure 4.9	Generic Intermediation Primary Path Model (Without Moderators)	176
Figure 4.10	Internal Relationships of Posited Society Syndromes	179
Figure 4.11	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Hypotheses	183
Figure 4.12	Relationships of Knowledge Building from Societal Syndromes & Knowledge Discovery from Knowledge Building to Final Product-Process Conformance	186
Figure 4.13	Hypothesised Moderation Effect of Anglo Western Society on Intermediation Primary Path	197
Figure 4.14	Hypothesised Moderation Effect of Han-Chinese Society on Intermediation Primary Path	198

LIST OF FIGURES

VOLUME TWO

Figure 5.1	Coalescing Samples Recruited to Measure Societal Syndromes	239
Figure 5.2	Society-at-Large and Workplace-in-Society	243
Figure 5.3	Basic Structure of Intermediation Primary Path Model (Reprise)	249
Figure 5.4	Moderation Effects of Anglo-Western Society or Han-Chinese Society on Intermediation Primary Path	254
Figure 6.1	Principal Factor Measurement	283
Figure 6.2	Confirmative Factor Analysis of VPESOC.AW	305
Figure 6.3	Confirmative Factor Analysis of VPEWOR.AW	306
Figure 6.4	Confirmative Factor Analysis of VPESOC.HC	308
Figure 6.5	Confirmative Factor Analysis of HORWOR.HC	310
Figure 6.6	Confirmative Factor Analysis of HORSOC.AW	311
Figure 6.7	Confirmative Factor Analysis of HORWOR.AW	313
Figure 6.8	Confirmative Factor Analysis of HORSOC.HC	314
Figure 6.9	Confirmative Factor Analysis of HORWOR.HC	316
Figure 6.10	Confirmative Factor Analysis of CONSOC.AW	318
Figure 6.11	Confirmative Factor Analysis of CONWOR.AW	320
Figure 6.12	Confirmative Factor Analysis of CONSOC.HC	322
Figure 6.12	Confirmative Factor Analysis of CONHOR.HC	324

LIST OF FIGURES

VOLUME TWO

Figure 7.1	Existing Models and New Intermediation Primary Path Model	341
Figure 7.2.1	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories - Hypotheses H ₁ - H ₁₄	348
Figure 7.2.2	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories - Path Coefficients	349
Figure 7.2.3	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Scores	350
Figure 7.3	Reduced ¹ Model of Societal Syndromes Internal Relationships (Societal Archetype)	357
Figure 7.4	Summarised Societal Syndrome Schema to Knowledge Sharing and Creative Synergies	358
Figure 7.5	Reduced Model of Societal Syndromes in the Workplace and Knowledge Sharing	360
Figure 7.6	Reduced Model of Societal Syndromes in the Workplace and Creative Synergies	361
Figure 7.7	Reduced Model of Knowledge Sharing on Creative Synergies in Knowledge Building	369
Figure 7.8	Reduced Model of Creative Synergies on Product and Process Knowledge Discovery	372
Figure 7.9	Reduced model of Knowledge Discovery Relationships to Final Product-Process Relationships	374

¹ **REDUCED MODEL:** Definition as requested by Thesis Examiner. “Reduced” means sectioned within the full Intermediation Primary Path Model. Here, representing the aggregate Societal Archetype international relationship *before* Knowledge Sharing. Partitioning allows autonomous and independent analysis of dissected construct formations. This term used several times in the thesis.

VOLUME THREE

Figure 8.1	Product Transformations by Final Product Conformance Outcomes: Contrasting Anglo-Western Society and Han-Chinese Society	421

LIST OF INCLUSIONS

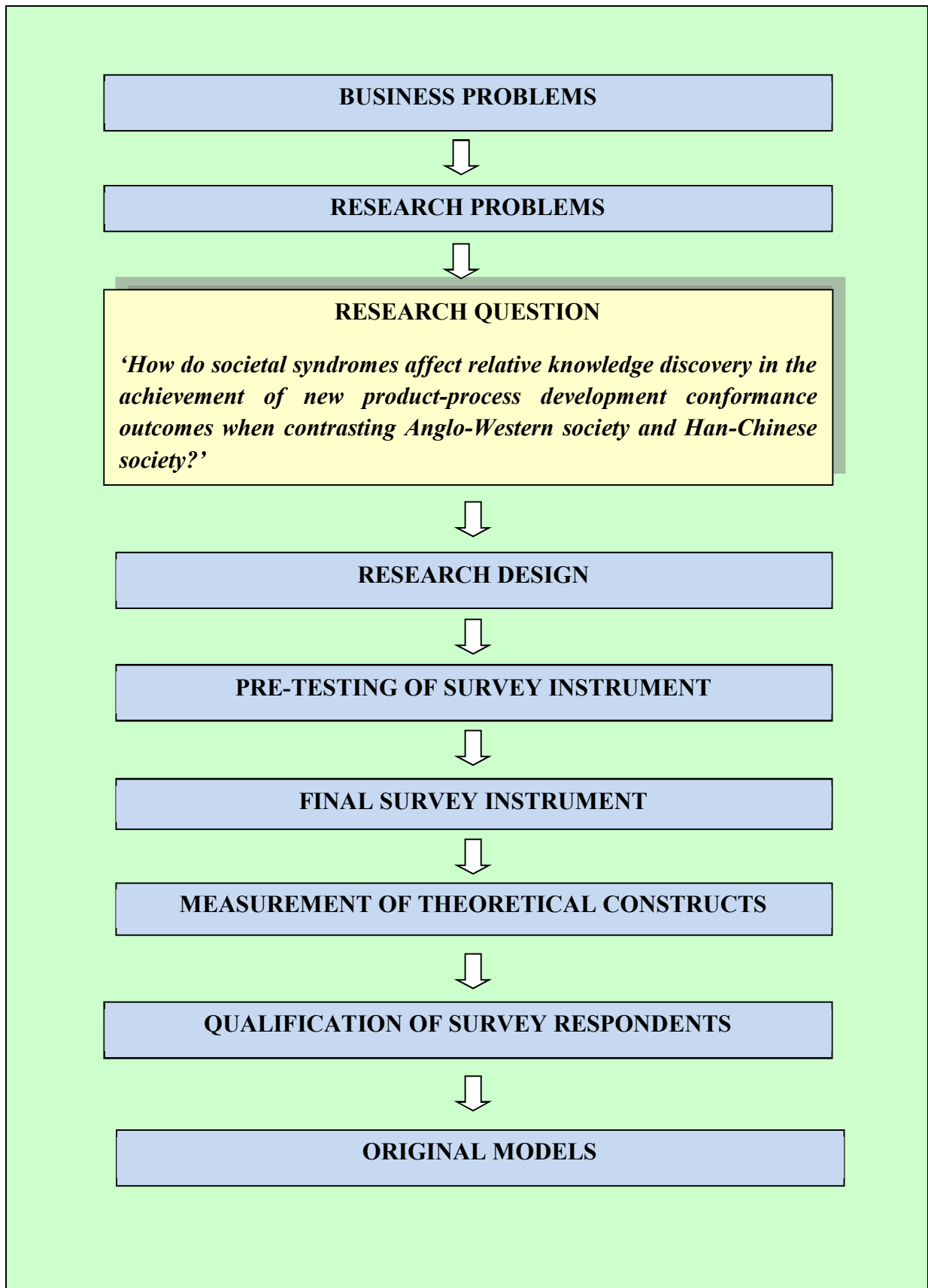
Inclusion 3.1	Confucius and Traditionalism (Conventional Orthodoxy): Revering the Past	92
Inclusion 3.2	The <i>wu lun</i>	97
Inclusion 4.1	Systematic Experiment	144

APPENDICES ALL VOLUMES

A	Behavioural Approach to Comparative Management	A-I to A-IV
B	Survey Structure with Annotation	B-I to B-XLII
C	Principal Axis Factoring & Correlation Matrices for Anglo-Western Society	C-I to C-XXII
D	Principal Axis Factoring & Correlation Matrices for Han-Chinese Society	D-I to D-XXII

CHAPTER FIVE

RESEARCH METHODOLOGY



5.1 INTRODUCTION

‘Research is the process of going up alleys to see if they are blind.’

– Marston Bates

5.1.1 Chapter Synopsis

This thesis takes first measures pertaining to key cultural antecedents, now the established qualitative literature has, for the first time, been unified for original operationalisation.

It is argued that the general research community in many fields would benefit from the integration and operationalisation of key non-empirical cultural antecedents now judiciously purported by the extant literature to influence normative behaviour in societies-at-large and in workplaces. Affirmative findings would have multifarious applications across many disciplines and buttress, reinforce and refine contributions known to the non-empirical literature. By extension, for the first time, the research design permits detailed modelling of new product-process development incorporating new cultural antecedents, Knowledge Building and new product-process discovery.

This seminal and exploratory Research Design was structured on established scale development guidelines (Devellis, 1991). After expert panel evaluation and pre-testing, format split-ballot survey instruments were used to test the influence of three original societal syndromes (Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy) on new measures of Knowledge Building and Knowledge Discovery in New Product Process Development, creating a primary path model having conformance outcomes as dependent variables. The primary path model represented the backbone of the Thesis, against which, the two key moderators of Anglo Western society vis-à-vis Han Chinese society and Product-Process Transformation Requisites were independently measured.

The Research Design required the pre-testing and the development of final survey instruments to measure theoretical constructs to be tested in the Anglo-West and Han China. Pretesting, included the testing of alternative now rejected models, which have not been included in the text of this thesis. Only the best fitting models were retained to be reported, to meet thesis length restrictions and sustain focus.

The Thesis applies reflective modelling based on classical test theory (Anderson and Gerbing 1982, Peter 1982 and Churchill 1979); herein, classical test theory accepts disparities in construct measures to be ‘a function of the true score, plus error’. With reflective modelling, constructs are developed from measures.

Later, in Chapter Six, Measurement models estimate the quality and fit of discrete data. Structural Equation Modelling using SmartPLS software (Ringle, Wende and Will, 2005) were created to permit insightful analyses of the relationships between the new constructs. New data structures were derived from and based on respected prior extensive qualitative research finding. The qualitative research, before ‘first measurement,’ was extensive; thus, establishing a firm foundation for operationalisation.

Overall, the Research Design employed directed the favourable outcomes reported in Chapters Six, which presents the supportive measurement models, while Chapter Seven, also, offers encouraging findings from Structural Equation Modelling.

5.1.2 Scope of Chapter Five

The Research Design chapter introduces business problems and associated research problems confronting new product developers in internationally situating new product-process development teams and outlines the methodologies successfully used to remedy the problems and associated research issues.

Research methodologies addressed the Research Question:

‘How do societal syndromes affect relative Knowledge Discovery in the achievement of new product-process development outcomes, when contrasting Anglo Western society and Chinese society?’

Research Design required original, ‘general’ operationalisation of non-empirical constructs presently known to the literature. The fundamental concepts are not naïve to knowledge; yet concept unification, quantitative modelling and assessment of the societal syndromes have not been made in the past. Original measures completed in the Thesis were erected on reputable findings from the qualitative literature. Thus, although the quantitative research

domain is exploratory, the worthy efforts of qualitative researchers provided helpful orientation and assisted in achieving good results.

Scale development design, for the most part, was guided by Robert F. DeVellis (1991) from which the following steps were followed:

- Outline the Operation of Constructs and the Creation of New Scales
- Determination of Measures
- Generation of Item Pool
- Expert Panel Review
- Pretesting the Survey Instrument
- Creation of Final Surveys

General survey formats designed to capture data from both New Product Developers and Non New Product Developers, in the Anglo West and Han China, were independently measured. Afterwards, the data were cleaned. For the purpose of measuring societal syndromes, the New Product Developers and Non

New Product Developers were combined to represent a supergroup, and create a generous sample size ($n=1,495$). Non New Product Developers answered a selected-abridged format of the longer survey, and, in this case, did not have any reference to new product-process development. Measurement invariance was statistically confirmed and inveterate between Anglo Western society and Han Chinese society. Thus, although, the calculated means of measures typically differed, said measures related to the same constructs.

This chapter also introduces an outline annotated representation of the questions asked of new product developers, of which, non new product developers is a subset. Questions were posed in English and Mandarin (*pin yin*), the Anglo Western sample and the Han Chinese

sample. For specific characteristics, please refer to the actual annotated surveys appearing in Appendix “B”.

The Chapter closes by explaining modelling techniques applied¹, using SmartPLS (Ringle, Wende and Will, 2005), to the data collected. The first study, addresses the Societal Syndromes, forming the kernel of measurement modelling. The results have favourable implications for multiple disciplines. *Post hoc*, one-factor item testing indicated common method bias did not influence the results.

The backbone of the three other studies is the primary Intermediation Primary Path Model, which shows the relationship between the Societal Syndromes and new product-process development, having, for the first time, Knowledge Building and Discovery, as intermediating constructs. Upon the primary Intermediation Primary Path Model two moderators were found to exist in accordance with posited theory: viz. Han Chinese Society vis-à-vis Anglo Western society and Product Transformation Requisites. Comment, moreover, is offered on the capacity of structural equation modelling to establish relationships between key constructions.

5.1.3 Reflective Model Adopted

Two key types of measurement model exist to determine the direction of causality between measurements and constructs; herein, we, potentially have reflective (principal component) modelling and formative (composite latent variable modelling) (Bollen and Lennox 1991).

¹ More technical elucidation are provided in Chapters Six and Seven.

Combining Jarvis et al.'s (2003, p. 201²) and Coltman et al.'s³(2008, p. 6) modelling process determination guidelines, the reflective models, as adopted by the Thesis, have the following reflective characteristics⁴:

Theoretical Considerations:

- The direction of causality is from constructs to measures. That is, principal factor constructs are built from measures. The latent constructs exist and their existence is independent of the measures applied (Borsboom et al. 2003, 2004)
- There is an expectation that dropping or adding an indicator (e.g. an item) from the measurement model would not alter meaning (conceptual domain) of the construct.
- Items share a common theme.
- Variation in the construct causes variation in the item measures.

Empirical Considerations

Items should have high positive intercorrelations. Empirical testing includes internal consistency and reliability (via Cronbach's alpha), average variance extracted and confirmatory factor analyses. (Nunnally and Bernstein 1994, Churchill 1979, Cronbach 1952)

- Items have similar sign and significance of relationships with antecedents and consequences as the construct (Bollen and Lennox (1991). Empirical testing includes content validity (theoretical) and convergent validity and discriminant validity

² Summary of Differences between Types of Measurement Models (Jarvis et al. p.201)

³ Framework for Assessing Reflective and Formative Models: Theoretical and Empirical Considerations

⁴ A formative model would present opposite characteristics to a reflective model.

- Error is identifiable at the item level.

When adopting two-order modelling; the higher-order constructs have lower-order dimensions. Items at the dimensional level can contain error.

5.2 BUSINESS PROBLEMS

New product-process development is no longer guaranteed to be affixed to one location on our globe. International marketers need reliable essential measures of cultural antecedents of Knowledge Discovery in product-process development. It *does not* suffice to assume that cultural antecedents have a direct, unintermediated influence on culture, and there is no relationship between product process transformation and situating new product-process development teams internationally.

The new global order demands new product developers leverage a more profound understanding of cross-culture antecedents, so international marketers know where to most effectively assign product-process development. For example, a global new product developer such as Boeing Incorporated will develop a cluster of products and components of various complexities for each generation of an airliner. Thus, Boeing needs to know where best to situate new product-process development teams internationally and to achieve optimal assignment of tasks based on product transformation requisites. In this way, Boeing would need to place the development of new advanced aerospace metal in a new product-development environment conducive to high Knowledge Sharing and high Creative

Synergies owing to the demands placed on new innovation. Alternatively, the design of a simple latch on an aircraft's toilet door might prove less challenging.

Products are often designed and produced across many countries. International marketers must understand how cultural predispositions influence Knowledge Building and Knowledge Discovery in new product-process development. However, knowledge of the indispensable match between product-process transformation and specific cultural environment is absent. Mismatches, based on a too limited understanding by theorists and practitioners, prime greater assessment risks and cultivate corporate losses. In this context, 'the elephant' in the global room, regarding major economic powers, for the twenty-first century, is an inadequate understanding of how to optimise product-process assignments across Anglo Western and Han Chinese locations. This Thesis mitigates this major concern.

-Please turn page-

5.3 RESEARCH PROBLEMS

The current research addresses and remedies major theoretical and international marketing issues, as summarised by the following research problems.

- *Major written-form expositions on cultural antecedents have not been operationalised to provide the level of confidence found in an empirically-validated examination.*
- *The distinctive effects of Society-at-large and Society-at-the-Workplace knowledge discovery are unknown.*
- *An integrated model demonstrating the relationship between societal syndromes and knowledge discovery and new product-process development is unavailable.*
- *The moderation effects of Anglo-Western society and Han-Chinese society on new product-process development is unknown.*
- *The moderation effects of product-process transformation in Anglo-Western society and Han-Sino society is unknown.*
- *It is unknown, if Anglo-Western society and Han-Sino society should adopt a societally exclusive or a universal commitment to key societal syndromes on knowledge discovery outcomes, to achieve optimal results in new product-process development, including the level of product-process transformation demanded.*

5.4 RESEARCH QUESTION

5.4.1 Research Question Posed

The Research Methodologies employed were designed to answer the question:

‘How do societal syndromes affect relative knowledge discovery in the achievement of new product-process development conformance outcomes when contrasting Anglo-Western society and Han-Chinese society?’

5.4.2 Research Issues

1. Can societal syndromes be derived from collected research data?

The Thesis assumes societal syndromes are derivable from the research data. In this case: How are the authoritative non-empirical contributions of Alan Page Fiske, Harry Triandis and S. Gordon Redding to be reconstituted to articulate and represent the proposed new Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy societal syndromes? Chapter Four offered a practicable framework to test the societal syndromes derived from collected research data and is adopted in the Thesis to lead original empirical research endeavours.

Resolution shall permit an original empirical cross-societal model derived from tangible data.

2. Can societal syndrome measures be differentiated between Anglo Western society and Han Sino society?

The Thesis assumes for societal syndromes measured, the optimal value set for the tested Societal Syndromes is low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy. Measured conformance outcomes shall test societal syndrome⁵ differentiation between Anglo Western society and Han Sino society.

⁵ Please note neither the Anglo-West nor Han-Chinese are expected to achieve optimal values. However, Anglo-Western Society is posited to be positioned closer to the ideal optimal value set than Han-Chinese Society.

Resolution shall determine if societal syndromes can rightfully discriminate between essential cultural traits in Anglo Western society and Han Sino society; thus, permitting the development of models, which apply measures of societal syndromes to cross-cultural archetypes using other variables.

3. How do the posited societal syndromes relate to Knowledge Sharing and creative strategies in Anglo Western society and Han Sino society?

The Thesis assumes that Knowledge Sharing and Creative Synergies establish Knowledge Building in new product-process development. The Thesis hypothesises Anglo Western society shall facilitate open Knowledge Sharing and develop high Creative strategies more readily than Han-Chinese society.

Resolution shall determine to what extent variable degrees of Knowledge Building (Knowledge Sharing and Creative Strategies) are determined by the posited societal syndromes (Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy) in Anglo Western society and Han Sino society.

4. How do Knowledge Sharing and creative strategies relate to Product-Process Conformance Outcomes in Anglo Western society and Han Sino society?

The Thesis assumes that higher Knowledge Building (higher Knowledge Sharing and higher Creative Synergies) leads to higher Knowledge Discovery. Higher Knowledge Building is posited to facilitate superior Product-Process Conformance Outcomes. The

Thesis hypothesises Knowledge Sharing and creative strategies shall be more approachable in Anglo Western society than in Han Sino society.

Resolution shall determine to what extent variable degrees of new Product-Process Conformance Outcomes (i.e., quality, features, efficiency, effectiveness and efficaciousness) are determined by Knowledge Discovery in Knowledge Building in Anglo Western society and Han Sino society.

- 5. How does the extent of product-process transformation required of management relate to new product-process development conformance outcomes in Anglo Western society and Han Sino society?**

The Thesis assumes higher levels of product transformation require higher Knowledge Building (higher Knowledge Sharing and higher Creative Synergies). Successful product-process development conformance outcomes are held to necessarily attain adequate Knowledge Building activity. Anglo Western society is anticipated to become more differentiated towards favourable new Product-Process Conformance Outcomes, than Han Chinese society. Thus, the higher the product-process transformation required, the greater the likelihood of successful development emerging from new product-process teams in Anglo Western society vis-à-vis Han Chinese Society.

Resolution shall help determine, where to best situate various new product-process development deliverables, between Anglo Western society and Han-Chinese society, based on the level of product transformation required.

6. How can societal syndromes be best applied by international marketers in Anglo-Western society and Han-Chinese society to achieve optimal value set indicators in new product-process development?

International marketers across Anglo Western society and throughout Han-Chinese society, to achieve most favourable effects globally, shall need to ascertain the comparative relationship of Societal Syndromes in each country relative to optimal value indicators. International practitioners in both Anglo Western society and Han-Chinese society would then know how to best situate new-product process development teams across all options available. Global alternatives could be assessed against local solutions, allowing the selection of the most favourable alternative. The Thesis assumes Anglo Western society and Han-Chinese society shall differ in the manner to which new Societal Syndromes translate to achieve new product-process conformance, including the determination of where to locate developing activities, depending on the level of product transformation required.

Resolution shall allow international marketers to make considered and measured assessment of the cultural structures retained or guide revision. Societal syndromes adopted can be measured against the verified optimal value set to test proximity to the most favourable composite. In this respect international marketers learn whether it is best to retain or revise their current societal orientations in response to the level of product transformation demanded.

5.5 RESEARCH DESIGN

5.5.1. Outline for the Operation of Constructs and the Creation of New Scales

The Thesis developed a primary path model linking (a) Societal Syndromes to Knowledge Building and Knowledge Discovery, and (b) Knowledge Building and Knowledge Discovery to Final Process Conformance and Final Product Conformance relationships.

The primary path model was found to be comprised of the following nine new scales:

- Societal Syndrome development progressed three scales: Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy
- Knowledge Building proffered two scales: Knowledge Sharing and Creative Synergies
- Knowledge Discovery was found to be comprised of two scales: Product Discovery Outcomes and Process Discovery Outcomes
- Final Conformance Outcomes presented two scales: Final Product Conformance Outcomes

The intermediation primary path model established in the Thesis, sanctions the innermost backbone and untainted pathway between Societal Syndromes and Conformance Outcomes in new product-process development. The medial character of the primary path model is posited generic, thus, excluding outer segment moderators, such as, specific societies and distinct innovation transformation requirement situations. Specific societies and distinct innovation transformation requirement situations, as moderators, would require more comprehensive models having the intermediation primary path model at its core. The Thesis developed extended archetypes to understand the influence of the moderating of (a) Anglo

Western and Han Chinese societies, and (b) new product-process transformation requisites in the determination of new Product-Process Conformance Outcomes. For the former, hypotheses were posited and tested. For the latter, owing to smaller sample sizes evident on segmentation, only postulations were quantitatively examined. All results were favourable to the Thesis and gave direction to future studies.

5.5.2 Determination of Measures

Major extant theory on cultural antecedents is non-empirical in kind and required integration to commence bridging theory to practice. Integration of fundamental components and varied nomenclatures applied requirement refinement to achieve empirical estimation of scales represented as Societal Syndromes; viz. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy.

As indicated in Chapter Three, the seminal findings of Alan Page Fiske (1991), Harry Triandis (1994) and S. Gordon Redding (1990) were not previously combined to empirically test their sociologically tethered and historically grounded fundamental frameworks, via demanding measurement modelling and structural equation modelling assessment. Yet, more accurate assessment of complex phenomena requires the most ‘substantive theories related to the phenomena to be measured’ (DeVellis, 1991).

Quantitative scales currently preferred by theorists and practitioners (e.g., power distance, Hofstede, 1984) now require more empirical rigour to better reflect underlying latent cultural variables and to tackle the paucity of items used for precedent scale determination. Moreover, methodically, former quantitative research has not made *concurrent* determinations on scales, for both society and the workplace, pertaining to same measurement events. In this regard,

the Thesis finds that the Business Studies' disciplines need to import two-tier *cum* two-group modelling, as already known to Anthropology (Dunbar, 1966), to properly achieve globalised and localised perspectives, concerning the totality of construct manifestations.

Further, the intermediation effects of Knowledge Discovery of the path from relevant cultural antecedents *to* Product-Process Conformance, is unknown. Furthermore, the effects of cultural antecedents via Knowledge Discovery on the achievement or non-achievement of Product-Process Conformance Outcomes is unidentified for Anglo-Western cultural antecedents, in relation to Han-Chinese cultural antecedents, regarding the level of product transformation required.

Having identified the main theoretical and precedent research approach issues, we next articulate the research problems evident.

5.5.3 Generation of Item Pool

An initial pool of precursor survey items was produced. These forerunner items were shaped with the prospect of identifying Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy dimensions in society at large and in the workplace. Items were developed to create homogenous scales that best test the underlying latent variables. Multiple items were selected for each scale to ensure rigour in reliability testing and to warrant a faithful representation of the latent variable and the 'essence' of the constructs captured (DeVellis 1991, p. 55).

Controlled redundancy was allowed at this early stage to investigate the full scope of the construct. For example, when measuring an orientation towards conventionality in context

with deep historical influencers the term ‘ancient’ was found to be a more dependable term than ‘past,’ as a qualifier in the relevant items. In the latter case, investigation found, many respondents saw the word ‘past’ to refer to only a few years, rather than to entrenched historical effects on behaviour. On the other hand, the term ‘ancient’ was well understood. In this way, the nomenclatures of all the proto-items were tested.

A predecessor survey was reviewed by an Expert Panel comprised of selected Distinguished Fellows of the Academy of Marketing Science. The Expert Panel raised no concerns on subject content or content organisation. Nonetheless, the proto-survey’s length was a matter of concern. Prominent feedback was received from Professor Gerald Albaum who noted there are too many questions per respondent, there were too many radio points and more opt-outs were required. Professor Albaum’s helpful recommendations regarding survey design, more opt-outs (better management towards avoiding missing data) were adopted. The number of radio points was reduced from ten to six in number, both on the on-line site (Australia and United States) and paper surveys (China PRC).

5.5.4 Expert Panel Review

Before testing the pilot surveys, brief expert comment was sought on either, basic theoretical concepts and the frameworks for the surveys.

Herein, the specialist subject reviewers were:

- Professor Michael Bond: a socio-psychologist and sinologist and specialist in Chinese behaviour and cross-culture social axioms. Professor Bond researches how culture, including Chinese culture, affects societal interactions.

- Professor Emeritus Harry Triandis: a cross-cultural psychologist and sociologist, and a specialist in subjective culture and acculturation, with a particular interest in collectivism vis-à-vis individualism.
- Professor Alan Page Fiske: an anthropologist and a specialist in social constructs relating to elementary cultural forms in relational to structure frameworks. He noted for his contribution to relational models and for identifying; Communal Sharing, Authority Ranking, Authority Ranking , Equality Matching and Market Pricing , as fundamental societal forms.
- Professor Anthony Di Benedetto, who is Editor-in-Chief of the Journal of Product Innovation Management and a specialist in new product development. Professor Di Benedetto is respected for his contribution to knowledge pertaining to innovation and technology.

Favourable feedback was received regarding the cultural items and Professor Di Benedetto commented that the survey instrument was ‘pretty solid’.

Having sought and received encouraging comment of a general and specialist type from panel experts and subject-area specialists, a pilot survey applying minimally revised items was administered to sample populations in Australia and the United States. China was not surveyed at this time. However, later Chinese language functioning final surveys were reviewed by Dr Paul Wang at the University of Technology, Sydney and Mr Shaun Leubin, an English speaking ethnic Chinese Mandarin teacher, at the Canadian International School in Hong Kong. No concerns were raised by these scholars, after the third version, to hone

English to Chinese translation, was produced. Dr Wang and Mr Leubin provided feedback on back translation, before implementation, to ensure cross-lingual consistency and conceptual equivalency (Brislin 1970).

5.6 PRETESTING OF SURVEY INSTRUMENT

Initial pretesting of the survey instrument for respondent recruitment was carried out using the Australian Marketing Institute's Web page (free) the American Marketing Association's 'Marketing News' publication (purchased space) and the Journal of Product Innovation Management (purchased space). Potential new product-process developer respondents were invited to an *online* survey situated at the research company, *Evaluate-It* in Melbourne, Australia. The Company assisted by offering a research student rate, and their support is gratefully acknowledged. However, approaches to solicit responses from practitioners proved unfruitful in spite of considerable effort and high expense.

Another issue was the use of prize draws. Australian State Gaming Laws typically do not allow the use of prize draws, without a government-issued permit in each State, except Victoria⁶. The Australian Marketing Institute raised this issue and insisted on its observation. State government officials confirmed the accuracy of the procedure for each State independently, except Victoria.

⁶ Allowed for prizes under ten thousand Australian dollars.

Given these circumstances responses were next sought from selected academics and university staff in Australia and the United States. Christian first names and Anglo-Celtic surnames were used to narrow this early sample to presumed Anglo Western ethnics. Academics and university staff were chosen for their presumed empathy toward the needs of research students.

In the United States, the American Marketing Association's 'M Guide' and the Academy of Marketing Science Chapter Presidents were approached for support. Over 100 Chapter Presidents (AMA and AMS) were contacted at least thrice, including multiple international one-on-one telephone calls. While some Chapters had by-laws against promoting surveys, most Presidents agreed to publicise the *Evaluate-It* website carrying the new product-process developer surveys at dinner meetings and in newsletters.

In Australia, the online staff telephone directory at universities was used to send unsolicited invitations to the *Evaluate-It* website. Moreover, some small residual credit on the UTS Library's subscription to Dunn and Bradstreet's *Dunsfile* was used to seek out practising product managers.

No recruitment was attempted in China PRC for the pilot survey.

Overall, early attempts to recruit respondents failed. Feedback received from Marketing academics approached indicated a wish to participate, however, the "practitioner" character of the questions posed meant that career academics were unable to respond from *personal experience* on product-process development⁷. Elsewhere, practitioners were generally

⁷ Later academics did separately participate in non-product-process developer surveys used to test three new cultural syndromes in isolation of a separate exclusive product-process developer *cum* practitioner thread.

unresponsive to the publicised open invitation approach⁸. Only forty responses were received, from Australia and the United States combined, for the pre-test survey in response to highly targeted invitations.

Next, the Thesis provides detailed comment on the final survey instruments.

5.7 FINAL SURVEY INSTRUMENTS

5.7.1 General Survey Formats

The survey instruments were broken into distinct segments with appropriate instructions for completion. Respondents were advised answers were confidential and there were no ‘correct’ responses. The surveys were completed by new product-process developers (n=306) and non new product-process developers (n=1,189), as shown in Tables 5.1 (Tables 5.1.1 and 5.1.2) (over the page):

Table 5.1 Formats of Surveys:

Table 5.1.1: Survey Formats (a)

Society	New Product-process Developers	Non New Product-process Developers
Anglo Western Society	Long and Short Surveys	Long and Short Surveys
Han Chinese Society	Long Survey	Long Survey

⁸.Because they would be needed for the Final Survey, .com listings in AMA and AMS directories were excluded from pre-test surveys.

Table 5.1.2: Survey Formats (b)

Segment	Adopted by ¹
Societal Syndromes in Society at Large	New product-process developer and non-new product-process developer surveys adopted.
Society Syndromes at the Workplace	New product-process developer and non-new product-process developer surveys adopted
Knowledge Building	New product-process developer survey only
Product Knowledge Discovery	New product-process developer survey only
Segment	Adopted by
Process Knowledge Discovery	New product-process developer survey only
Final Product Performance Outcomes	New product-process developer survey only
Final Process Performance Outcomes	New product-process developer survey only
Type and Extend of Change	New product-process developer survey only
Respondent Qualification	New product-process developer and non-new product-process developer surveys adopted

¹ New product-process developer and non-new product-process developer surveys were enjoined to measure the main effects of global cultural syndromes.

5.7.2 Data Collection and Sampling

The Thesis targeted respondents in Anglo Western society, represented by Australia and the United States. Likewise, Han Chinese society was represented by respondents from Shanghai, Beijing and Shenzhen.

In Australia, all states and territories were targeted to capture all past British colonies. In the United States, data were collected from states North and South of the Mason-Dixon Line and, from Western, Eastern and Central states: Thus, recognising the once distinct industrial and agrarian North-South divisions in America's past history and ongoing East-West population shifts since Anglo-European settlement, respectively. The three major cities (Shanghai, Beijing and Shenzhen¹⁰) chosen to characterise Han Chinese society were separated to control for unification and disunification periods across China's various dynasties. The emphasis on widespread and geographic diverse data collection in Australia, the United States and China was to ensure the capture and measurement of enduring and ubiquitous homogeneous Societal Syndromes characteristic of each society. It is argued that the underlying constructs measured are authentic over time and place, within each society.

The surveys employed captured responses from new product-process developers and non new product-process developers from Anglo Western society and Han Chinese society. Anglo Western society was represented by Australia and the United States. The dominant Han Chinese ethnic group was represented in The People's Republic of China. In China, data were collected from Shanghai, Beijing and Shenzhen, as mentioned.

The tallied numbers of clean complete records are shown in Table 5.2, on the next page:

¹⁰ Future studies could test for regional differences across China's 'distinct local cultures' (Examiner 2)

Table 5.2 Anglo Western and Han Chinese Sample Sets

Society (Country)	Product-Process Developers	Non New Product-Process Developers
Anglo Western (Australia)	124	515
Anglo Western (United States)	70	620
Total Anglo Western	194	1,135
Total Han Chinese	112	54
Totals	306	1,189

In total, 1,495 complete responses were received, representing the sum of 306 product-process developers and 1,189 non new product-process process developers. Also, please note, computer generated results are reported, as created, often to three decimal places, however, where sample sizes don't support, *approximate*¹¹ computational precision to one in one thousand should not assumed.

5.7.3 Respondents

5.7.3.1 New Product-Process Developers

New product-process developers (n=306) represented Marketing and Research and Development practitioners on teams specifically involved in product-process development. New product-process developers completed a longer form of the survey (n=1,189), which inquired into cultural syndromes, personal knowledge contribution on new product-process development teams and posed questions relating to product-process transformation. To be selected, respondents needed to have worked on a new product-process development project

¹¹ One cannot derive an exact fraction from a decimal. 583/1000 is more precise than .583. The latter might not disclose further decimals.

of ‘at least three months duration in the last two years’ and ‘to have a good knowledge of team interactions from the project’s beginning to end’.

New Product-Process Developers in Anglo Western Society

The Anglo Western new product-process developer samples, as detailed in Table 5.2, were sourced from 124 companies in Australia and 70 companies in the United States. Anglo Western data were mainly collected by *Flying Sources* in Melbourne, Victoria. Other survey data were collected by direct approaches through staff directory emails, guided by the selection of Anglo-Celtic first names and surnames. The unsolicited approaches did not involve overt pre-screening qualifiers. However, the instructions in the introduction to each survey asked qualifying questions to sustain respondent quality assurance.

New Product-Process Developers in Han Chinese Society

For the Han Chinese new product-process developer sample, 112 respondents fully completed clean surveys representing different companies. Ideally, the balance between product and process responsibilities would have been exactly 50:50. However, the recruitment ratio in verity was 46:54, representing 51 purely Marketing respondents and 61 Research & Development or mixed function respondents.

In China, there were 39 respondents from Shanghai, 39 from Beijing and 34 from Shenzhen. The majority of respondents were relatively young, being largely between the ages of 28 and 37 years. Although invited, older prospective Han Chinese respondents declined participation in the surveys: A finding fully consistent with the Thesis’ assertions concerning high top-down vertical secrecy. On the other hand, the absence of older Chinese respondents represents a methodological limitation for quantitative examination. In the future, more highly resourced researchers, might be better placed to induce survey participation from the

older Chinese, as recommended by thesis examiners, Nelson (2012) and Yang (2012)¹². Yet, those researchers would still face the same cultural obstacles.

Furthermore, recognising Nelson's (2012) examiner's comment pertaining to this Thesis, one should not assume 'ethnicity' to be an isolated moderator. In future studies, other potential moderators; such as age, occupation, self-esteem and education level can be empirically tested. On the other hand, one cannot practically measure all entities, and even if one could, holistic aspects (Gestalts) would remain (Maslow 1970): 'There are almost no closed systems,' when examining the 'structures' of psychological phenomena (Maslow, 1970, p. 319).

Herein, in the present case, the Gestalts pertaining to ethno-cultural antecedents have, already, been clearly identified by Fiske (1991), Triandis (1994) and Redding (1990), with regards to dynamical ethnic behaviour in Han Chinese Anglo-Western societies; where the empirical findings are highly consistent with anticipations. Thus, *preliminary* substantiation of qualitative expectations exists. Nonetheless, future studies, with large sample sizes, are required to further confirm or reject first quantification.

Han Chinese data were collected by *Chinagain*¹³ Research in Shanghai, China. *Chinagain's* efforts in recruiting respondents and supervising the administration of surveys are appreciatively acknowledged.

¹² Thesis Examiners

¹³ Kwaku Atuaheme-Gima, who is Professor of Marketing & Innovation Management at the China Europe International Business School in *Shanghai*, recommended *Chinagain*. At *Chinagain*, Ms Caroline Zhou assisted with the English to Chinese translation for the China surveys.

Data were collected across companies and within companies. In the former case, the breadth of the sample was enriched. In the latter case, data were deliberately collected from persons having different Marketing and Research & Development functions within companies; thus, representing different perspectives and personal frames of reference: i.e., different observations. Thus, observations within companies, remained functionally independent.

5.7.3.2 Non New Product-Process Developers

Non new product-process developers (n=1,189) represented respondents *not* involved in new product-process development. Non new product-process developers finished a shorter format survey instrument limited to collecting data on the influence of the original Societal Syndromes.

Non new product developers were first written to prior to sending the tangible invitation to complete the survey to build expectation and three days afterwards a quality pen was sent by registered mail *with* the actual invitation and *Evaluate-It* URL details. Where the addresses were known, facsimile communication was used to follow-up.

Except, for being present in commercial listings or membership of Marketing associations, respondents were not targeted, in particular, within company. Therefore, the Thesis holds considerations reported to be fundamentally independent observations.

Non New Product-process Developers in Anglo Western Society

For the Anglo Western society regarding the non new product-process developer sample, 1,135 fully clean complete responses were received, representing 515 respondents from Australia and 620 respondents from the United States. In Australia, recruitment was by either postal mail or email, as directed by staff online telephone directories, respectively. In the

United States, companies were identified, via the American Marketing Association's 'M Guide,' and the Academy of Marketing Science's membership directory. Owing to the unsolicited character of recruitment and invitation to a sponsored site the spread of companies is unknown numerically. Reasonably, independent observation is posited.

Non New Product-Process Developers in Chinese Society

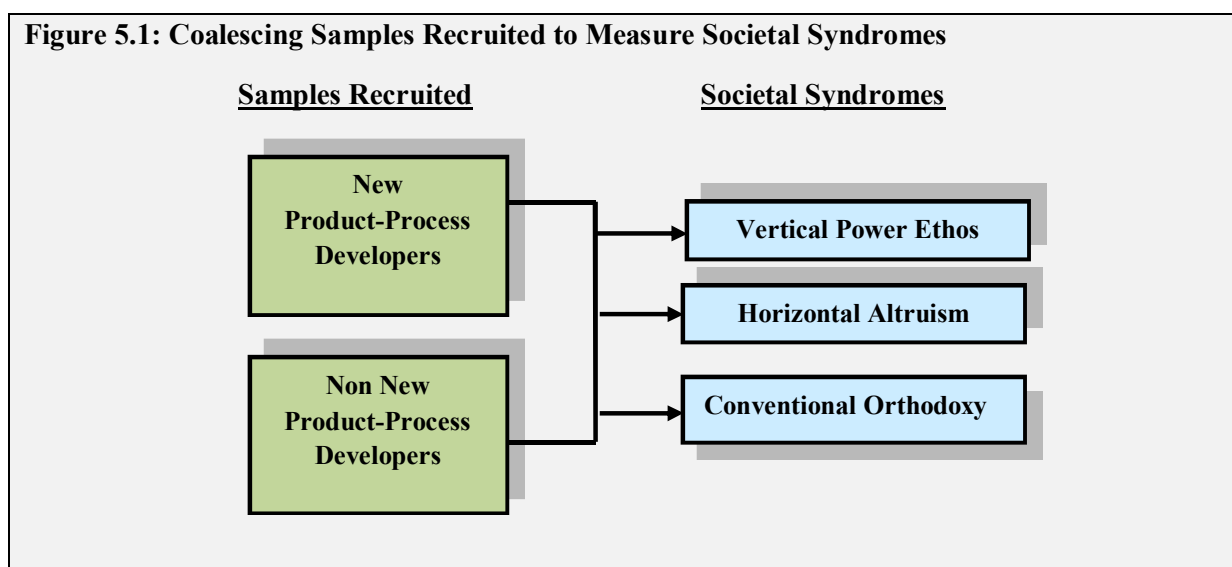
For the Han Chinese society non new product-process developer sample, 54 fully clean surveys were completed, representing multiple companies¹ across Shanghai, Beijing and Shenzhen. As before, data were collected by *Chinagain Research*, based in Shanghai, China PRC. Individual respondents were selected on job function and there were no directed duplications of function within company. All respondents were under forty years of age, because older Chinese persons would not agree to complete the surveys². Data captured from the Non New product-process Developers were combined with the data from the New Product-Process Developers, to test generalisable characteristics associated with the main effects of Societal Syndromes. Again, realistically, independent observation is posited.

Generalisable Characteristics from Sample Combination: Non new product developer responses were coupled with the Societal Syndrome to Knowledge Building front-end part of the new product developer survey providing an abundant sample (n=1,495), to better estimate influence of Societal Syndromes on Knowledge Building, within the general populations of Anglo Western society and Han Chinese society as shown in Figure 5.1. Elsewhere, measurement invariance was favourably demonstrated for Anglo-Western society and Han Chinese society, when tested using AMOS.

¹ Recruiters were advised to use separate companies, to avoid organisational bias

² This finding is consistent with the Secrecy dimension of the Vertical Power Ethos construct

Selected¹⁶ relevant responses from the longer new product-process developer survey was added to the non new product-process developer survey to increase overall sample size to assess generalisable attributes of Societal Syndromes. Sample size enlargement facilitated improved measurement of Societal Syndromes' main effects.



Coalescing of the New Product Developer sample and the Non New Product Developer sample to Societal Syndromes, viz. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy, is shown in Figure 5.1.

The approach of combining the data provided a more authoritative sample to test the new Societal Syndromes (Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy), than would have been the case, if using the new product developer sample alone.

¹⁶ Those particular items common between new product developer and non new product developer surveys.

Moreover, highly substantiated Societal Syndromes lend themselves for use by researchers from other disciplines, beyond Marketing

5.7.4 Recruitment: Respondent Qualification

Respondents were selected with a strong accent on both ethnic and psychological homogeneity and the minimisation of acculturation factors. Anglo Western recruiters were asked to select only potential respondents having English and Anglo-Celtic first names and surnames. Chinese respondents were required to have 'Han' heritage. Respondents were to have not lived outside of their home country for more than one year, not worked in a foreign country for more than six months and not to have studied at any foreign educational institution. In the qualifying process respondents were asked:

- *Where you born in [Australia, the United States, China]¹⁷?*
- *Do you primarily identify with [Anglo Western¹⁸, Han Chinese] society?*
- *Do you feel a strong influence from a non [Anglo Western, Han Chinese] society?*
- *Are all your grandparents [Anglo Western, Han Chinese]?*

To be selected on the basis of cultural suitability one needed to answer, 'yes, yes, no, yes' in reply to the above questions. As a further quality control measure, selected respondents were asked the following *optional* questions in the survey:

- *Please agree to indicate your biological ethnicity (i.e. your genetic race). If you are equally mixed ethnically, please select the race with which you most strongly identify?*
- *With which society do you primarily identify?*
- *How many of your grandparents are ethnically [Anglo Western, Han Chinese]?*

¹⁷ As required of the Society measured.

¹⁸ Of English, Scottish, Irish or Welsh heritage, but not of Continental European heritage.

After data cleaning, very tight qualification of respondents on cultural identity allowed unadulterated data. Accordingly, the Thesis argued that the responses are largely unsullied by acculturation factors, allowing for a focus on the assessment of genuine societal syndromes.

When sampling recruiters, *Flying Sources* in Melbourne, Australia and *Chinagain* in Shanghai, China, were asked to balance 50:50 between Marketing and Research & Development the number of respondents involved in new product-process development from a combination of product and service companies¹ large enough to develop their own products and processes or make incremental changes to their products and processes: e.g., having more than one hundred employees. In the United States the American Marketing Association's 'M Guide' and the Academy of Marketing Science directories were used. The 'M Guide' provided mailing addresses and the AMS directory email addresses and telephone numbers.

Respondents were required to have had significant continuing involvement with the new product-process development project from its inception to its completion. Further, the project for consideration chosen, needed to have been completed in the last two years. Selected responses were required to have had a 'good knowledge' of team interactions during this time.

Consequently, the following questions were asked during the qualification process for Australia and China:

¹ Australian Industrial Classification Code was used to categorise and arrange a varied selection. Not less than 25 companies were represented.

- *Have you been involved in the development of at least one new product development project requiring close contact with the new product development team and individuals' personal knowledge contribution to the new product development team?*
- *Was the new product development project completed primarily in [Australia, China]?*
- *Do you have a basic recall of the onset/commencement marketing objectives and/or the onset/commencement technical objectives?*
- *Do you have a basic recall of final performance against plan for marketing objectives and/or the onset/commencement technical objectives?*
- *Would you say that the new product development team dynamic was primarily [Anglo Western, Han Chinese] in nature?*
- *Would you say there were significant non Anglo Western influences evident?*

The above theme was repeated in the formal introductions to online websites in Australia and the United States and for the supervised completion of hardcopy instruments in China. In the United States, personal budget constraints did not allow localised up-front qualification of respondents. Instead, in the United States, qualification was limited to invitations to websites, which carried key qualifiers, ahead of the body of the surveys. Moreover, the survey instruments carried questions asking for the respondents' societal identity, ethnicity and genealogy to encourage 'clean' samples.

5.7.5 Embracing both Product and Process

In keeping with its argument for a greater integration of research, the Thesis embraces both product and process at the Marketing and Research & Development Interface. Marketing is represented by the term, 'Product'. Research & Development is denoted by the term, 'Process'. Separation by function, moreover, represented promoted independent personal observation of specific tasks.

5.7.6 Societal Units of Measure

For the Thesis, ‘society’ has been chosen rather than country or nation, as the preferred unit of measure, because society is the purer, more homogenous construct. Society is an original, uncorrupted construct, which is less prone to capture unwanted acculturated data than country or nation. These highly refined constructs were expected to achieve much improved measurement results, from latent variables and structural relationships.

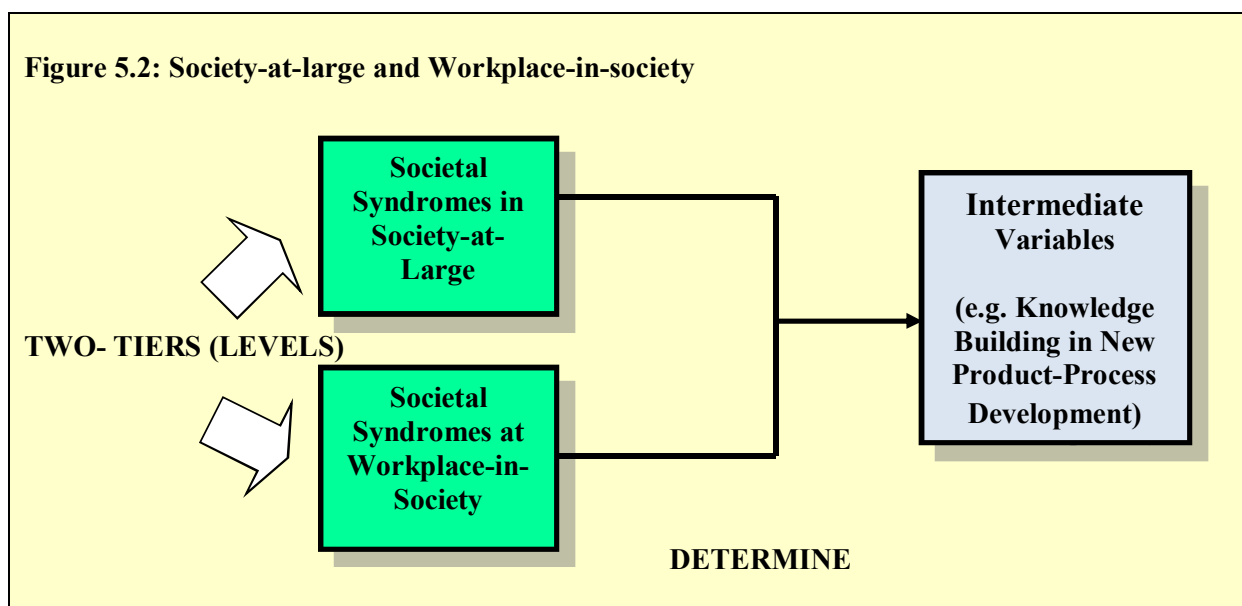


Figure 5.2 illustrates two levels of Societal Syndrome manifestation in determining the intermediate variables. In this way, the Thesis confirmed Societal Syndromes in Society-at-Large and Societal Syndromes at the Workplace-in-Society in order to determine Knowledge Building, as estimated in Chapter Six and Chapter Seven.

5.8 MEASUREMENT OF THE THEORETICAL CONSTRUCTS

As illustrated in Figure 5.2, over the page, Cultural Syndrome data were analysed at two levels; viz. Societal Syndromes in Society-at-Large and Societal Syndromes in the Workplace-in-Society. This design represented one designation by which data were assigned. Another design designation made was the distinction between new product developers and non new product developers; wherein, new product developers were provided questions from a longer survey and non new product developers answered a shorter survey. The longer survey supported the establishment of the intermediation primary path model and its two moderators: viz. Anglo Western cultural syndromes and Han Chinese cultural syndromes and Product Transformation Requisites.

Both populations were combined to create a super-set for the measurement modelling estimation and to assess the main effects. The intermediation primary path model and the study of the Anglo Western cultural syndromes and Han Chinese cultural syndromes and Product Transformation Requisites moderation effects was extended from the measurement model to the intermediation primary path model and estimation of the effects of the two moderators.

To understand the application of the two moderators upon the intermediation primary path model one should note two characteristics. Firstly, neither the Anglo Western cultural syndromes nor Han Chinese cultural syndromes own the idealised Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy values of the optimal value set. Rather, societies, including Anglo Western society and Han Chinese society, are independently

situated in close proximity or at a distance from the optimal value set, which is an ideal-form²⁰ construct, against which, temporal societal constructs are measured. Similarly, one does not know the ideal value of pi (π^{21}); yet, the integer 3 would be confidently accepted to be closer to the unknown optimal value of pi, than is the integer 4. Likewise, Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy can be measured in context with each other against an external standard that is indefinable in *absolute* measure.

On the other hand, the Thesis values of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy can be ascribed and their effects on independent variables measured, which is the line taken in this Thesis; e.g., Final Process Conformance Outcome and Final Product Conformance Outcomes. In this frame societies may be contrasted in the aforementioned context.

Secondly, Product Transformation Requisites represent the degree of product-process transformation demanded to meet the on-set expectations of the product-process development assignment. Not all assignments require the same level of product-process transformation. It is argued that higher product-process transformation requires higher Knowledge Building and higher Knowledge Discovery. Not all societies are held equally disposed towards sharing knowledge and the creating synergies required to achieve multiple levels of product-process transformation (i.e. low, intermediate and high).

²⁰ Plato.

²¹ For The Circle, the Diameter is to the Circumference, as 1 to 3.14159...

Theoretical Constructs within the framework of the longer survey posed to the new product developer respondents only²², were measured. Herein, the recoded survey was broken into eight sections (Groups ‘A’ through to ‘H’). Sectionalisation, having distinct intervening instructions, was intended to organise content and to suppress respondent obstinate serial succession²³. Discussion concerning the representation of the surveys, in context with survey structure, is presented in an annotated appendix, Appendix B.

5.9 ORIGINAL MODELS

The original models developed in the Thesis contributed substantially to both theory and practice by effectively resolving the legitimate concerns of international marketers engaged in cross-cultural new product development, especially regarding Anglo-Western society and Han-Chinese society. New empirically confirmed tools shall be made available for the guidance of theorists and practitioners managing in the new global environment outlined in this Thesis.

5.9.1 Measurement Models – Societal Syndromes Study

The Measurement Models extracted main effects. Statistical analyses quantified Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy constructs, for the first time, as derived from non-empirical sources. No interaction with other constructs is assumed in the main effects modelling. The measurement model for the first time provides empirically tested results, drawing upon the non-empirical literature on cultural antecedents: especially, the

²² The Non New Product Developer samples were delimited to a subset of the New Product Development and were not asked additional questions.

²³ Persistent repetitive responses: A different phenomenon to compliance (acquiescence).

noteworthy ongoing contributions of Alan Page Fiske, Harry Triandis and S. Gordon Redding.

The Measurement Models developed the distinction between society-at-large and in the workplace. New product-process developers (n=306) and non new product-process developers (n=1,189) were collectively sampled and assessed. For the main effects of Societal Syndromes, the measurement models do not discriminate between new product developers and non product developers. Measurement invariance was confirmed in AMOS, in a separate investigation. The assessment of the Measurement Models applied a sample of 1,495 respondents to ascertain reliability, consistency and validity. Dimensionality, divergence, convergence and goodness of fit were determined using the combined sample. Results achieved from the Measurement Model supported the Thesis.

Measurement Model results were favourable and have application beyond the current research, owing to the high cross-discipline potential for the generic research application of the new societal syndromes estimated. Authentication endorsed the Thesis' progression from measurement modelling to structural equation modelling.

5.9.2 Structural Equation Modelling – Three Investigations

Testing of the structure of the paths of the three original models; viz. the Intermediation Primary Path Model, the Anglo Western society and Han Chinese society comparative culture moderation model and the product-process transformation model; applied the Partial Least Squares Method technique using SmartPLS (Ringle, Wende and Will, 2005). SmartPLS presents reflective multi-item measurement adopting Partial Least Squares. This inner path modelling technique employs bootstrapping and produces path coefficients. Bootstrapping provides, 'confidence intervals for all the parameter estimates, building a basis

for the for statistical inference' (Henseler, Ringle and Sinkovics, 2009, p.305); thus, aiding in the assessment of hypotheses and path selection, where, t-values indicate the level of statistical significance. Knowledge of path coefficients allows the researcher to understand the strength of linkages between constructs and shows whether relationships are positive (+) or inverse (-) (Hulland 1999).

The Thesis offers three investigations:

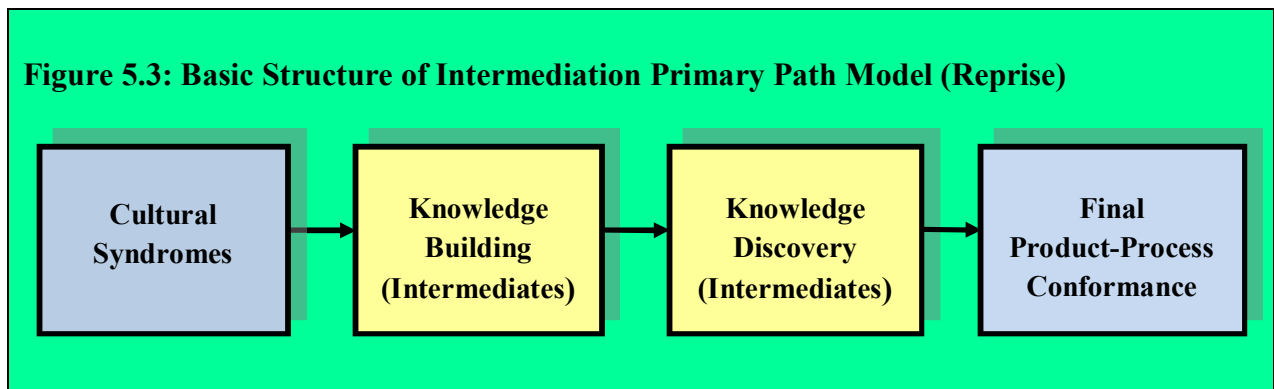
- **Investigation One** assessed the paths of the main effects of the Intermediation Primary Path Model.
- **Investigation Two** evaluated the comparative moderation effects of the Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy Societal Syndromes on the Intermediation Primary Path Model in Anglo Western society and Han Chinese society.
- **Investigation Three** estimated the comparative moderation effects of product-process transformation syndromes on the Intermediation Primary Path Model in Anglo Western society and Han Chinese society, within the influence of the moderation effects of the Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy. After segmentation, sample sizes fell for each stratum. Consequently, in Investigation Three, propositions are put, rather than hypotheses posited.

Investigations One and Two, identified and described key linear interconnections. Estimation of the primary latent variables and associated relationships were achieved. Hypotheses were

substantially confirmed. Results, derived from testing propositions in Investigation Three, proved highly encouraging: Thus, acting as a compass for, better resourced, future studies; where future results are anticipated to ratify the preliminary findings.

5.9.2.1 Intermediation Primary Path Model

The second original empirical model is an intermediation model, which analyses the primary path from the Societal Syndromes to new product development conformance outcomes, via Knowledge Building and Knowledge Discovery processes, for Anglo-Western society and Han-Sino society. Knowledge Discovery is held to be an intermediary between societal syndromes and product-process outcomes, as illustrated in Figure 5.3.



Previous researchers *have not* incorporated the intermediating effect of Knowledge Building and Knowledge Discovery between cultural influences and final product-process outcomes. Incorporating Knowledge Building and Knowledge Discovery *between* Societal Syndromes and final product-process outcomes allows for the deliberate manipulation by investigators of the societal syndromes across various environments to optimise courses of action towards enhanced results to a much greater extent than with the existing abridged models. The Thesis

posited Anglo-Western society and Han-Chinese society shall preserve different measures of societal syndromes.

In this section, the Intermediation Primary Path Model was considered. Knowledge Building and Knowledge Discovery were understood to intercede in the path between Societal Syndromes and new product-process development. Next, we consider the moderation effects of Anglo Western society and Product Transformation Requirements on the intermediation primary path model.

5.9.2.2 Two Moderation Models

The Thesis maintains that (a) Anglo Western society vis-à-vis Han Chinese society and (b) Product Transformation Requirements shall have a moderating effect on Knowledge Building, Knowledge Discovery, Final Process Conformance Outcomes and Final Product Conformance Outcomes.

Anglo-Western Society and Han-Sino Society Culture Moderation Models

Anglo-Western society and Han-Sino society were tested for moderation effects on the primary intermediation path. Figure 5.4, on page 254 outlines the posited structure of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy on the intermediation primary path model, wherein, Societal Syndromes in Anglo Western Society and Han Chinese Society are held to moderate Knowledge Building. Knowledge Discovery in New Product-Process Development is contended to be an intermediate variable responding to Knowledge Building. Successful Final Product-Process Performance Outcomes rely on the extent of Knowledge Discovery achieved.

Product-Process Transformation Requisites Models for Anglo Western Society and Han Chinese Society

The Thesis holds that not all product-process development is equally dependent on the extent of Knowledge Discovery required, to achieve the desired final new product development outcomes. Instead, the Thesis contends the level of Knowledge Discovery necessary, goes hand-in-hand with the level of product process transformation necessary. The scope of the product-process transformation demanded of the product-process project calls into play the level of demand for the level of Knowledge Discovery, to be achieved. In this way, the Thesis contends transformation requiring the copying of a known product-process shall be less dependent on new Knowledge Discovery than developing a new core product or process.

Likewise, developing a new core product shall be less dependent on new product discovery than conducting advanced ground breaking research. In summation, the higher the level of product-process transformation, the greater the demand placed on higher Knowledge Building and higher Knowledge Discovery.

The survey instrument product transformation requisites and process transformation requisites were captured separately and amalgamated as product-process transformation requisites, having the benefit of capturing composite transformation. Thus, the following working definitions were provided to guide respondents. The final transformed survey classifiers were designated as follows:

- Advanced research into New Product-Process Development.
- New Core Product-Process Development.
- New Generation Product-Process Development or Minor Incremental Product-Process Enhancement.
- Copied Process.

Composite results from both product transformation and process transformation captured allowed for harmonised stratification into three converted categories:

Table 5.3: Product Transformation Categories

Transformation Category (New)	Survey Classification Type Response
High	Both Product and Process Advanced Research <u>or</u> One Advanced Research and One New Core
Intermediate	Both Next Generation <u>or</u> One Generation and One New Core
Low	Both Copied <u>or</u> One Next Generation

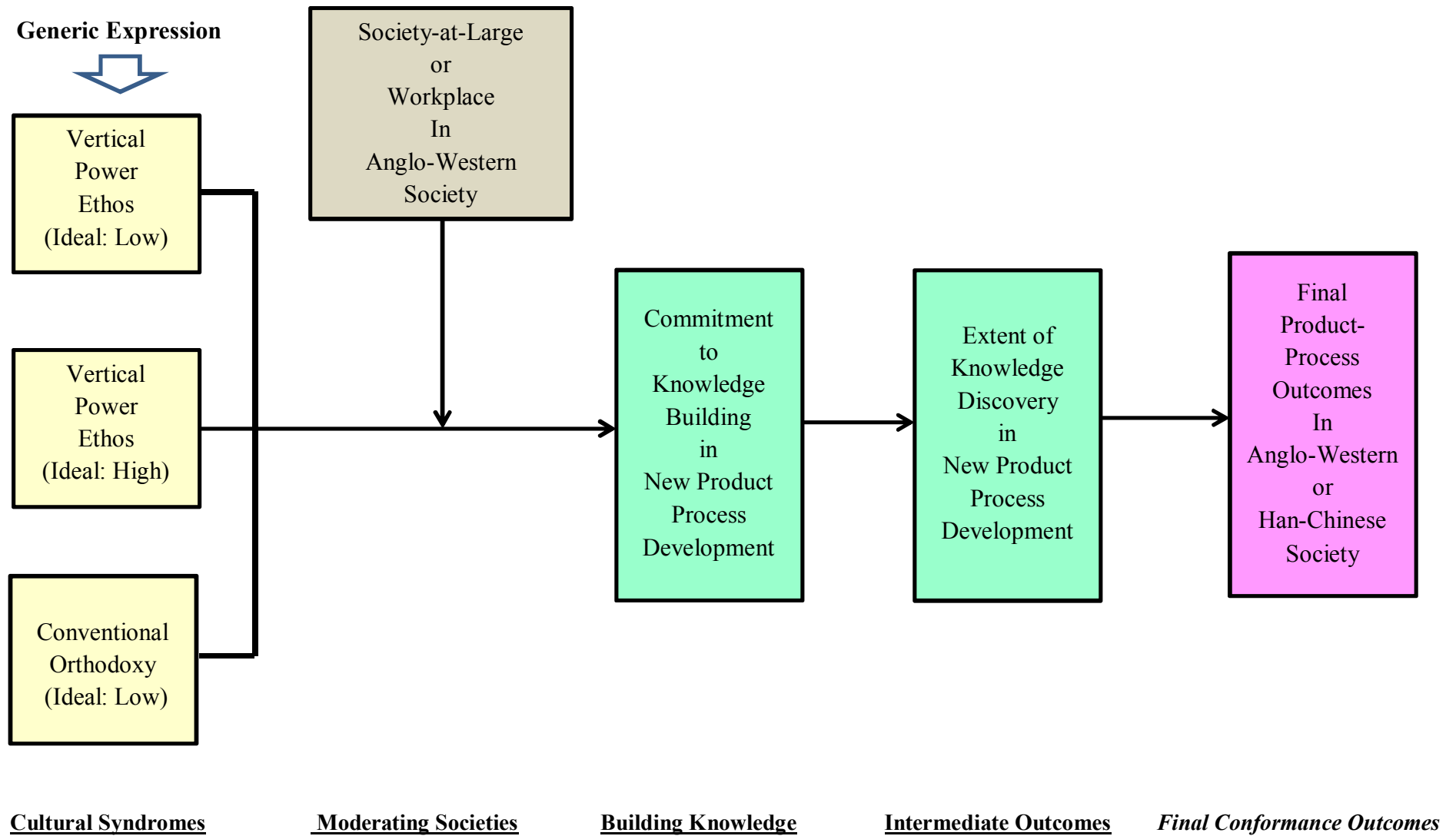
As shown in Table 5.3, survey classification type responses were assigned to new transformation categories, to achieve more balanced stratification of the responses (n=306) and larger sample sizes at each transformation category tier (level). Here, the general assumption was the higher the level of product-process transformation required, then, the higher the dependency on novel personal knowledge contribution to teams required,

supporting essential innovation. Moreover, as hypothesised, differences were confirmed for Societal Syndrome measures, because of moderation effects.

Please note, segmentation, reduces the sample sizes, creating a conundrum: While findings confirm qualitative expectations, the sample size does not allow full quantitative validation, yet. Also, be aware, both product and process transformation categories are drawn from ordinal data and are not intended to regarded interval data in future studies.

-Please turn page-

Figure 5.4: Moderation Effects of Anglo-Western Society or Han-Chinese Society on Intermediation Primary Path Model



5.9.3 *Post hoc* Test for Common Method Variance

Common Method Variance might be present in results from international business research employing self-reporting (Meade et al. 2007 online, Podsakoff et al. 2003). While the same Likert scale format was not universally applied throughout the survey, there was extensive use of a similar format. Harman's one-factor approach (1967) was adopted *post hoc*; wherein, respondents' replies were entered into principal components analysis, applying varimax rotation. No single factor was found to account for more than 50% of variance.

Furthermore, Meade *et al.* (2007, p. 2, online) note of Podsakoff and MacKenzie (1994) that 'each item is an indicator not only of its substantive trait but also unmeasured latent factor'. Common method variance was also assessed by controlling for an unmeasured latent method factor; wherein, self-report items were loaded on both their theoretical constructs and the method factor. No substantial variation was found for any of the structural path parameters, after controlling for the factor method. Common method bias did not affect or change the initial findings.

5.10 SUMMARY AND CONCLUSIONS

Chapter Five identified significant business problems and research issues confronting contemporary theorists and practitioners, whom aspire to optimise their understanding of the influence of Cultural Antecedents on Knowledge Building and Knowledge Discovery in New Product-Process Development and aspire to better articulate the assignment of new product-process development responsibilities globally based on diverse product transformation requisites. The research design recognised:

Earlier quantitative research and application leans heavily on the scales of Geert Hofstede as developed from 1967 through to 1973, in Human Resource Management studies that he conducted at I.B.M. Incorporated (Hofstede 1984. Hofstede's landmark studies were, conducted over a seven year period ²⁴ and have been often been reported over thirty year period using what are every basic item to scale structuring and elementary statistical techniques, when compared with today's standards. These scales need to be revisited and revised given twenty-first century globalisation, starting with the two major economic powers, China and the United States.

The rapid emergence of China has meant that it has come to dominate trade and manufacturing by annexing the traditional commercial territories of the West calling attention to how to constructively optimise trans-societal product-process development, across the sociologically diverse Han Chinese and Anglo Western super-cultures.

Given these previous issues the research design applied a rigorous qualification of respondents across multiple industries in the development of Measurement Models. Moreover, the Structural Equation Modelling applied SmartPLS (Ringle, Wende and Will, 2005) to newly assess path relationships between significant constructs and identified insignificant interactions. In sum, empirical research into the influence of cultural antecedents on new product-process development requires the application of contemporary *modus operandi*. It is argued that the research design adopted appropriate techniques for the assessment of the effect of culture on new product-process development research.

²⁴ Most often cited in the Literature as '1980'. The abridged edition used in the Thesis was published in 1984.

Consequently, favourable results reported in Chapter Six and Chapter Seven validate the use of Measurement Modelling and Structural Equation Modelling.

Having identified contemporary approaches in quantitative research design, The Thesis turned to the seminal socio-anthropological, non-empirical literature, to elucidate the three new culture syndromes estimated in the Measurement Model (Chapter Six).

The *Goldilocks* approach of morphing three related seminal non-empirical cultural studies was chosen over, the common approach, of adopting a single template or the use of a the less focused application all-purpose literature: i.e., one theorist would have been too narrow and a multitude of theorists with different agenda's would have overcomplicated the study. In lieu, the rationale was to apply balanced, yet, varied perspectives, without combining unconnected elements to the foundation theory. In this framework the contributions of Fiske, Triandis and Redding were integrated into the surveys presented to Anglo Western and Han Chinese respondents.

Operationalisation of non-empirical studies of cultural antecedents to empirical cultural syndromes required the development of a pre-test survey and the expert assessment of content and construction by subject area specialists. Based on the comments received a final survey was produced in the English language and the Chinese (*pinyin*) language for completion by multiple respondents, across manifold industries in Anglo Western society and Han Chinese society. Data were collected at multiple locations in each society.

Research Design captured responses from product developers and non new product developers. The new product-process developer population (n=306) alone framed the

intermediation path primary path model. 'Intermediation,' is adopted, because, for the first time, the Model illustrates that Knowledge Building and Knowledge Discovery, to be an indispensable intermediary between cultural syndromes and final new product-process discovery conformance outcomes. Elongation of the path connecting Cultural Syndromes to Final Product-Process Conformance Outcomes provided an enhanced representation of latent phenomena and readily allowed measurement of the effects of specific societies and product-process transformation (e.g. Product Transformation Requisites in Anglo-Western society vis-à-vis Han Chinese society).

The non new product developer population (n=1,189) provided supplementary sampling. Herein, the Measurement Model benefitted from a composite generic population (n=1,495), representing the sum of the new product-process developer and non new product-process developer representations. The Measurement Model was designed to estimate the main effects of the three new Cultural Syndromes (Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy). As a result of the large sample size, the measured results cited in Chapter Six are empirically noteworthy.

Structural Equation Modelling was adopted in the research design for the intermediation primary path model and for the two essential moderators of the intermediation primary path model: viz. Anglo Western society vis-à-vis Han Chinese society and Product Transformation Requisites.

Measurement invariance was tested: Here, The Thesis shall demonstrate, statistically, both Anglo Western society and Han Chinese society saw the same construct, even where means

differed between societies. Further, *post hoc* evaluation revealed common method bias did not impact on results.

5.10 NEXT CHAPTER

Chapter Six employs measurement models the assessment of the original constructed offered for first empirical analyses. Psychometric and other statistical methodologies are employed to test the new constructs, operationalised from the Literature. Chapter Six serves to increase our understanding the data. Afterwards, interrelationships between said data shall be analysed and findings reported in Chapters Seven and Eight.

CHAPTER SIX

ASSESSMENT

OF

MEASUREMENT MODELS

ASSESSMENT OF MEASUREMENT MODELS

- **RECAPITULATION OF VOLUME ONE**



- **THEORY OF PSYCHOMETRICS**
- **RELIABILITY AND VALIDITY**
- **DIMENSIONALITY**



- **DIMENSION SPECIFICATION**
- **C.F.A. SPECIFICATION**



- **THEORY OF 'GOODNESS-OF-FIT'**
- **ANALYSES OF 'GOODNESS-OF-FIT'**
- **C.F.A. ANALYSES OF DIMENSIONALITY**



- **CONCLUDING REMARKS**



STRUCTURE OF PATH MODELS (CHAPTER SEVEN)

CHAPTER SIX

ASSESSMENT OF THE MEASUREMENT MODELS

‘And I found Number for them, chief device of all’ – Aeschylus

6.1 INTRODUCTION

6.1.1. Chapter Synopsis

This chapter assesses the reflective measurement models of the hypothesised culture constructs denoted as Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy and their underlying dimensions. Statistical measures were constantly and dependently found to be reliable, internally consistent and valid. Dimensionality, divergence and convergence were wholly consistent with expectations. Goodness-of-fit of data was clearly demonstrated. Principal axis factoring was applied to extract accurate representations of latent variables. Overall, findings from the assessment of the measurement models were decidedly favourable, supporting the Thesis and establishing a sturdy foundation for the structural modelling presented in Chapter Seven.

6.1.2 Contributions of Societal Syndromes

Discernment of the new Societal Syndromes shall have benefit to theorists and practitioners involved in Marketing and other disciplines by enhancing how we understand the operation of key cultural antecedents in Society-at-large and in the Workplace in Anglo-Western and Han-Chinese Society's. Theorists will benefit from improved empirically-based insights into how these two significant societies function, individually and cross-culturally.

In a propositional paper, Nakata and Sivakumar's (1996) recommended operationalisation of their own interpretation of Hofstede's IBM HERMES studies (1967-1973) in context with new product development. Sharma (2010) operationalised Hofstede's work in a modified form, and in the process tested new individual-level scales, based on HERMES as a precursor. Sharma's (2010) new scales were measured, as fait indicators of individual behaviour in consumer markets. However, the Thesis does not take the HERMES approach for reasons outlined in the previous chapters. As a result, it is argued that *enduring* scales are best confirmed or refuted (Popper 1972) by measuring common themes operationalised from the non empirical socio-cultural and histological literature, rather than contemporary expectations.

For the first time, Chapter Six tests the main effects of original empirical models operationalising the non empirical socio-cultural constructs developed by subject-knowledge *specialist contributors* in the field of cultural antecedents. Three major distinct, yet, interlocking theories (i.e., Fiske 1991, Triandis 1994 and Redding 1990), in this Thesis, were originally unified and supported by histologies. Thus, with the added support of insightful histologies, the Thesis newly offers a non empirical model comprising four pillars, instead of the more common practise of taking and extrapolating only one study, which might not be fully representative of the *Field of Cultural Antecedents*.

Likewise, building a new empirical model is better achieved on a foundation of four¹ high quality contributions than a single notable study (one pillar). In this manner, metaphorically, a cube lends superior perspective of tangible shape than does a square on paper. Thus,

¹ Fiske (1991), Triandis (1994), Redding (1980) and histologies in general.

metaphorically, any new empirical model best rests in the firm foundations of a solid cube. Yet, existing approaches adopt a lone favoured mode, and then seek entertain various extensions (e.g. Nakata and Sivakumar 1996, Sharma 2010, Hofstede 1980). Put another way, a four-legged stool clearly provides a more stable non empirical base, upon which to build an empirical theory, than does a single pole. In this way, the Thesis makes a broad contribution to the methodology within the scheme of the current area of investigation, developed from an especially wide and comprehensive foundation.

From an anthropological perspective, the Thesis pioneers, for business studies, the importance of recognising the need to measure societal factors, and that these should be made at both the level of Society-at-large and with groups of less than 150 persons (e.g. in the workplace) (Dunbar 1996). The Thesis finds typically past business studies researchers have not adopted this essential approach to differentiate between the two independent perspectives, even though, both perceptions are necessary to achieve a comprehensive understanding.

Three new Societal Syndromes have been empirically proved to exist in this Chapter: i.e., Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy, all having been confirmed valid and reliable and underlying constituent factors. Moreover, the new Societal Syndromes offer a highly viable alternative to Hofstede's (1980) HERMES model to newly: (a) aide practitioners, and (b) improve theory by providing more rigorous explanations of effects measured, which will assist theorists in this area of study. Further, the templates established can be adopted by future studies beyond examining the Anglo West and Han China.

The contributions cited in the current chapter *do not* fully represent the sum of all the original contributions to the theoretical knowledge and knowledge of business practice empirically confirmed by the Thesis. The main focus of Chapter Six is on quantifying the main effects of Societal Syndromes using the largest available sample (n=1,495). Herein, contributions pertaining to the original Intermediation Primary Path Model in new Product-Process Development and Moderators of new Product-Process Development Conformance are measured in Chapter Seven, which is comprised of a smaller respondent sample (n=306), which is comprised solely of practitioners.

6.1.3 Statement of Scope

Chapter Six is an independent study measuring the main effects of Societal Syndromes. The current Chapter *does not* apply to the Intermediation Primary Path Model. The Intermediation Model and associated moderators are measured and explicated in Chapter Seven.

Chapter Six examines three new Societal Syndromes, using data collected from the general population (n=1,495). Herein, Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy were tested at the level of Society-at-large and in the Workplace using a generalised sample of both new product-process developer (n=306) and non new product developer samples (n=1,189). Therefore, the Assessment of Models chapter measures 1,495 responses from the Anglo West (Australia and the United States) and Han China (Beijing, Shanghai and Shenzhen). The rationale was to combine the samples regarding general cultural traits (e.g. Societal Syndromes) in order to strengthen the veracity of the results.

Each measurement model established the relationship between observed and latent variables and the authenticity of observed data from the survey instruments to represent primary latent entities.

‘Society’ was chosen as a key unit of measurement, in preference to country or nation, because the Society measure was deemed to be the least cross-culturally corrupted assessment unit: Thus, facilitating high precision, when making homogeneous estimates.

6.1.4 Outline of Chapter Six

Chapter Six evaluates culture-based assessment models and is organised to provide an understanding of the quantitative techniques employed, and to report original findings on new survey data. Anglo-Western and Han-Chinese societies were assessed by applying theoretical concepts to new constructs, which were empirically tested. Initial determinations were made by measuring:

- Reliability and validity.
- Dimensionality.
- Divergence and Convergence.

Chapter Six begins with a discourse on the theory and assessment methods used to test the measurement models in the context of accepted empirical research methods. Secondly, the results of the reliability and initial dimensionality analyses are offered. Cronbach’s alpha² findings are presented. As previously noted, Chapter Five articulated the research design, the implementation and results of the pilot study, the final operationalisation of measures of theoretical constructs, plus the design of the main survey. Cross-culturally, for all constructs, either, full or statistically accessible partial measurement invariance was found.

² Cronbach’s Co-efficient alpha.

Chapter Six shall measure and translate new³ datasets guided by scale development theory (Devellis, 1991) and a formative structure for the measurement of Marketing constructs (Churchill, 1979). Confirmatory factor analyses (CFA) and Cronbach's alpha measures were used. The CFAs replaced the alternative previously favoured multitrait-multimethod (Campbell & Fiske 1959).

Having ascertained preliminary parameters, CFAs⁴ and co-variance structural modelling (CSM) were used to further assess dimensionality, the convergent and discriminant validity of the Societal Syndromes, Vertical Power Ethos, Horizontal Altruism and Cultural Orthodoxy, together with their underlying dimensions. Multiple statistical methods and estimation techniques were employed to estimate the bounds of the constructs and underlying factors. Assessments of the fit of the measurement models are provided.

6.2 THEORETICAL FOUNDATIONS OF PSYCHOMETRIC MEASURES

Section 6.2 is framed to provide a summation of the key measures applied to the design and identification of the reflective measurement models. Psychometric measures are used, as formative modelling was not intended. The theories and rationale behind the reflective measures are identified to support their adoption for the empirical study in the Thesis.

³ As recommended by Churchill (1979).

⁴ Exploratory Factor Analyses were not employed during pre-testing given the use of the Expert Panel and the rigour of the Literature Review. However, the large pre-test item pool was reduced in response to analytical assess and respond to the follow-up.

Please note, in many instances computer generated results are shown, as calculated and systems reported. Where the same size does not support, do not assume accuracy to *approximately* one in one thousand.

6.2.1 Measurement

This section outlines, scrutinizes and explains the measurement procedures and standards used for data analyses to guide the interpretation of the empirical techniques applied to empirical operation of the parent theories and the testing of the hypothesis posited.

Measurement is an ‘operationally defined process’ under which predetermined conditions and a set of procedures yield pragmatic results (Wilks, 1961). Measurement requires consigning values to the characteristics of objects of interest based on a predetermined set of considerations (Gofton, 1997). The procedures employed must be explicit (Nunnally, 1967). The rules are isomorphic, directing the creation of scales to generate a span on which the calculated objects are positioned (Malhotra, 1999). Procedures typically use mathematical techniques to explain concepts within and derived from a theoretical system(s) (Crombie, 1961).

Empirical research recognises and investigates variables. Although latent variables are not directly observable they are understood to cause items’ values, within measureable scales, thereby estimating the true unobserved value. Albeit, for the Thesis, each construct measured is said to be affected by related dimensions. In other words, a construct does not cause the primary dimensions. Additional discussion on the relationship between constructs and their associated dimensions is presented in Section 6.2.8, which defines dimension specification.

The aforementioned descriptions regarding the characteristics of measurement and scales are more appropriate for understanding the apparent quality of constructs and the worth of instrumentation, yet are limited in describing the properties of measurements relating to the evaluation of estimation parameters of co-variance models and factor analyses (Devellis, 1991). In this way, having surveyed and collected Anglo-Western Society and Han-Chinese Society data, further clarification of the results is required.

Suitable explanations must respect the relationship between the latent variables and observed variables. Latent variables, as the nomenclature indicates, are representative of the underlying fundamental construct and its variability (Devellis, 1991). Measurable observed variables are manifestations of latent variables and are expectantly indicative of the latent variables (Kline, 1998). Astute measurement dictates latent variables and the observed variables to be logically interconnected. Concepts measured as observed variables can be theoretical or tangible and comprised of one variable or multiple variables (Bollen, 1989). Observed variables are measured from data arising from survey items. Sets of items are submitted to represent discrete dimensions to be tested for associations⁵.

Thus, good measurement necessitates data known to be superior in stature and that inter-connections between data structures are well understood. In this way, objective evaluation of data requires resolving the validity and reliability of tests in designated situations (Anastasi, 1976).

Next, we consider reliability before reviewing validity.

⁵ For example, for the hypothesised vertical control dimension questions (items) rated the degree to which respondents felt: (a) compelled to follow sanctioned guidelines without question, (b) leaders were consultative and not led by authority alone, and (c) subordinates had latitude to adopt interpretations independent of their leaders, and (d) the scope for subordinates to take action independent of their leaders' close involvement.

6.2.2 Reliability

Reliability assesses the relative quantity of scale variance conveyed by the true score (Devellis, 1991), therefore, revealing the magnitude of agreement between ‘independent but comparable measures of the same trait or construct’ (Churchill, 1979, p. 65). Reliability evaluates the stability or repeatability of meaningful data under analogous conditions (Nunnally, 1967), and thus the capacity to yield consistent results (Peter, 1979). The degree to which measurement error is diminutive, a measure is reliable (Churchill, 1979). As previously mentioned, observed measures are merely inferential, wherein, ‘the quality of inferences depends directly on the procedures that are used to develop the measures and the evidence supporting their ‘goodness’ (Churchill, 1979, p. 66). Reliability measures are commonly applied to ascertain the relationship between observed variance and total variance. Construct homogeneity exists and internal consistency is present, where the survey items are inter-correlated (Devellis, 1991).

The scales adopted by the Thesis have been partly influenced by the comprehensive comments from the non-empirical literature (e.g., Chen 1995, Redding 1991, Fiske 1991, McNeill 1991, Bond 1986, Pye 1984, Hsu 1981 & 1983, Needham 1979, Quigley 1979, Silin 1976, Bloch 1967, Toynbee 1958, Wells 1937), permitting research design to produce items ready to be tested for reliability and uniformity. Coefficient alpha is a useful preliminary measure that reasonably estimates reliability, where item-specific variance in a unidimensional test is of interest (Cronbach, 1947). A high Cronbach’s alpha shows a large portion of variance tested is attributable to common factors entailing markedly lesser item-specific variance. Accordingly, high factor loadings are hypothesised for items of each dimension measured in the Thesis.

For reflective models, Cronbach's alpha (1951)⁶ is an accepted procedure to ascertain internal consistency in reliability to determine observed variance and total variance relationships, in the variance-covariance matrices of scale items (Devellis, 1991, Churchill, 1979, Nunnally 1967). Cronbach's alpha (1951) was founded on earlier psychological studies into individual differences between people and investigations determining the accuracy of measurements, ultimately becoming represented by a correlation co-efficient. Cronbach's alpha extended interclass correlation applications to a new measurement type (Cronbach, 2004). Cronbach's alpha is commonly defined as:

$$\alpha = \frac{K}{K-1} \left(1 - \frac{\sum_{i=1}^N \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

Observed variance is indicated by σ_X^2 and total variance by $\sigma_{Y_i}^2$. The proportional relationship between exclusive variance to total variance is $\sum \sigma_X^2 / \sigma_{Y_i}^2$. The complement of the aforementioned, $1 - (\sum \sigma_X^2 / \sigma_{Y_i}^2)$, denotes the unadjusted foundation of Cronbach's alpha (1951). K signifies the number of components contributing to the total score. Multiplying the right-hand part of the formula by K/K-1 allows the researcher to adjust for the relative magnitude of the components (Devellis, 1991). Reliability (α) equals the proportion of the total variance among items due to the latent variable, measuring the proportion of the total variance of the scale accredited to the true score of the latent variable. Estimates of reliability using Cronbach's alpha (1951) show the upper limit of reliability. Results arising from Cronbach's alpha are restricted to the range 0.00 to 1.00. High values over .80 are desirable

⁶ Before 1951, researchers viewed consistency in theory as the survey instrument referencing itself. This approach is problematic, because the assumed relationship is unobservable. Extant theory maintains that unidimensionality is present where there are strong cross-correlations between scale items (Devellis, 1991). Yet, Cronbach (2004) warns that using only coefficients to construe assessment of reliability is imperfect. While recognising the limitation of coefficients with reference to reliability, the Thesis adopts Cronbach's alpha, in a restricted fashion, as a preliminary measure of reliability, to be supported by additional relevant measures.

and over .90 are excellent (Nunnally, 1978), with the caveat that very high results must be theoretically explicable; yet, not be a result of unintentional multicollinearity.

Cronbach's alpha (1951) is often used to measure internal consistency. Internal consistency refers to the correspondence of scale items of measurement models, wherein, relationships are convincingly associated (Devellis, 1991). For effects models, high correlations are necessarily required. For causal models, the relevance on high correlations as an indicator of internal consistency is diminished, because correlations are 'elucidated by factors exterior to the model' (Bollen and Lennox 1991). As outlined below, the Thesis, assumes reflective models⁷, not formative models:

When adopting Churchill's (1979) procedures for developing and measuring scales, after measures are purified and data are collected, Cronbach's alpha is frequently used to measure internal consistency, because, the researchers must know the correlations between observed variables (represented by survey items) and corresponding latent variables. A favourable coefficient alpha measure is a function of the interrelatedness of items as a precondition of homogeneity. On the other hand, homogeneous internal consistency alone does not prove unidimensionality (Green and Mulaik 1977). Consequently, additional tests of unidimensionality operate in the current research.

A coefficient alpha greater than .70 is deemed *reliable* by Nunnally (1978). In contrast, various alternative recommended levels of reliability have been suggested by other authors, as noted by Peterson (1994, p. 382, Table 1), and in the modified Table 6.1.

⁷High Cronbach's alphas were achieved for measurement models for endogenous influences.

Table 6.1: Recommended Levels of Cronbach alphas from the Literature

Author	Situation	Recommended Level
Kaplan and Saccuzzo (1964, p.24, in Peterson 1994)	Basic Research	.7 to .8
	Applied Research	.95
Murphy and Davidshofer (1988, p.89, in Peterson 1994)	Unacceptable level	<.5
	Low level	.7
	Moderate to high level	.8 to .9
	High level	.9
Nunnally (1967, p. 226, in Peterson 1994)	Preliminary research	.5 to .6
	Basic research	.8
	Applied research	.9 to .95
Nunnally (1978, pp. 245-246, in Peterson 1994)	Preliminary research	.7
	Basic research	.8
	Applied Research	.9 to .95

Regarding past research, a meta-study of 4,286 Cronbach's alphas revealed a range from .06 to .99, having a mean of .77, wherein, 'seventy-five percent of the observed alpha coefficients were .70 or greater, 49 percent were .80 or greater and 14 percent were .90 or greater' (Peterson 1994). Concerning the current research, original scales are based on general observations on cross-cultural traits made in the non-empirical literature (e.g., Chen 1995, Triandis 1994, Redding 1991, Fiske 1991, McNeill 1991, Bond 1986, Pye 1984, Hsu 1981 & 1983, Needham 1979, Quigley 1979, Silin 1976, Bloch 1967, Toynbee 1958 and Wells 1937). The major contributions of Triandis (1994), Fiske (1991) and Redding (1990) were specifically emphasised by integrating these three seminal studies.

The study of cultural antecedents is regularly performed by historians, anthropologists and sociologists, who have recorded non-empirical cultural consistencies observed in the past. Also, as previously noted Hofstede between 1967 and 1973 conducted empirical studies

collecting data from 66 countries from one company only - IBM - using the elementary methodologies of the time. In the first instance, conclusions have not been adequately quantified. In the second instance, Hofstede's unit of measure 'country' is too inclusive for some countries⁸ studied and the HERMES research design, once useful is now unsophisticated when compared with twenty-first century standards in statistical analysis.

While the study of cultural antecedents is established across academic disciplines the current research purifies the unit of measure and employs far more developed quantitative techniques to measure Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy in order to provide an empirically original and exploratory study. Achieving Cronbach's alphas over .7 would appear very challenging.

On the other hand, by purifying the unit of measure (adopting Society), for the first time, improved Cronbach's alphas are anticipated, owing to the elimination of unwanted 'noise' stemming from acculturation⁹ (Triandis, 1994). In future studies, other researchers might care to take note and be more cautious about using 'country' as a measure of sociological phenomena commonly applied in many past studies. Thus, a designator country is too often used in textbooks, when constructs would be better built from societies with country.

Thus, routinely achieving Cronbach's alphas over that forecast by Peterson's (1994) meta-analysis would justify 'Society', as the refinement of earlier approaches to the unit of measurement. Applying 'Society', as a unit of measurement to the study of cultural antecedents, represents a significant contribution by improving data collection techniques to

⁸ Singapore has three distinct societies, Chinese, Indian and Malay. These are not measured in the Thesis.

⁹ Client recruitment specifications emphasised measures to significantly reduce acculturation factors.

be followed by cross-culture researchers, if supported by Cronbach alphas and other statistical measures.

Given the exploratory character of the current research, which aims, as noted, to establish empirical justification of non-empirical theory, Cronbach alphas over .75 were deemed¹⁰ *desirable* and Cronbach's alphas over .85 were deemed highly desirable, given the context of the original investigations and the framework reported in Table 6.1. Cronbach alpha's over .9 shall be deemed *highly desirable*, but not exceptional, as homogeneity among items may be present, owing to the deliberate intention to depict shades of meaning while still capturing the broader meaning of the latent variable. This would indicate that the range and extent of the dimension does not represent item redundancy. Herein, the fuller capacity of each dimension is measured, and is therefore more representative of each associated latent variable.

However, the application of 'an applied standard' does not accommodate the finding that Cronbach alpha is a function of the number of items in the scales (Green, et al., 1977). For a three item scale, having a co-efficient alpha of .80, the average inter-item correlation is .57; whereas, for ten items there is an average inter-item correlation of .27 with a coefficient alpha of .80 (Cortina 1993). In the Thesis, dimensions have either four or five items per dimension per tier (level). Elevated Cronbach's alpha measures were calculated for each dimension, consistently having convergent inter-item structures per dimension.

The Co-efficient high alpha measures reported in the Thesis are not inflated by the size of the item population per dimension per tier (level). It therefore follows that consistent Cronbach alpha's over .85 found regarding the dimensions of the Culture are clearly reliable.

¹⁰ Based on Peterson's (1994) meta-analysis and the character of the current research.

Next, we discuss validity.

6.2.3 Validity

Researchers must clarify for relevant communities what measurements mean, and describe the limitations of each interpretation (Cronbach, 1988). Validity measures how the values of observed variables expose the characteristics of the latent variable to reveal only the factual characteristics of differences represented (Churchill, 1979). While survey data are analysed for validity, validity is contingent upon scaled development (Devellis, 1991). Survey instrumentation is not tested by validity, rather the researcher validates the data's capacity to achieve its intended use, whereby, data are tested for the validity of premeditated purposes (Nunnally, 1967). Validity is conditioned by scale construction, and measures the sufficiency of specific variables (Devellis, 1991). Along these lines, validity recognises the suitability of inferences made of responses to survey instruments of particular assessment exercises. Moreover, validity measures the degree to which verification processes support the interpretations being correct and the manner in which expositions are appropriate to the task (Masko, Leydens, & Pavelich, 2002).

Validity can be divided to communicate substantiation processes. Content validity engages the substance domain of the sample, indicating sampling sufficiency; construct validity assesses the degree to which measures 'behave' to rightfully reveal underlying constructs; and, criterion-related measures 'empirical association' in context with the researcher's essential discernment of 'the theoretical basis for that association' (Devellis, 1991, pp. 44-46). Correspondence between a proposed measure and a similar other measure indicates both measures coalesce on the same construct (Zigmund, 1997).

Earlier, the theoretical cultural constructs were qualitatively delineated in a non-statistical manner, which was expressive of each domain measured. Herein, the domains of the cultural constructs were primarily described and represented in surveys *in advance* of the ‘interpretation of the data,’ based on ‘factual knowledge’ of the domains (Anastasi 1976, p. 135). Content validity is the disciplined assessment of the items tested to authenticate the content domain to be measured, wherein, the key attributes of the domain are captured ‘in the correct proportions’ (Anastasi, 1976, p. 135). For the Thesis, the content and formation of items used are based on the literature on cultural antecedents, relating to Anglo-Western Society and Han-Chinese Society.

The survey items were parsed by and were approved by an expert panel drawn from ‘Distinguished Fellows’ of the Academy of Marketing Science and senior academics, who have made significant contributions to the ‘culture literature’. In this way, expert opinion was applied to the domains in order to develop good content, and to cultivate items rightly representative of cultural concepts, having independent, discriminate dimensions (Kline, 1998). Accordingly, the scales and instrumentation were deemed authentic and representative of the purpose of the research design.

Previously, the theoretical culture constructs were qualitatively delineated in a non-statistical manner, which was expressive of each domain measured Content validity is the disciplined assessment of the items tested to authenticate the content domain to be measured, wherein, the key attributes of the domain are captured ‘in the correct proportions’ (Anastasi, 1976, p. 135).

Next, we evaluate Content Validity and Dimensionality.

6.2.4 Content Validity and Dimensionality

Theoretical concepts measured, are divisible and content validity can be assigned to and measured within dimensions per scale. Enviably scales are unidimensional, so that each dimension indicates a specific attribute signified by predefined survey items (Hattie, 1985). Items unsupportive of unidimensionality are discarded to improve content validity and overall construct validity. With congeneric measures (Joreskog, 1971), as used in the measurement models developed in the Thesis, at least two dimensions are required to measure each construct, with each dimension estimating a single construct only (Anderson and Gerbing 1988).

The Measurement Model develops three new key cultural constructs designated as Societal Syndromes¹¹. Each construct (syndrome) has three independent dimensions (factors) (as outlined below in Table 6.2).

Table 6.2: Main Constructs and Associated Dimensions (Scales/Factors)

MAIN CONSTRUCT	SCALE/FACTOR	SCALE/FACTOR	SCALE/FACTOR
Vertical Power Ethos	Vertical Secrecy	Vertical Deference	Patrimonialism
Horizontal Altruism	Horizontal Inclusiveness	Horizontal Mutualism	Horizontal Reciprocation
Conventional Orthodoxy	Langsyne Attachment	<i>A priori</i> Validation	In-Role Conformity

¹¹ In the Data Methodology chapters the generic designator ‘construct’ is often used in lieu of ‘societal syndrome’ to achieve etymological equivalence with the literature.

Each of the nine new dimensions tested shall better demonstrate content validity, where each dimension exhibits unidimensionality.

Content validity requires constancy test dimensionality and the content structure and sufficiency of the 'particular area of content' sampled (Nunnally 1967). The framework of the content domain stipulates distinct content as resolved by the specifically defined traits of each dimension of each construct (e.g., for Vertical Power Ethos, the content domains of Vertical Secrecy, Vertical Control and Patrimonialism) are each hypothesised to be unidimensional, while collectively representing the total content domain of the structure measured.

Regarding the survey substratum, all item responses are independent, while measuring a single dimension. In this construction, local independence of the dimensions corroborates unidimensionality (Embretson and Reise, 2000).

The original framework of items selected to measure the theoretical constructs were guided by the non-empirical literature, and then appraised by an expert panel and tested in a pilot survey. Honed items were applied to the main survey using new data. As recommended by Churchill (1979, p. 69) data from the main survey were tested for unidimensionality using factor analyses to 'confirm' or 'refute' (Popper, 1972) components' and to 'empirically' establish verifiable dimensions.

Next, criterion-related validity is reviewed.

6.2.5 Criterion-Related Validity

Criterion validity establishes the relationship between tests separated in time or concurrently made, where the tests measure common criteria (e.g., related psychology tests or related tests of cultural antecedents) (Anastasi 1976). Criterion validity investigates the relationship between measures, which are meaningfully interconnected (Malhotra 1999).

Where test scores and criterion scores are ascertained at basically the same time' the researcher is studying *concurrent validity* (Cronbach and Meehl 1955). For the new cultural constructs, concurrent criterion validity was appraised by *post hoc* assessment of the *same* cultural traits, by comparing product developers (n=306) and non new product developers (n=1,189).

Moreover, the promising comparisons between product developer results and non new product developer results have demonstrated the new product developer path model to be generalisable to the broader population having use in business studies and other disciplines too.

Next, we examine Convergence Validity and Discriminant Validity.

6.2.6 Convergence Validity and Discriminate Validity

Convergent validity and discriminate validity pertain to construct validity by authenticating 'a network of related hypotheses generated from theory, based on the theorised concepts' (Zikmund 1997, p. 344). In this way, 'multiple attempts to measure the same concept are in agreement and discriminant validity is the degree to which measures of different concepts are distinct' (Bagozzi, 1994, p. 20). In structural equation modelling measures are estimated against each other. With regards the estimation of measurement models:

‘... a set of indicators presumed to measure the same construct shows convergent validity if the inter-correlations are at least moderate in magnitude. If the estimated correlations of the factors that underlie sets of indicators that are supposed to measure different constructs are not exceedingly high, then there is evidence of discriminant validity’ (Kline 1998, pp. 197-198)

The Thesis proposes desirable convergent validity and discriminant validity in context with the hypotheses put forward for Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy and their underlying domains.

6.2.7 Nomological Networks

Nomological networks assess the relationship between observable constructs, to determine across-the-board construct validity of measures, thus, permitting constructs to be related to each other on a statistical basis. Cronbach and Meehl (1955) note:

‘A necessary condition for a construct to be scientifically admissible is that it occur (sic) in a nomological net, at least some of whose laws involve observables. Admissible constructs may be remote from observation, i.e., a long derivation may intervene between the nomologicals which implicitly define the construct, and the (derived) nomologicals ...These latter propositions permit predictions about events. The construct is not “reduced” to the observations, but only combined with other constructs in the net to make predictions about observables’ (Cronbach and Meehl, 1955, p, 290)

Validation of test measures in nomological networks requires the presence of ‘specifiable’ associations, which ‘pin down the concepts’ (Cronbach and Meehl, 1955, p, 291). As Cronbach and Meehl (1955) and Bagozzi (1994) note, the formation of and network structure

represents the opportunity to test the associations of the parts of greater theory. Nomological networks have laid the groundwork for testable structural models of more recent decades.

6.2.8 Dimension Specification and Confirmatory Factor Analysis Specification

A well-defined measurement model shall offer a suitable representation of results having indications of high loadings of specific factors indicating convergent validity and correlations between factors that are ‘not excessively high,’ e.g., $>.85$ ’ (Kline, 1998, p.60). Herein, different factors, each with their own distinctive set of items, are positioned side-by-side with other discrete sets of factors. With classic models, as adopted by the Thesis, factors are indicators *dependent* on the latent variable:

$$y_i = \lambda_{i1}\eta_1 + \varepsilon_i$$

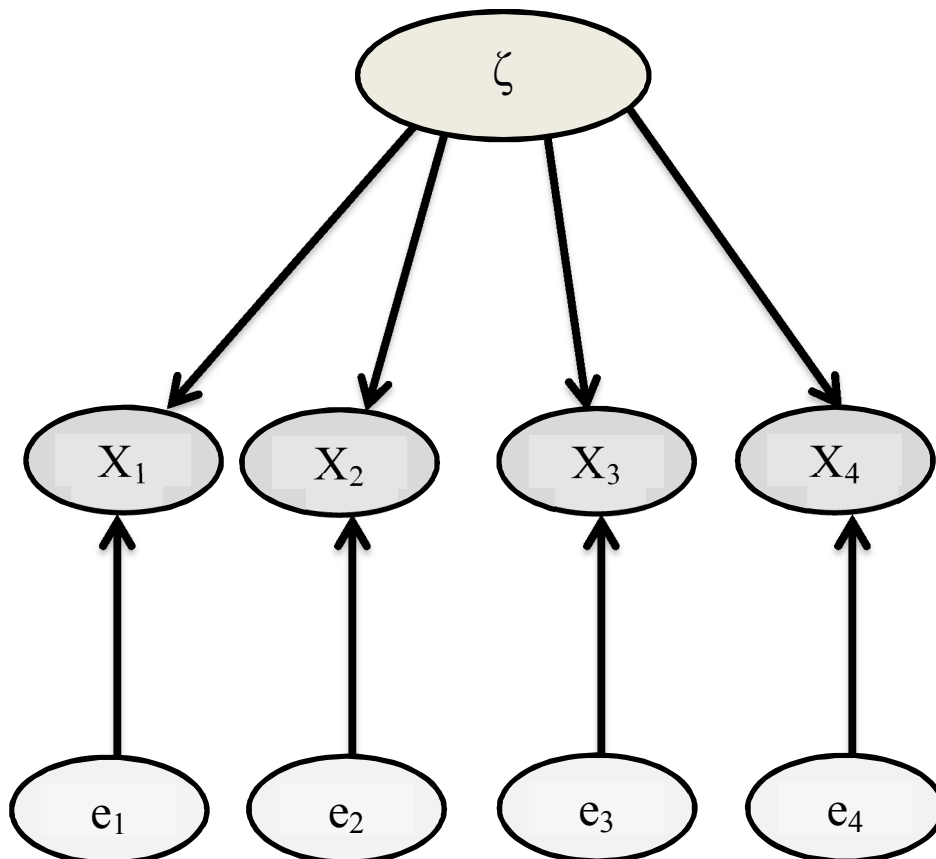
Where, y_i is the i th indicator, η_1 is the latent variable affecting the measured factor, ε_i indicates the measurement error of the i th indicator. $\lambda_{i1}\eta$ is the co-efficient showing the expected effect of λ_i on y_i (Bollen and Lennox 1991). In this manner, the latent cultural variables, according to classical test theory¹² are prescribed to act to affect their respective factors in the measurement model.

In step, with adopting a reflective model for quantitative assessment, throughout the Thesis, we find the direction of causality is; from the constructs to the items, and, deviation difference in construct values causes dissimilarities in item measures (Hult et al. 2008). Error exists with the items not the constructs (Jarvis et al. 2003). Ecological ‘pressures’, from latent variables (ζ) in societal environment *precede* variations in their indicators (Hult 2008 et al.,

¹² Spearman (1910) in Bollen and Lennox (1991).

p.7). Thus, as shown in Figure 6.1, dimensions *receive* affects and *demonstrate* effects, plus error:

Figure 6.1: Principal Factor Measurement



The specification of the principal factor measurement model of culture scales assumes reflective causal indicators affecting the scales, as shown. For example:

1. Vertical Power Ethos is affected by vertical secretness, vertical control and vertical Patrimonialism.
2. Horizontal Altruism is affected by horizontal inclusiveness, horizontal mutualism and horizontal reciprocation

3. Conventional Orthodoxy is affected by langsyne attachment, *a priori* validation and in-role conformity

Owing to the theoretical foundations moderately high correlations (up to .85) (Kline 1998) are permitted between dimensions within scales, to the extent convergent validity and discriminate validity are not compromised. Endogenous casual factors are assumed. Variations in the observed dimensions are hypothesised to result in differentiation between Anglo-Western measures and Han-Chinese measures of the same scales (e.g. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy shall act in response to degrees-of-magnitudes of their cultural dimensions).

The aforementioned established empirical determination of reliability, validity and dimensionality require testing under designated situations (Anastasi, 1976). Accordingly, the findings of investigations of observed representations of the latent variables follow:

6.2.9 Interim Summary: Psychometric Theory

A framework of key measures germane to the design and identification of measurement models has been offered. The rationale for the selection of particular psychometric measures was authenticated by the literature, thus, justifying accepting the specific statistical methods to be employed for the empirical analyses of the Culture constructs and dimensions. The findings and interpretations of pertinent measures were.

6.3 RELIABILITY AND DIMENSIONALITY

6.3.1 Measuring Latent Variables

Section 6.3 provides empirical analyses of the reliability and preliminary assessment on the scales for Anglo-Western Society (n=1,329) and Han-Chinese (n=154). Later, in Section 6.5, the sample populations are used for Analyses of Goodness of and CFA Analyses of Dimensionality.

The constructs tested for both societies are as follow:

- ***Societal manifestations of latent variables***
 - Vertical Power Ethos in Society-at-large
 - Horizontal Altruism in Society-at-large
 - Conventional Orthodoxy in Society-at-large

- ***Workplace in Society manifestations of latent variables***
 - Vertical Power Ethos in the Workplace in Society
 - Horizontal Altruism at the Workplace in Society
 - Conventional Orthodoxy at the Workplace in Society

The Thesis will now assess the measurement model by examining empirical tests that complement earlier non-empirical propositions (theory). The purpose of the measurement model is to test reliability and internal consistency of the dimensions, seek indicators of dimensionality, and determine whether suitable convergence and discrimination patterns emerge moderated by sample size.

Respecting the good worth of statistically-based assessment, researchers assign values to measures to make possible the interpretation of results. For example, detailed dialogue on

Cronbach's alpha were presented: The Thesis posited that coefficients greater than .70 are deemed *reliable* (Nunnally 1978). Additionally, based on Peterson's (1994) meta-analysis of usage of the coefficient by researchers, it was argued regarding the current exploratory research, Cronbach alpha's over .75 shall be judged *desirable* and Cronbach alpha's over .85 shall be judged *highly desirable*. Based on the findings shown in table 6.1, Cronbach coefficients over .80 are held to denote high reliability allied to elevated internal consistency.

Repeated high measures of reliability and internal consistency apply across all categories of research are sought, but restrained the research situation (e.g. exploratory research). Where inter-item and item-total correlations are high, the items measure the same construct and a high average between inter-item correlations indicates a unidimensional latent construct (Briggs and Cheek, 1986).

Regarding samples, Field (2009, p. 788) states that it is desirable that 'patterns of are relatively compact, so that factor analysis should yield distinct and reliable factors'. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy provides dispersion correlation configurations, allowing values to be represented between 0.0 and 1.0. According to Hutcheson and Sofroniou (1999, in Field 2009), KMO values between .5 and .7 are *mediocre*, values between .7 and .8 are *good*, values between .8 and .9 are *great* and values above .9 are *superb*. Accordingly, consistent results above .75 are enviable. In the Thesis, good to superb KMO results were found for all Culture constructs measured.

Compressed results for reliability, internal consistency and dimensionality and item relationships, shown in Tables 6.3-6.5, over the page, provide a concrete foundation for the micro-constitution of the Thesis.

Reliability and internal consistency measures were repeatedly found to be *desirable* or *highly desirable*, as benchmarked against (a) a meta-analysis of 4,286 Cronbach's alphas (Peterson, 1994), and (b) academic peer-accepted Cronbach's alpha classification guides (e.g., Nunnally 1978). Similarly, interim analyses clearly demonstrated unidimensionality for all posited dimensions, within each cultural construct, as was forecast by the Thesis. Sampling adequacy was established for all dimensions. Moreover, favourably robust KMO results are denoted as *good* or *great*. Overall, the findings are highly favourable and support the Thesis.

-Please turn page-

Table¹³ 6.3: Measurement Data: For Vertical Power Ethos in Society at Large (SOC) and Workplace (WOR)

Construct		Factor	Cronbach's α	Cronbach's α Rated ¹⁴	KMO	KMO Rated ¹⁵	Inter-Item	Inter-Item Total
VPESOC.AW (.AW = Anglo-West)	1	<i>socsec.aw</i>	0.89 ¹⁶	Highly Desirable	0.85	Great	0.63-0.72	0.72-0.80
	2	<i>soccon.aw</i>	0.87	Highly Desirable	0.83	Great	0.59-0.67	0.70-0.75
	3	<i>socpat.aw</i>	0.88	Highly Desirable	0.84	Great	0.63-0.70	0.73-0.79
VPEWOR.AW	1	<i>worsec.aw</i>	0.87	Highly Desirable	0.80	Great	0.57-0.72	0.66-0.71
	2	<i>worcon.aw</i>	0.88	Highly Desirable	0.88	Great	0.58-0.72	0.69-0.80
	3	<i>worcpat.aw</i>	0.86	Highly Desirable	0.82	Great	0.51-0.65	0.66-0.74
VPESOC.HC (.HC = Han-Chinese)	1	<i>vpewor.hc</i>	0.88	Highly Desirable	0.88	Great	0.57-0.70	0.69-0.77
	2	<i>vpecon.hc</i>	0.89	Highly Desirable	0.82	Great	0.57-0.72	0.65-0.73
	3	<i>vpepat.hc</i>	0.85	Highly Desirable	0.85	Great	0.52-0.62	0.65-0.73
VPEWOR.HC	1	<i>worsec.hc</i>	0.92	Highly Desirable	0.86	Great	0.64-0.75	0.78-0.81
	2	<i>worcon.hc</i>	0.91	Highly Desirable	0.84	Great	0.67-0.77	0.76-0.81
	3	<i>worcpat.hc</i>	0.89	Highly Desirable	0.85	Great	0.66-0.70	0.75-0.78

¹³ Tables have been used for reasons of parsimony and to assist in visually consolidating data

¹⁴ Based on Peterson's (1994) meta-analysis

¹⁵ Hutcheson and Sofroniou 1999, in Field 2009

¹⁶ The Thesis recognises the strict criterion of ≥ 0.90 to signify *possible* multicollinearity

Table 6.4: Measurement Data: For Horizontal Altruism in Society at Large (SOC) and Workplace (WOR)

Construct	Factor		Cronbach's α	Cronbach's α Rated ¹⁷	KMO	KMO Rated ¹⁸	Inter-Item	Inter-Total
HORSOC.AW (.AW = Anglo-West)	1	<i>socrinc.aw</i>	0.88	Highly Desirable	0.82	Great	0.57-0.67	0.70-0.71
	2	<i>socmut.aw</i>	0.87	Highly Desirable	0.87	Great	0.55-0.68	0.66-0.77
	3	<i>socreca.w</i>	0.86	Highly Desirable	0.81	Great	0.51-0.65	0.64-0.73
HORWOR.AW	1	<i>worinc.aw</i>	0.87	Highly Desirable	0.83	Great	0.55-0.66	0.69-0.76
	2	<i>wormut.aw</i>	0.86	Highly Desirable	0.79	Good	0.58-0.64	0.68-0.74
	3	<i>worrec.aw</i>	0.85	Highly Desirable	0.82	Great	0.54-0.65	0.65-0.74
HORSOC.HC (.HC = Han-Chinese)	1	<i>socinc.hc</i>	0.90	Highly Desirable	0.83	Great	0.60-0.75	0.72-0.82
	2	<i>socmut.hc</i>	0.91	Highly Desirable	0.84	Great	0.63-0.76	0.87-0.90
	3	<i>socreca.hc</i>	0.89	Highly Desirable	0.83	Great	0.56-0.73	0.76-0.81
HORWOR.HC	1	<i>worinc.hc</i>	0.91	Highly Desirable	0.84	Great	0.63-0.75	0.76-0.83
	2	<i>wormut.hc</i>	0.90	Highly Desirable	0.78	Good	0.66-0.82	0.75-0.82
	3	<i>worrec.hc</i>	0.89	Highly Desirable	0.83	Great	0.66-0.73	0.71-0.81

¹⁷ Based on Peterson's (1994) meta-analysis

¹⁸ Hutcheson and Sofroniou 1999, in Field 2009

Table 6.5: Measurement Data For Conventional Orthodoxy in Society at Large (SOC) and Workplace (WOR)

Construct	Factor		Cronbach's α	Cronbach's α Rated ¹⁹	KMO	KMO Rated ²⁰	Inter-Item	Inter-Total
CONSOC.AW (.AW = Anglo-West)	1	<i>soclan.aw</i>	0.79	Desirable	0.78	Good	0.45-0.64	0.56-0.65
	2	<i>socapr.aw</i>	0.84	Highly Desirable	0.81	Great	0.48-0.60	0.64-0.71
	3	<i>soccof.aw</i>	0.85	Highly Desirable	0.81	Great	0.51-0.69	0.64-0.77
CONWOR.AW	1	<i>worlan.aw</i>	0.85	Highly Desirable	0.80	Great	0.60-0.73	0.73-0.81
	2	<i>worapr.aw</i>	0.83	Highly Desirable	0.84	Great	0.60-0.78	0.67-0.80
	3	<i>worcof.aw</i>	0.89	Highly Desirable	0.81	Great	0.66-0.77	0.78-0.81
CONSOC.HC (.HC = Han-Chinese)	1	<i>soclan.hc</i>	0.88	Highly Desirable	0.78	Good	0.53-0.74	0.66-0.71
	2	<i>socapr.hc</i>	0.90	Highly Desirable	0.84	Great	0.62-0.74	0.73-0.83
	3	<i>soccof.hc</i>	0.88	Highly Desirable	0.83	Great	0.60-0.71	0.67-0.77
CONWOR.HC	1	<i>worlan.hc</i>	0.90	Highly Desirable	0.83	Great	0.61-0.75	0.72-0.83
	2	<i>worapr.hc</i>	0.91	Highly Desirable	0.78	Great	0.66-0.78	0.77-0.82
	3	<i>worcof.hc</i>	0.89	Highly Desirable	0.83	Great	0.60-0.72	0.75-0.81

¹⁹ Based on Peterson's (1994) meta-analysis

²⁰ Hutcheson and Sofroniou 1999, in Field 2009

6.4 PRINCIPAL AXIS FACTORING

In response to the helpful guidance of Professor James Nelson of Leeds Business School at the University of Colorado, Boulder (2012); in lieu of principal components factoring; post-submission, principal axes factoring was substituted to assess all societal constructs, in both societies studied; when determining how items representing the latent variables were extracted to coalescence of their respective factors.

Moreover, for reflective models, as used in the Thesis, principal axis factoring, using (oblique) promax (procrustean) rotation is thought to be superior to principal components factoring using varimax²¹ rotation (Nelson 2012). Herein, principal axis factoring essentially emphasises the structure of data, *based on shared variance*, when extracting factors. Principal axis factoring is ‘commonly reported in social and behavioural science research’ (Warner, 2007, p.785), as is the case with the new societal syndromes newly developed.

As previously emphasised, the Thesis operationalises qualitative research pertaining to cultural antecedents, unifies the contributions of Triandis (1994), Fiske (1991) and Redding (1990). Here, the Thesis represents a ‘first measurement’ of new phenomena. On the other hand, qualitative foundation being operationalised has been extensively studied.

In this context, the Thesis, as original research of its kind in the quantitative domain, tests *the scope of viable items*, within a seminal societal archetype, against which, various societies can be measured and compared. Capturing some penumbra (near-shadow) of each item was deemed necessary, given the results; (a) embody the first such representation of a new

²¹ Kaiser (1958)

archetypical structure for cultural syndromes and (b) other societies will need to be accommodated in future research studies.

Thus, while multiple items were eliminated during the construction of the new societal schema, establishing a standardised archetype was more fundamental. Therefore, on one occasion, some minor, no intrusive error-of-fit was tolerable (i.e. RMSEA = 0.65); at an item-level, for the greater cause of creating a common cross-societally effective structure. Overall, the models demonstrated a high level of fit, especially given the complex and seminal of the exploratory research.

In overview, all findings for all constructs in Anglo-Western (.AW) society (n=1,329) and Han-Chinese (.HC) society (n=166), manifestly show a single factor is discernible for each construct, consistent with the following eigenvalues Tables 6.6 – 6.8:

**Table 6.6: Vertical Power Ethos
Society ($\Sigma n=1,495$, Anglo-West n=1,329, Han-China n=166)**

Construct	Dimension	Initial Eigenvalues			
		1	2	3	4
VPESOC.AW	Vertical Secrecy (Society)	3.04	0.38	0.29	0.27
(Anglo-Western)	Vertical Deference (Society)	2.89	0.41	0.36	0.32
	Vertical Patrimonialism (Society)	2.98	0.37	0.35	0.28
VPEWOR.AW	Vertical Secrecy (Workplace)	2.88	0.47	0.40	0.24
(Anglo-Western)	Vertical Deference (Workplace)	2.93	0.42	0.37	0.27
	Vertical Patrimonialism (Workplace)	3.02	0.34	0.32	0.29
VPESOC.HC	Vertical Secrecy (Society)	2.93	0.43	0.33	0.29
(Han-Chinese)	Vertical Deference (Society)	2.99	0.43	0.30	0.26
	Vertical Patrimonialism (Society)	2.72	0.48	0.43	0.34
VPEWOR.HC	Vertical Secrecy (Workplace)	3.20	0.31	0.24	0.23
(Han-Chinese)	Vertical Deference (Workplace)	3.15	0.35	0.27	0.21
	Vertical Patrimonialism (Workplace)	3.28	0.34	0.32	0.29

Table 6.7: Horizontal Altruism
Society ($\Sigma n=1,495$, Anglo-West $n=1,329$, Han-China $n=166$)

Construct	Dimension	Initial Eigenvalues			
		1	2	3	4
HORSOC.AW	Horizontal Inclusiveness (Society)	2.90	0.45	0.32	0.31
(Anglo-Western)	Horizontal Mutualism (Society)	2.86	0.46	0.36	0.30
	Horizontal Reciprocal Exchange (Society)	2.79	0.49	0.37	0.32
HORWOR.AW	Horizontal Inclusiveness (Workplace)	2.87	0.45	0.63	0.62
(Anglo-Western)	Horizontal Mutualism (Workplace)	2.84	0.51	0.37	0.36
	Horizontal Reciprocal Exchange (Workplace)	2.75	0.47	0.41	0.33
HORSOC.HC	Horizontal Inclusiveness (Society)	3.06	0.42	0.28	0.22
(Han-Chinese)	Horizontal Mutualism (Society)	3.16	0.36	0.25	0.21
	Horizontal Reciprocal Exchange (Society)	3.00	0.39	0.35	0.24
HORWOR.HC	Horizontal Inclusiveness (Workplace)	3.13	0.37	0.26	0.22
(Han-Chinese)	Horizontal Mutualism (Workplace)	3.09	0.46	0.27	0.17
	Horizontal Reciprocal Exchange (Workplace)	3.00	0.39	0.35	0.24

Table 6.8: Conventional Orthodoxy
Society ($\Sigma n=1,495$, Anglo-West $n=1,329$, Han-China $n=166$)

Construct	Dimension	Initial Eigenvalues			
		1	2	3	4
CONSOC.AW	Langsyne Attachment (Society)	2.46	0.59	0.54	0.40
(Anglo-Western)	<i>A priori</i> Validation (Society)	2.68	0.52	0.42	0.26
	In-Role Conformity (Society)	2.78	0.50	0.41	0.29
CONWOR.AW	Langsyne Attachment (Workplace)	2.76	0.48	0.45	0.30
(Anglo-Western)	<i>A priori</i> Validation (Workplace)	3.03	0.40	0.31	0.25
	In-Role Conformity (Workplace)	3.02	0.45	0.30	0.21
CONSOC.HC	Langsyne Attachment (Society)	2.98	0.54	0.27	0.19
(Han-Chinese)	<i>A priori</i> Validation (Society)	3.06	0.39	0.31	0.22
	In-Role Conformity (Society)	2.93	0.45	0.32	0.28
CONWOR.HC	Langsyne Attachment (Workplace)	3.05	0.40	0.31	0.21
(Han-Chinese)	<i>A priori</i> Validation (Workplace)	3.15	0.42	0.26	0.16
	In-Role Conformity (Workplace)	3.01	0.39	0.33	0.24

All eigenvalues, for Factor 1 loadings of each construct, exceeded the value “1” by a substantial measure and other competing loadings are diminutive: Thus, the proposed constructs are clearly discernible. Appendices ‘B’ and ‘C’ report, in more detail, on all constructs extracted, after, having run principal axis factoring (SPSS).

Expanding the aforementioned, Appendices ‘B’ and ‘C’ report detailed findings on:

- Total Variance Explained
- Extraction Sums of Squared Loadings
- Correlation Matrices
- Principal Axis Factor Matrices

Appendix ‘B’ provides details for Anglo-Western society, while Appendix ‘C’ reveals particulars, relating to Han-Chinese society.

Next, the Thesis considers confirmatory factor analyses, estimation and ‘goodness of fit,’ as applied to the hypothesised Cultural constructs.

6.4.1 Two Group Analysis Of Degree Of Variance: Vertical Power Ethos, Horizontal Altruism And Conventional Orthodoxy

Invariance was measured, across Anglo-Western society and Han-Chinese society, via two-group testing in AMOS. For the dynamical Societal Syndrome Schema (Archetype), supporting the Thesis; full or statistically partial invariance was evident for all six constructs measured. Specific measurements follow in Tables 6.9 and 6.10.

Table 6.9: The Factor Models For Invariance In Society: Anglo-West And Han-China²² - Societal Syndromes

Society ($\Sigma n=1,495$, Anglo-West $n=1,329$, Han-China $n=166$)

Construct	AMOS Model	H	Model Versions	χ^2	df	$\chi^2\Delta$	df	RMSEA	TLI	CFI	PNFI	ECVI	AIC	Norm χ^2	Invariance Achieved
VPES ²³	1	Configural	M1	156.63	102			0.02	0.99	0.99	0.76	0.17	264.63	1.53	
	2	Full	M2 vs M3	219.77	111	63.13	9	0.02	0.98	0.99	0.82	0.20	309.77	1.98	No
	3.1	Partial ¹	M3 vs M1	164.03	107	7.663	5	0.02	0.99	0.99	0.80	0.17	262.31	1.53	
	3.2	Partial ²	M3 vs M2	164.03	107	55.47	4	0.02	0.99	0.99	0.80	0.17	262.31	1.53	Yes
HAS ²⁴	1	Configural	M1	197.85	102			0.02	0.98	0.99	0.75	0.20	305.85	1.94	
	2	Full	M2 vs M3	280.64	111	86.33	9	0.32	0.98	0.98	0.82	0.25	370.64	2.56	No
	3.1	Partial ¹	M3 vs M1	207.15	106	14.75	5	0.26	0.99	0.99	0.79	0.21	307.15	1.95	
	3.2	Partial ²	M3 vs M2	207.25	106	62.25	4	0.26	0.99	0.99	0.79	0.21	310.15	1.95	Yes
COS ²⁵	1	Configural	M1	192.56	102			0.24	0.98	0.98	0.76	0.20	300.56	1.88	
	2	Full	M2 vs M3	226.60	111	34.04	9	0.26	0.98	0.98	0.81	0.21	316.56	2.04	No
	3.1	Partial ¹	M3 vs M1	201.00	108	8.44	6	0.24	0.98	0.98	0.80	0.79	297.78	1.86	
	3.2	Partial ²	M3 vs M2	201.00	108	25.06	3	0.24	0.98	0.98	0.80	0.79	297.78	1.86	Yes

²² To achieve these results, following a responsible, popular Positivist approach, some items were culled from constructs to successfully achieve good fit. However, an Holistic-Analytical approach (Maslow 1970) might have retained all items and disclosed the mismatch in the proto-model, so to raise questions in the minds of future researchers, regarding why the items didn't fit? The culling of items to achieve measurement invariance is a sound method to match *etic* universal traits; yet, mismatching between societies could demonstrate the presence of active *emic* effects, which to a sociological study should be identified. In this way it does not necessarily follow rejected items are sociologically fallacious. Consequently, from a sociological perspective, the original proto-models might have value to other research approaches, wherein all items deserve more active consideration, before culling.

²³ Vertical Power Ethos in Society

²⁴ Horizontal Altruism in Society

²⁵ Conventional Orthodoxy in Society

Table 6.10: The Factor Models For Invariance at the Workplace: Anglo-West And Han-China – Societal Syndromes

Society ($\Sigma n=1,495$, Anglo-West $n=1,329$, Han-China $n=166$)

Construct	AMOS Model	H	Model Versions	χ^2	df	$\chi^2\Delta$	df	RMSEA	TLI	CFI	PNFI	ECVI	AIC	Norm χ^2	Invariance Achieved
VPEW ²⁶	1	Configural	M1	292.70	102			0.03	0.97	0.98	0.75	0.26	400.69	2.87	
	2	Full	M2 vs M3	303.80	111	11.1	9	0.03	0.97	0.98	0.81	0.26	393.81	2.73	Yes
	3.1	Partial ¹	M3 vs M1												
	3.2	Partial ²	M3 vs M2												
HAW ²⁷	1	Configural	M1	333.90	102			0.03	0.97	0.98	0.74	0.29	441.09	3.27	
	2	Full	M2 vs M3	405.10	111	71.20	9	0.04	0.96	0.97	0.81	0.32	495.10	3.65	No
	3.1	Partial ¹	M3 vs M1	338.79	106	4.89	4	0.26	0.98	0.99	0.80	0.20	309.26	3.19	
	3.2	Partial ²	M3 vs M2	338.79	106	66.31	5	0.26	0.98	0.99	0.80	0.20	309.26	3.19	Yes
COW ²⁸	1	Configural	M1	283.00	102			0.03	0.97	0.98	0.75	0.26	391.00	2.77	
	2	Full	M2 vs M3	328.44	111	45.44	9	0.04	0.97	0.98	0.81	0.28	418.44	2.95	No
	3.1	Partial ¹	M3 vs M1	287.93	107	4.93	5	0.24	0.98	0.99	0.80	0.79	297.78	2.69	
	3.2	Partial ²	M3 vs M2	287.93	107	40.51	4	0.24	0.98	0.99	0.80	0.79	297.78	2.69	Yes

²⁶ Vertical Power Ethos in Society

²⁷ Horizontal Altruism in Society

²⁸ Conventional Orthodoxy in Society

6.5 THEORY OF MEASURES OF GOODNESS-OF-FIT

6.5.1 Confirmatory Factor Analyses

In the Thesis, Cronbach's alphas were calculated in order to establish reliability and internal consistency for the Culture constructs measured. Yet, Cronbach's alpha, as a standard measure of reliability cannot measure the total construct (Churchill, 1979). Therefore, Cronbach's alpha is additionally supported by assessments of linear combinations among multiple items. In this way, when items are in linear combination, where, $y = x_1 + x_n$, then, estimation of y depends on 'a knowledge of the reliabilities of *multiple x variables*' (*emphasis added*) and the relationships among them' (Nunnally 1967, pp. 226-227). For this reason, exploratory statistical analyses were performed on the new¹ data sets, from which, favourable inter-item correlations and promising item-total correlations were achieved. The preliminary step outlined can be further supported by confirmatory factor analyses (CFAs) to further ascertain items' relationships with each construct measured. As such, CFAs were performed on the new survey data, to additionally support the calculation of Cronbach's alphas, in the determination of the domains of each concept (Churchill, 1979).

Confirmatory factor analyses² were conducted on all twelve hypothesised Cultural dimensions within each tier³. This was conducted in order to partition the sets of variables into like groups and to ensure the parsimonious capture (data reduction) of information allowing the identification of discrete combinations and the testing of items purported to underlie each Cultural dimension, wherein CFAs can be used to test for overall construct validity, i.e., convergent validity and discriminant validity (Section 6.2.6) and the nomological characteristics of relationships between dimensions, within constructs tested

¹ As recommended by Cronbach (1979).

² Principal Component Analyses were conducted: Factor Analyses which try to capture *all* the variance of the original variables (Hair et al. 1987)

³ Society-at-large and in the Workplace.

(Section 6.2.7); so, ‘each factor predominantly represents a group of highly correlated variables’ (Parasuraman, 1991) This facilitated the depiction of relationships between measures and factors, permitting the creation of measurement models (Jöreskog 1969, in Bagozzi et al., 1998).

Having outlined the features of confirmatory factor analyses relevant to the hypothesised Cultural dimensions and their significance to the measurement model, in Section 6.4.2, next the general process of goodness-of-fit is explored.

6.5.2 Goodness-of-Fit

In this Section, we first address the theory of goodness-of-fit in the estimation process. Afterwards, key measures and indices of goodness-of-fit are presented and evaluated. Occasionally, a brief comment will be made on the findings to synthesise theory to practice and to foreshadow more detailed findings to be presented later.

Structural equation modelling is used to explain theories endeavouring to authenticate interrelations between sets of variables, as such, a structural equation model represents:

‘...a series of hypotheses about how the variables in the analysis are generated and related. The application of the SEM technique thus starts with the specification of a model to be estimated.’ (Hu and Bentler, 1999, p. 2)

Accordingly, measurement models require estimation of keystone parameters to establish the goodness-of-fit of the Culture constructs and associated dimensions. Goodness-of-fit indices will show how well the hypothesised Cultural models fit the data generated by the new survey instruments. It is envisaged that the data expected of the Cultural models shall correspond with the data collected by the survey instruments. Regarding structural equation

modelling, as applied here, the estimation process facilitates testing the association between the models and the co-variance of the matrix of the observed variable scores and the restricted covariance matrix inferred by the hypothesised Culture models tested (Byrne 2010, Field 2009).

Accordingly, in structural equation modelling (developed further in Chapter Seven):

‘The null hypothesis (H_0) being tested is that the postulated model holds in the population [i.e., $\Sigma = \Sigma(\theta)$]³² (Byrne 2010, p. 70).’

In this way, the Thesis postulates that statistical tests shall demonstrate, with high confidence, that expected measures and observed complementary measures shall be identical (perfect result) or approximate each other (pragmatic and rational result). Otherwise stated, there should be a good fit, with no more the nominal deviation between the observations and the hypothesised models. Consequently, findings that allow for the acceptance of the null hypotheses are sought. In this frame, the results seek a 95% confidence interval using two-tailed tests, assuming the *alternative* hypothesis is *not* represented directionally (Malhotra 1999). Noting the two-tailed test adopted, the area of confidence interval is in harmony with Bagozzi and Foxall (1996, p. 205) whom maintain a non-significant chi square value greater than or to equal to .05 to be the ‘conventional’ measure.

Estimations found in inferential statistical results, which are obtained from a sample are probabilistic. Therefore, the commonly used probable value (p.) static is theoretically representative of the sample but not absolutely indicative of the sample (Veal, 2005).

³² The population covariance matrix (Σ) equals the restricted covariance matrix implied by the Culture models $\Sigma = \Sigma(\theta)$.

³² See Byrne (2010).

The indices of goodness-of-fit applied in this Section include the Chi square test, $CMIN/df$ ³³, the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit (AFGI) Index, the Tucker and Lewis Index (TLI), Comparative Fit Index (CFI) and Root Mean Square of Approximation (RMSEA).

We first address indices of absolute fit, to test if the *a priori* model matches the sample data:

The chi square tests the hypothesis that the unrestrained model fits the covariance matrix in addition to the specified model, thus determining the significance of the models' distributions (Zikmund, 1997), for the purpose of learning the relationships between variables (Field 2009). In this way, chi square tests determine the degree to which a condition is true (Byrne 2010). The higher the probability attached to the chi square, the better the fit between the hypothesised model and ideal fit (Bollen 1989, in Byrne 2010). As noted above, structural equation modellers aspire not reject the null hypothesis. Therefore chi square is a useful *first test* of goodness-of-fit.

Even so, MacCullum et al. (1996) asserts that even excellent societal models can at best only approximate authentic situations. Byrne (2010) adds that more recently researchers are disposed to use the $CMIN/df$ measure (Wheaton et al, 1977), as equal to chi square/ df , to value-add to chi square and to address chi square's limitations. A $CMIN/df$ under 3.00 is generally considered 'favourable'. However, for smaller samples stricter criteria apply. For

³³ Minimum discrepancy/degrees of freedom.

Anglo-Western Society (n=1,329) the *a priori* benchmark was < 3.00. For Han-Chinese Society (n=154) the more rigorous benchmark of < 2.5 was applied.)³⁴.

Having considered the groundwork measures of Chi square and CMIN/*df*, the Thesis now examines additional measures of goodness-of-fit applied to ensure a comprehensive analysis of the constructs.

The goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) were developed by Jöreskog and Sörbom to facilitate structural equation modelling in LISREL³⁵ (Kline, 1998). Other SEM programs subsequently adopted the two indices, including AMOS³⁶ software, as used in the Thesis. GFI measures the comparative degree of variance and co-variance in sample data, jointly explicated by the population covariance matrix (Byrne 2010), thus, indicating the share of the observed co-variances described by inferred co-variances (Kline, 1998). The depiction is inferred, because there is no actual model. The AGFI reduces the degrees of freedom, thus, making complex models simpler (Byrne 2010). According to Jöreskog and Sörbom (1996, in Kline 1998 and 1993, in Byrne, 2010), results for both models typically³⁷ range from 0.0 (no fit) to 1.0 (perfect fit) with values close to 1.00 indicative of good fit. As shall be evidenced in subsequent sections, good fit was characteristically found for measurement models tested. TLI assesses the EFA model as an enhancement over a zero-factor model assessed by maximum likelihood³⁸ (Tucker, 1973) and approximates the AGFI in reducing model complexity (Kline 1998). Hu and Butler (1999)

³⁴ Albeit four of twelve Chi Squares were deemed problematic as stand alone, without the complementary CMIN/*df*.

³⁵ Linear structural relations software.

³⁶ Analysis Of Moment Structures software.

³⁷ Over-justified AGFI models can exceed 1.0.

³⁸ AMOS applied Maximum Likelihood.

assert a TLI above .95 well-fitting, yet imply TLI is best used in consort with another measure of fit.

Having considered measures of absolute fit, next we consider measures of incremental fit and parsimony. Incremental fit measures the target model against a more restricted model. Parsimonious models penalise data wastefulness and matches simplified constructions.

CFI is a measure of incremental fit. In the Thesis, findings regarding the hypothesised models were persistently universally preferred (greater than .95 over the null models). RMSEA is a parsimonious model reporting a 90% confidence level in AMOS. RMSEA answers the question: ‘How well would the model, with known but optimally chosen parameter values, fit the population covariance if it were available.’³⁹ (Browne and Cudeck, 1993, pp. 137-138 in Byrne 2010, p.80), As generalised indicators of goodness-of-fit, ‘values less than .05 indicate good fit, and values as high as .08 represent reasonable errors of approximation in the population’.

Alternatively, Hu and Bentler (1999) propose values up to .06 to show good fit between the hypothesised model and data observed. McCallum et al (1996) contend RMSEA values between .08 and .10 a mediocre fit and RMSEA values over .10 represent a poor fit. Significantly, the aforementioned recommendations are applied to generalised data, regardless of sample size. In this respect, Hu and Bentler (1999, p. 1) warn regarding Maximum Likelihood models, as used in the Thesis, RMSEA applications ‘tend to over-reject models at small population size’.

³⁹ Parameter values refer to degrees of freedom in the context of complexity (Byrne, 2010).

Likewise, Rigdon (1996) argued RMSEA was more suitable to large models. As might be expected of highly original research exploring new Culture constructs not all RMSEAs met Browne and Cudeck's (1993) strict criterion of less than .05 measures. However, all but one of the twelve Culture models met Hu and Bentler's (1999) criterion of .06, showing good fit. Also, the favourable RMSEA results were attained despite the challenge using a relatively small sample size (n=154).

6.5.3 Interim Summary and Interpretation: Goodness-of-Fit (Theory)

In Section 6.4, Cronbach's alpha was revisited and acknowledged as an important statistic, requiring the added support of goodness-of-fit measures to determine the total construct (Churchill 1979). The goodness-of-fit suite of statistical methods allows for absolute measures and measures of incremental fit. Chi square was offered as a worthwhile first test of goodness-of-fit between hypothesised models and ideal fit. Chi square's limited capacity to approximate authentic situations was noted (MacCullum et al, 1996). Accordingly, Bryne (2010) addressed Chi Squares restricted facility by recommending Chi Square tests be complemented by CMIN/*df* tests (Wheaton et al. 1977), while adding that a stricter benchmark test parameter needs to be applied to small samples. Multiple measures of incremental fit were discussed. Standard classifications of values were stated for both absolute measures and incremental measures of goodness-of-fit.

-Please turn page-

6.6 ANALYSES OF GOODNESS OF FIT AND CFA ANALYSES OF DIMENSIONALITY

6.6.1 Vertical Power Ethos

Vertical Power Ethos (VPE) in Society-at-large (VPESOC) was hypothesised to consist of three dimensions, vertical secretness, vertical control and vertical Patrimonialism. In Anglo-Western Society, the three dimensions use the extension .aw: i.e., *socsec.aw*, *soccon.aw* and *socpat.aw*, respectively. In Han-Chinese Society, the three dimensions use the extension .hc; i.e., *socsec.hc*, *soccon.hc* and *socpat.hc*, respectively.

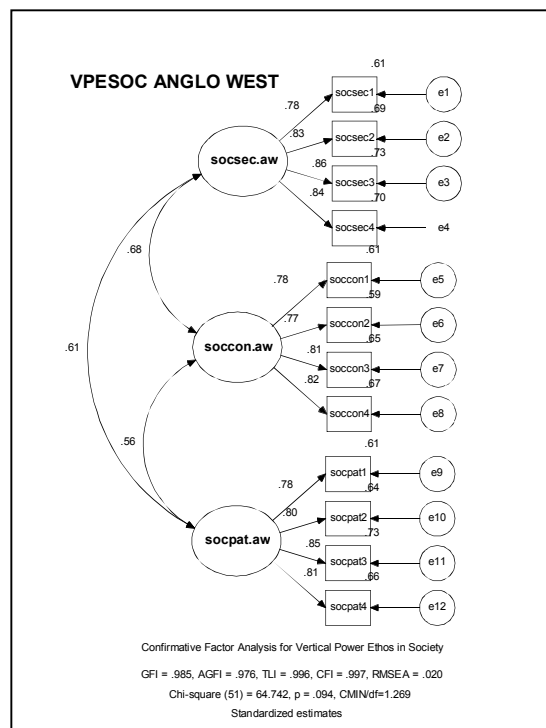
Vertical Power Ethos (VPE) in the Workplace (VPEWOR) was hypothesised to consist of three dimensions, vertical secretness, vertical control and vertical Patrimonialism, at the Workplace. In Anglo-Western Society, the three dimensions use the extension .aw: i.e., *worsec.aw*, *worcon.aw* and *worpat.aw*, respectively. In Han-Chinese Society, the three dimensions use the extension .hc: i.e., *worsec.hc*, *worcon.hc* and *worpat.hc*, respectively.

6.6.1.1 VPESOC.AW: VPE in Society-at-Large in Anglo-Western Society (n=1,329)

In the Anglo-Western Society, VPESOC.AW demonstrated overall goodness-of-fit of the data. (Chi-square statistic equals = 64.74, $df = 51$, $p = .09$, Confidence Interval = 33.16 (97.5%) to 72.61 (2.5%). Accept null hypothesis. The $CMIN/df = 1.26$ and at less than 3.00 is favourable, GFI = .98, AGFI = .97, TLI = .99, CFI = .99 and RMSEA = .02. GFI, AGFI, TLI and CFI all exceed .95 indicating good incremental fit. RMSEA is less than .05 (confidence interval 90%) indicating good fit.

The CFA indicates the three dimensions of VPESOC.AW are unidimensional and convergent. The correlation between *socsec.aw* and *soccon.aw* is .68 (SE .02), between *socsec.aw* and *socpat.aw* is .61 (SE .029) and between *soccon.aw* and *socpat.aw* is 0.56. Moreover, the average variances extracted (AVE) for VPESOC.AW dimensions were .68 for *socsec.aw*, .63 for *soccon.aw* and .64 for *socpat.aw*. All average variance extracted measures, VPESOC.AW dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.46, for all VPESOC.AW dimensions. Composite reliabilities were .86 for *socsec.aw*, .84 for *soccon.aw* and .85 for *socpat.aw*. Therefore, discriminant validity was confirmed. Figure 6.2 below illustrates:

Figure 6.2: Confirmative Factor Analysis of VPESOC.AW (n=1,495)

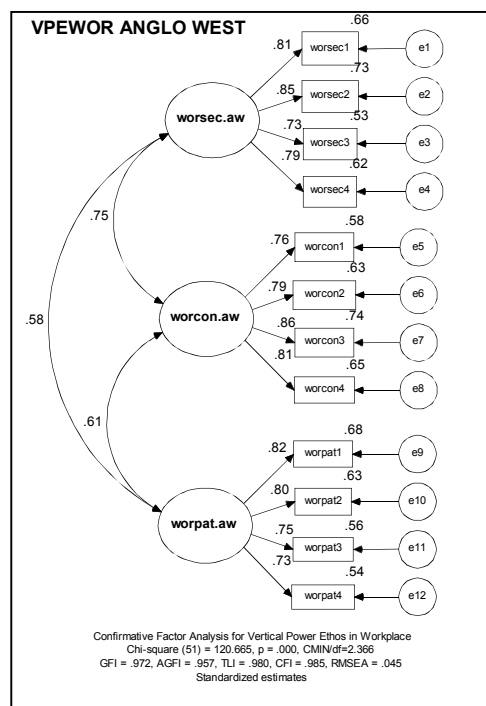


All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .77 and the highest loading was .86. The average loadings on *socsec.aw*, *soccon.aw* and *socpat.aw* were .82, .79 and .80, respectively.

6.6.1.2 VPEWOR.AW: HOR at the Workplace in Anglo-Western Society

In the Anglo-Western Society VPEWOR.AW demonstrated close⁴⁰ to overall goodness-of-fit of the data. Chi-square statistic equals = 120.66, $df = 51$, $p = .00$, Confidence Interval 33.16 (97.5%) to 72.61 (2.5%). Reject null hypothesis. The $CMIN/df = 2.36$ and at less than 3.00 is favourable, $GFI = .97$, $AGFI = .95$, $TLI = .98$ $CFI = .98$ and $RMSEA = .04$. $RMSEA$ is less than .05 (confidence interval 90%) indicating good fit. Figure 6.3 below illustrates:

Figure 6.3: Confirmative Factor Analysis of VPEWOR.AW (n=1,495)



The CFA indicates the three dimensions of VPEWOR.AW are unidimensional and convergent. The correlation between *worsec.aw* and *worcon.aw* is .75 (SE .02), between *worsec.aw* and *worpat.aw* is .58 (SE .03) and between *worcon.aw* and *worpat.aw* is 0.61 (SE .03). Moreover, the average variances extracted (AVE) for VPEWOR.AW dimensions were

⁴⁰ Chi Square problematic.

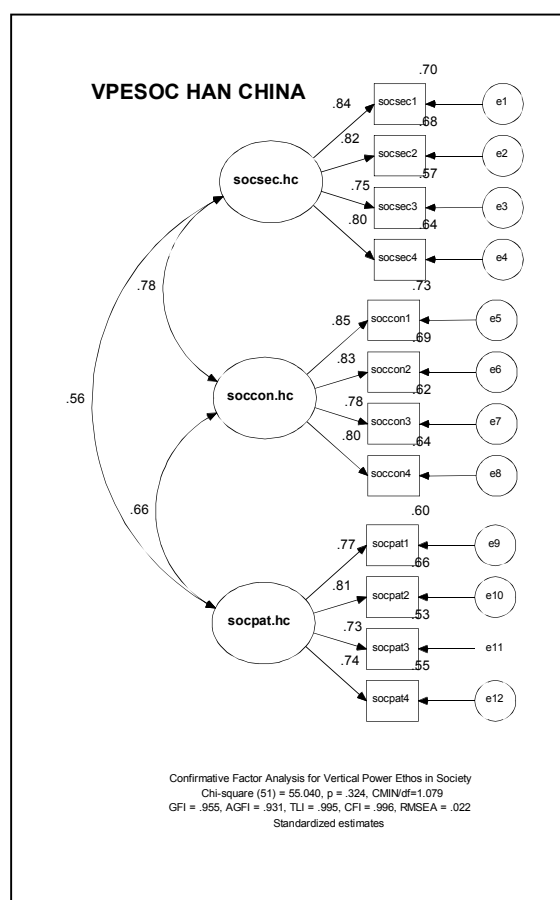
.69 for *worsec.aw*, .63 for *worcon.aw* and .65 for *worpat.aw*. All average variance extracted measure for VPEWOR.AW dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.56, for all VPEWOR.AW dimensions. Composite reliabilities were .85 for *worsec.aw*, .86 for *worcon.aw* and .85 for *worpat.aw*. Therefore, discriminant validity was confirmed.

All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .73 and the highest loading was .86. The average loadings on *worsec.aw*, *worcon.aw* and *worpat.aw* were .79, .80 and .77, respectively.

6.6.1.3 VPESOC.HC: HOR in Han-Chinese Society-at-Large

In the Han-Chinese Society, VPESOC.HC demonstrated overall goodness-of-fit of the data. Chi-square statistic equals = 55.04, $df = 51$, $p = .32$, Confidence Interval is 33.16 (97.5%) to 72.61 (2.5%). Accept null hypothesis. The $CMIN/df = 1.08$ and at less than 2.50 is favourable. GFI = .95, AGFI = .93, TLI = .93, CFI = .99 and RMSEA = .02. GFI, AGFI, TLI and CFI all exceed .90 indicating to close to good incremental fit. RMSEA is less than .05 (confidence interval 90%) indicating good fit. Figure 6.4 below illustrates:

Figure 6.4: Confirmative Factor Analysis of VPESOC.HC (n=166)



The CFA indicates the three dimensions of VPESOC.HC are unidimensional and convergent. The correlation between *socsec.hc* and *soccon.hc* is .78 (SE .04), between *socsec.hc* and *socpat.hc* is .56 (SE .03) and between *soccon.hc* and *socpat.hc* is 0.66. The correlations found between all combinations of two of the three VPESOC.HC dimensions indicate discriminant validity across all components. Moreover, the average variances extracted (AVE) for VPESOC.HC dimensions were .64 for *socsec.hc*, .66 for *soccon.hc* and .58 for *socpat.hc*. All average variance extracted measures for VPESOC.HC dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.61. Composite reliabilities were .86 for *socsec.hc*, .87 for *soccon.hc* and .84 for *socpat.hc*. Therefore, discriminant validity was in the main confirmed, except for *socpat.hc*, where the HSV (.60) is nominally greater the AVE (.582).

All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .73 and the highest loading was .85. The average loadings on *socsec.hc*, *soccon.hc* and *socpat.hc* were .80, .81 and .76, respectively.

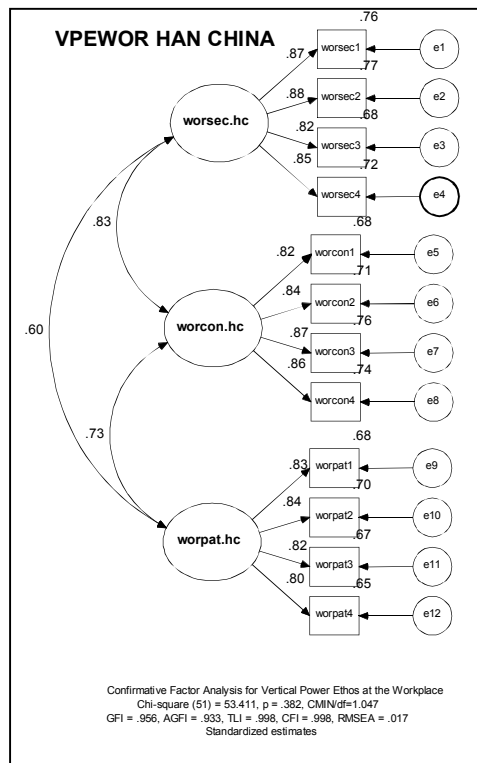
6.5.1.4 VPEWOR.HC: VPE at the Workplace in Han-Chinese Society (n=166)

In the Han-Chinese Society, VPEWOR.HC demonstrated overall goodness-of-fit of the data. Chi-square statistic equals = 53.41, $df = 51$, $p = .38$, Confidence Interval 33.16 (97.5%) to 72.616 (2.5%). Accept null hypothesis. $CMIN/df = 1.05$ and at less than 2.50 is favourable, $GFI = .95$, $AGFI = .93$, $TLI = .99$, $CFI = .99$ and $RMSEA = .01$. GFI , $AGFI$, TLI and CFI all exceed .90 indicating to close to good incremental fit. $RMSEA$ is less than .05 (confidence interval 90%) indicating good fit.

The CFA indicates the three dimensions of VPEWOR.HC are unidimensional and convergent. The correlation between *worsec.hc* and *worcon.hc* is .83 (SE .03), between *worsec.hc* and *worpat.hc* is .60 (SE .06) and between *worcon.hc* and *worpat.hc* is 0.7 (.04).

Moreover, the average variances extracted (AVE) for HORWOR.HC dimensions were .73 for *worsec.aw*, .72 for *worcon.hc* and .68 for *worpat.aw*. All average variance extracted measures, HORWOR.HC dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.71, for *worsec.hc* and *worcon.hc*. Composite reliabilities were .85 for *worsec.hc*, .85 for *worcon.hc* and .83 for *worpat.hc*. Therefore, discriminant validity was in the main confirmed, except for *worpat.hc*, HSV (.71) is nominally greater the AVE (.68). Figure 6.5, over the page, illustrates:

Figure 6.5: Confirmative Factor Analysis of HORWOR.HC (n=166)



All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .82 and the highest loading was .88. The average loadings on *worsec.hc*, *worcon.hc* and *worpat.hc* were .86, .85 and .82, respectively.

6.6.2 Horizontal Altruism

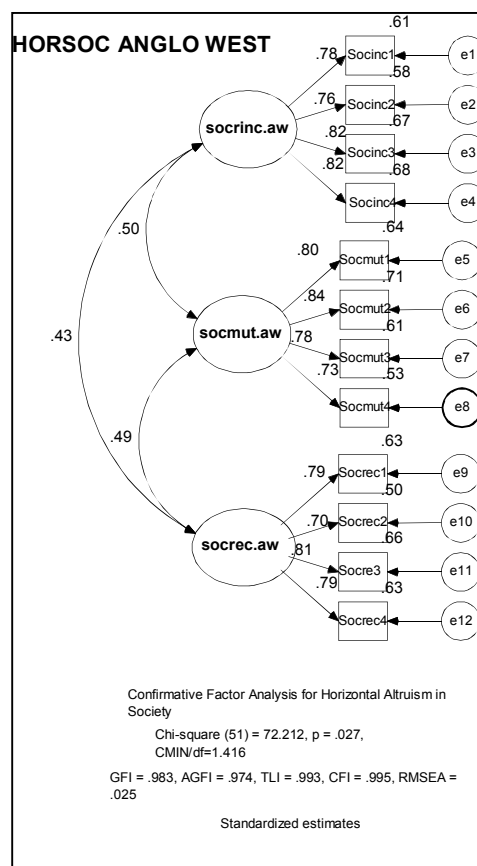
Horizontal Altruism (HOR) in Society-at-large (HORSOC) was hypothesised to consist of three dimensions, horizontal inclusiveness, horizontal mutualism and horizontal reciprocation. In Anglo-Western Society, the three dimensions used the extension .aw: i.e., *socinc.aw*, *socmut.aw* and *socrec.aw*, respectively. In Han-Chinese Society, the three dimensions used the extension .hc; i.e., *socinc.hc*, *socmut.hc* and *socrec.hc*, respectively.

Horizontal Altruism (HOR) in the Workplace (HORWOR) was hypothesised to consist of three dimensions, horizontal inclusiveness, horizontal mutualism and horizontal reciprocation, in the Workplace. In Anglo-Western Society, the three dimensions used the extension .aw: i.e., *worinc.aw*, *wormut.aw* and *worrec.aw*, respectively. In Han-Chinese Society, the three dimensions used the extension .hc: i.e., *worinc.hc*, *wormut.hc* and *worrec.hc*, respectively.

6.6.2.1 HORSOC.AW: HOR in Society-at-Large in Anglo-Western Society

In the Anglo-Western Society, HORSOC.AW demonstrated overall goodness-of-fit of the data. Chi statistic equals = 72.21, $df = 51$, $p = .02$, Confidence Interval is 33.16 (97.5%) to 72.61 (2.5%). Accept null hypothesis.

Figure 6.6: Confirmative Factor Analysis of HORSOC.AW (n=1,329)



The $CMIN/df = 1.42$ and at less than 3.00 is favourable. $GFI = .98$, $AGFI = .97$, $TLI = .99$, $CFI = .99$ and $RMSEA = .02$. GFI , $AGFI$, TLI and CFI all exceed .95 indicating good incremental fit. $RMSEA$ is less than .05 (confidence interval 90%) indicating good fit.

The CFA indicates the three dimensions of HORSOC.AW are unidimensional and convergent. The correlation between *socinc.aw* and *socmut.aw* is .50 (SE .03), between *socinc.aw* and *socrec.aw* is .43 (SE .038) and between *socmut.aw* and *socrec.aw* is 0.49 (SE .03). Moreover, the average variances extracted (AVE) for HORSOC.AW dimensions were .63 for *socinc.aw*, .62 for *socmut.aw* and .60 for *socrec.aw*. All average variance extracted measures for HORSOC.AW *socmut.aw* and *socpat.aw* were greater than 0.50. The average variance extracted variance for *socinc.aw* at .49 approximated 0.50. The average variance extracted is greater than the highest for *socinc.aw*, .86 for *socmut.aw* and .83 for *socrec.aw*. Therefore, discriminant validity was confirmed.

All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .70 and the highest loading was .84. The average loadings on *worinc.aw*, *worcon.aw* and *worrec.aw* were .79, .78 and .77, respectively.

6.6.2.2 HORWOR.AW: HOR at the Workplace for Anglo-Western Society

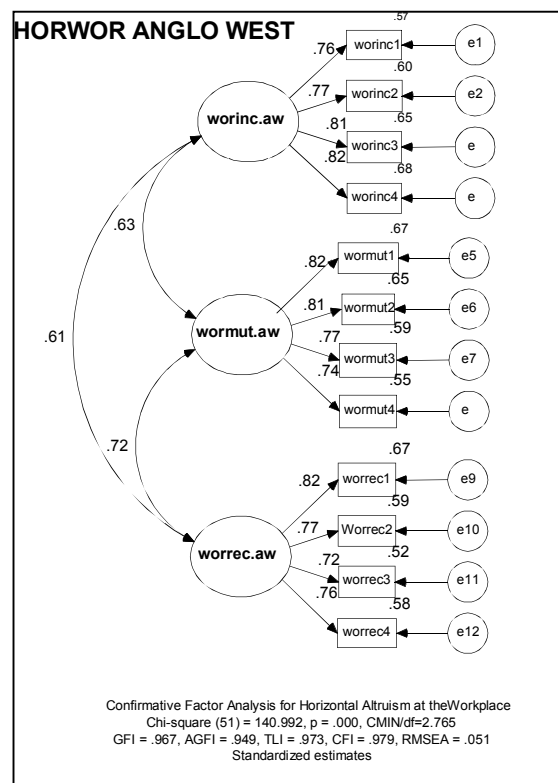
In the Anglo-Western Society, HORWOR.AW demonstrated close⁴¹ to overall goodness-of-fit of the data. Chi square statistic equals = 140.99, $df = 51$, $p = .00$, Confidence Interval is 33.16 (97.5%) to 72.61 (2.5%). Reject null hypothesis. The $CMIN/df = 2.76$ and at less than 3.00 is favourable. $GFI = .97$, $AGFI = .95$, $TLI = .97$, $CFI = .98$ and $RMSEA = .05$. GFI , $AGFI$, TLI and CFI all exceed .90 indicating close to good incremental fit. $RMSEA$ is .05

⁴¹ Chi Square problematic.

(confidence interval 90%) *just* indicating good fit (strict standard). Standardised residual is not assumed statistically significant and confidence is held to be close to 90%.

The CFA indicates the three dimensions of HORWOR.AW are unidimensional and convergent. The correlation between *worinc.aw* and *wormut.aw* is .63 (SE .03), between *worinc.aw* and *worrec.aw* is .61 (SE .03) and between *wormut.aw* and *worrec.aw* is 0.71 (SE .02). Moreover, the average variances extracted (AVE) for HORWOR.AW dimensions were .62 for *worinc.aw*, .61 for *wormut.aw* and .59 for *worrec.aw*. All average variance extracted measures for HORWOR.AW dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.52, for all HORWOR.AW dimensions. Composite reliabilities were .84 for *worinc.aw*, .86 for *wormut.aw* and .84 for *worrec.aw*. Therefore, discriminant validity was confirmed. Figure 6.7 illustrates:

Figure 6.7: Confirmative Factor Analysis of HORWOR.AW (n=1,139)

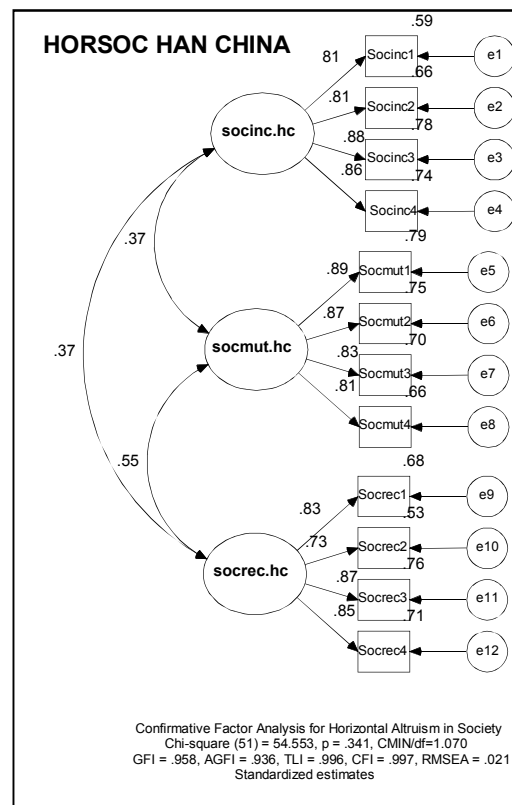


The factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .72 and the highest loading was .82. The average loadings on *worinc.aw*, *worcon.aw* and *worrec.aw* were .79, .78 and .77, respectively.

6.6.2.3 HORSOC.HC: HOR in Society-at-Large for Han-Chinese Society

In the Han-Chinese Society, HORSOC.HC demonstrated overall goodness-of-fit. Chi-square statistic equals = 54.55, $df = 51$, $p = .34$, Confidence Interval is 33.16 (97.5%) to 72.61 (2.5%). Accept null hypothesis. The $CMIN/df = 1.07$, and at less than 2.50 is favourable. $GFI = .97$, $AGFI = .93$, $TLI = .99$ $CFI = .99$ and $RMSEA = .02$. GFI , $AGFI$, TLI and CFI all exceed .90 indicating close to good incremental fit. $RMSEA$ is less than .05 (confidence interval 90%) indicating good fit. Figure 6.8 below illustrates:

Figure 6.8: Confirmative Factor Analysis of HORSOC.HC (n=166)



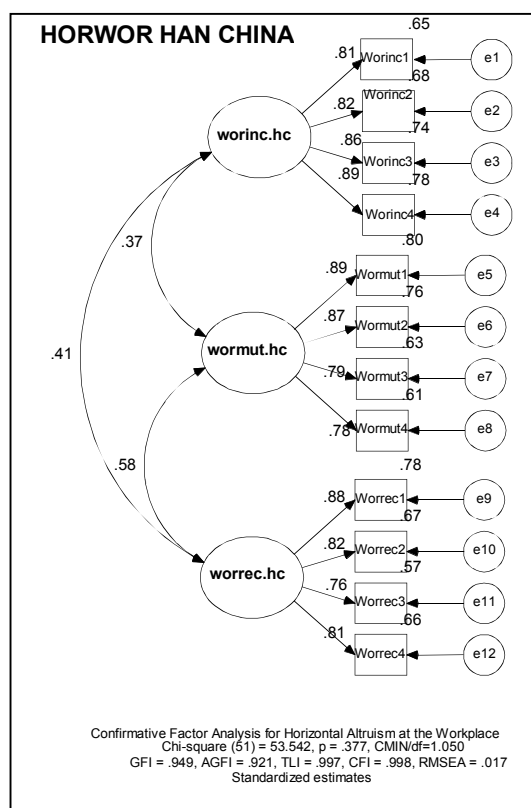
The CFA indicates the three dimensions of HORSOC.HC are unidimensional and convergent. The correlation between *socinc.hc* and *socmut.hc* is .37 (SE .075), between *socinc.hc* and *socrec.hc* is .37 (SE .07) and between *socmut.hc* and *socrec.hc* is 0.55 (SE .06). The average variances extracted (AVE) for HORSOC.HC dimensions were .691 for *socinc.hc*, .67 for *socmut.hc* and .59 for *socrec.hc*. All average variance extracted measures for HORSOC.HC dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.30, for all HORSOC.HC dimensions. Composite reliabilities were .86 for *socinc.hc*, .89 for *socmut.hc* and .86 for *socrec.hc*. Therefore, discriminant validity was confirmed.

All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .77 and the highest loading was .89. The average loadings on *socinc.hc*, *soccon.hc* and *socrec.hc* were .83, .85 and .82, respectively.

6.6.2.4 HORWOR.HC: HOR at the Workplace in Han-Chinese Society-at-Large

In the Han-Chinese Society, HORSOC.HC demonstrated overall goodness-of-fit of the data. Chi-square statistic equals = 54.54, $df = 51$, $p = .37$, Confidence Interval is 33.16 (97.5%) to 72.61 (2.5%). Accept null hypothesis. The $CMIN/df = 1.05$, and at less than 2.50 is favourable. GFI = .95, AGFI = .92, TLI = .99, CFI = .99 and RMSEA = .01. GFI, AGFI, TLI and CFI all exceed .90 indicating close to good incremental fit. RMSEA is less than .05 (confidence interval 90%) indicating good fit. Figure 6.9 over the page illustrates.

Figure 6.9: Confirmative Factor Analysis of HORWOR.HC (n=166)



The CFA indicates the three dimensions of HORWOR.HC are unidimensional and convergent. The correlation between *worinc.hc* and *wormut.hc* is .37 (SE .075), between *worinc.hc* and *worrec.hc* is .37 (SE .075) and between *wormut.hc* and *worrec.hc* is 0.41 (SE .07). The average variances extracted (AVE) for HORWOR.HC dimensions were .70 for *worinc.hc*, .69 for *wormut.hc* and .67 for *worrec.hc*. All average variance extracted measures for HORWOR.HC dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.33, for all HORWOR.HC dimensions. Composite reliabilities were .86 for *worinc.hc*, .88 for *wormut.hc* and .87 for *worrec.hc*. Therefore, discriminant validity was confirmed.

All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .76 and the highest loading was .89. The average loadings on *worinc.hc*, *soccon.hc* and *worrec.hc* were .84, .83 and .82, respectively.

6.6.3 Conventional Orthodoxy

Conventional Orthodoxy (CON) in Society-at-large (CONSOC) was hypothesised to consist of three dimensions, vertical secretness, vertical control and vertical Patrimonialism. In Han-Chinese Society, the three dimensions used the extension .aw: i.e., *soclan.aw*, *socapr.aw* and *soccof.aw*, respectively. In Han-Chinese Society, the three dimensions used the extension .aw: i.e., *soclan.aw*, *socapr.aw* and *soccof.aw*, respectively.

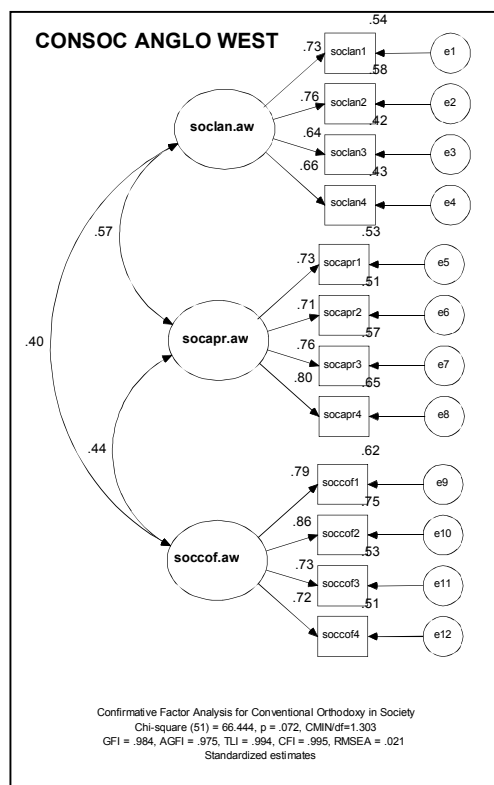
Conventional Orthodoxy (CON) in the Workplace (CONSOC) was hypothesised to consist of three dimensions, vertical secretness, vertical control and vertical Patrimonialism, at the Workplace. In Han-Chinese Society, the three dimensions used the extension .aw: i.e., *soclan.aw*, *socapr.aw* and *soccof.aw*, respectively. In Han-Chinese Society, the three dimensions used the extension .aw: i.e., *soclan.aw*, *socapr.aw* and *soccof.aw*, respectively.

6.6.3.1 CONSOC.AW: CON in Society-at-large in Anglo-Western Society

In the Anglo-Western Society, CONSOC.AW demonstrated overall goodness-of-fit of the data. Chi square statistic equals = 66.44, $df = 51$, $p = .07$. Confidence Interval is 33.16 (97.5%) to 72.61 (2.5%). Accept null hypothesis. The $CMIN/df = 1.30$, and at less than 3.00 is favourable. GFI = .98, AGFI = .97, TLI = .995, CFI = .99 and RMSEA = .02. GFI, AGFI, TLI and CFI all exceed .95 indicating good incremental fit. RMSEA is less than .05 (confidence interval 90%) indicating good fit.

The CFA indicates the three dimensions of CONSOC.AW are unidimensional and convergent. The correlation between *soclan.aw* and *soclan.aw* is .57 (SE .03), between *soclan.aw* and *soccof.aw* is .40 (SE .040) and between *socapr.aw* and *soccof.aw* is 0.44 (SE .038). The average variances extracted (AVE) for CONSOC.AW dimensions were .49 for *soclan.aw*, .56 for *socapr.aw* and .60 for *soccof.aw*. All average variance extracted measures for CONSOC.AW dimensions were greater than 0.50, except *soclan.aw*. Figure 6.10 below illustrates:

Figure 6.10: Confirmative Factor Analysis of CONSOC.AW



The average variance extracted is greater than the highest shared value (HSV) of 0.32, for all CONSOC.AW dimensions, elevated discriminant validity. Composite reliabilities were .80 for *soclan.aw*, .81 for *socapr.aw* and .85 for *soccof.aw*. Therefore, discriminant validity was confirmed.

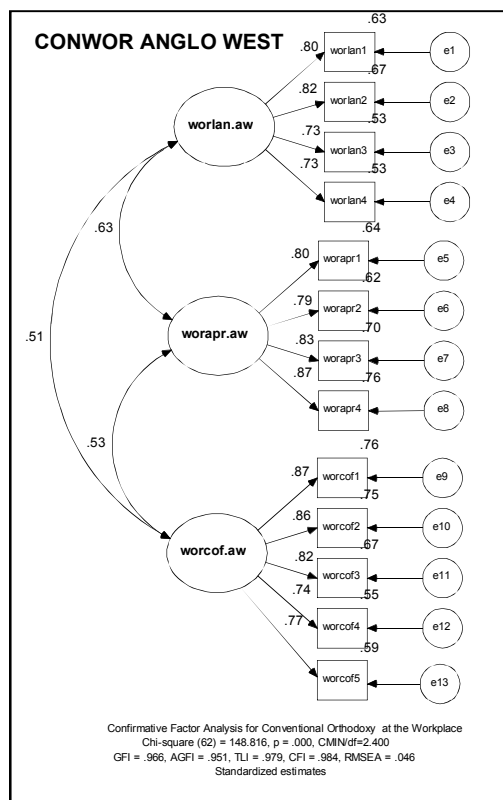
All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .64 and the highest loading was .86. The average loadings on *soclan.aw*, *socapr.aw* and *soccof.aw* were .70, .75 and .77, respectively.

6.6.3.2 CONWOR.AW: CON at the Workplace in Anglo-Western Society

In the Anglo-Western Society, CONWOR.AW demonstrated close⁴² to overall goodness-of-fit of the data. Chi square statistic equals = 148.82, $df = 62$, $p = .00$. Confidence Interval is 42.13 (97.5%) to 85.65 (2.5%). Reject null hypothesis. The $CMIN/df = 2.40$, and at less than 3.00 is favourable. GFI = .96, AGFI = .95, TLI = .98, CFI = .98 and RMSEA = .04. GFI, AGFI, TLI and CFI all exceed .95 indicating good incremental fit. RMSEA is less than .05 (confidence interval 90%) indicating good fit. Figure 6.11, on the next page.

⁴² Chi Square problematic.

Figure 6.11: Confirmative Factor Analysis of CONWOR.AW (n=1,329)



The CFA indicates the three dimensions of CONWOR.AW are unidimensional and convergent. The correlation between *worlan.aw* and *worapr.aw* is .63 (SE .029), between *worlan.aw* and *worcof.aw* is .51 (SE .034) and between *worapr.aw* and *worcof.aw* is 0.53 (SE .03). The average variances extracted (AVE) for CONWOR.AW dimensions were .59 for *worlan.aw*, .68 for *worapr.aw* and .63 for *worrec.aw*. All average variance extracted measures for CONWOR.AW dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.39, for all CONWOR.AW dimensions. Composite reliabilities were .85 for *worlan.aw*, .82 for *worapr.aw* and .81 for *worcof.aw*. Therefore, discriminant validity was confirmed.

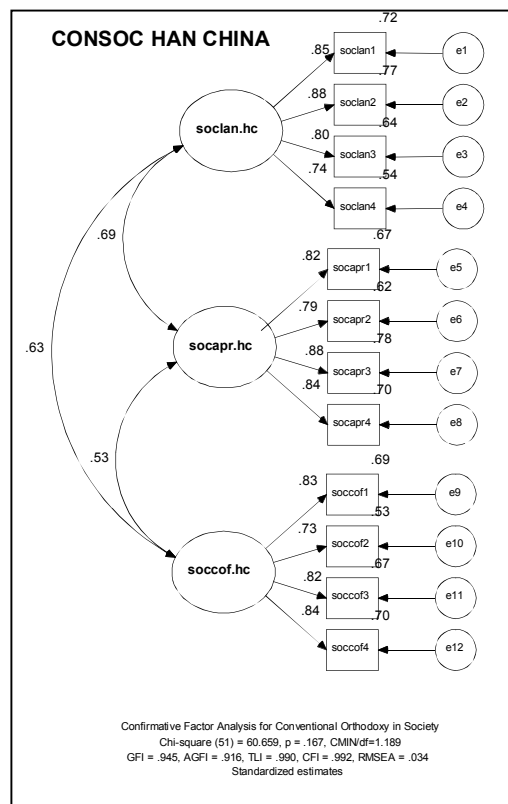
All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .77 and the highest loading was .87. The average loadings on *worlan.aw*, *worapr.aw* and *worcof.aw* were .59, .68 and .63, respectively.

6.6.3.3 CONSOC.HC: CON in Society-at-Large for Han-Chinese Society

In the Han-Chinese Society, CONSOC.HC demonstrated overall goodness-of-fit of the data. Chi-square statistic equals = 60.66, $df = 51$, $p = .17$, Confidence Interval is 33.16 (97.5%) to 72.61 (2.5%). Accept null hypothesis. The $CMIN/df = 1.19$, and at less than 2.50 is favourable. The GFI = .94, AGFI = .92, TLI = .99, CFI = .99 and RMSEA = .03. GFI, AGFI, TLI and CFI all exceed .90 indicating close to good incremental fit. RMSEA is less than .05 (confidence interval 90%) indicating good fit.

The CFA indicates the three dimensions of CONSOC.HC are unidimensional and convergent. The correlation between *soclan.hc* and *socapr.hc* is .69 (SE .050), between *soclan.hc* and *soccof.hc* is .63 (SE .057) and between *socapr.hc* and *soccof.hc* is 0.53 (SE .065). The average variances extracted (AVE) for CONSOC.HC dimensions were .671 for *soclan.hc*, .69 for *socapr.hc* and .65 for *soccof.hc*. All average variance extracted measures for CONSOC.HC dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.48, for all CONSOC.HC dimensions. Composite reliabilities were .88 for *soclan.hc*, .83 for *socapr.hc* and .80 for *soccof.hc*. Therefore, discriminant validity was confirmed. Figure 6.12 on the next page illustrates:

Figure 6.12: Confirmative Factor Analysis of CONSOC.HC (n=166)



All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .74 and the highest loading was .88. The average loadings on *soclan.hc*, *socapr.hc* and *soccof.hc* were .82, .83 and .80, respectively.

6.6.3.4 CONWOR.HC: HOR at the Workplace for Han-Chinese Society

In the Han-Chinese Society, CONWOR.HC demonstrated modest⁴³ overall goodness-of-fit of the data. Chi-square statistic equals = 105.14, $df = 62$, $p = .00$. Confidence Interval is 42.12 (97.5%) to 85.65 (2.5%). Reject null hypothesis. The $CMIN/df = 1.70$ and at less than 2.50 is favourable. $GFI = .929$, $AGFI = .896$, $TLI = .966$, $CFI = .973$ and $RMSEA = .06$. GFI , $AGFI$, TLI and CFI all exceed .89 indicating close to good incremental fit. $RMSEA$ exceeds

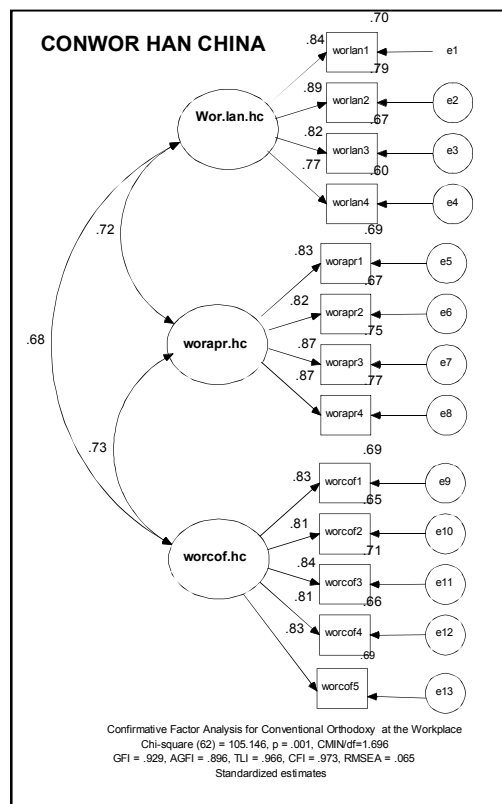
⁴³ Chi Square is problematic. Incremental measures of fit modest.

.05 (confidence interval 90%) indicating close to good fit. The residual error (RMSEA) of 0.06 indicated is acceptable (< 0.08) in social-cultural research and is apposite for Confirmative Factor Analysis modelling (Boaz 2011, Browne and Cudeck 1993). Here, reasonably, for exploratory research, the Thesis has tested for and reported the outer scope of the construct. Therefore, the hypothesised standardised structure applied has been retained.

The CFA indicates the three dimensions of HORWOR.HC are unidimensional and convergent. The correlation between *worlan.hc* and *worapr.hc* is .72 (SE .045), between *worlan.hc* and *worcof.hc* is .68 (SE .05) and between *worapr.hc* and *worcof.hc* is 0.73 (SE .04). The average variances extracted (AVE) for HORWOR.HC dimensions were .69 for *worlan.hc*, .72 for *worapr.hc* and .63 for *worcof.hc*. All average variance extracted measures for HORWOR.HC dimensions were greater than 0.50. The average variance extracted is greater than the highest shared value (HSV) of 0.53, for all HORWOR.HC dimensions. Composite reliabilities were .83 for *worlan.hc*, .85 for *worapr.hc* and .82 for *worcof.hc*. Therefore, discriminant validity was confirmed. Figure 6.13 on the next page illustrates:

-Please turn page-

Figure 6.13: Confirmative Factor Analysis of HORWOR.HC (n=166)



All factor loadings of survey items underlying each of the dimensions were substantial. The lowest loading was .76 and the highest loading was .89. The average loadings on *worlan.hc*, *socapr.hc* and *worcof.hc* were .84, .83 and .82, respectively.

-Please turn page-

6.7 CONTRASTING ANGLO-WESTERN SOCIETY AND HAN-CHINESE SOCIETY PRELIMINARY MEASURES

6.7.1 Vertical Power Ethos

In Anglo-Western Society, for Vertical Power Ethos, the correlation between *socsec.aw* and *soccon.aw* was .68 and between *worsec.aw* and *worcon.aw* .75. Showing appreciably less variation between the tiers⁴⁴, the correlation between *socsec.aw* and *socpat.aw* was .61 and between the correlation between *worsec.aw* and *worpat.aw* was .58. Likewise, showing minor variation, the correlation between *soccon.aw* and *socpat.aw* was .56 and between *worcon.aw* and *worpat.aw* was .61. The findings indicate general uniformity of measures between the Society-at-large and at the Workplace for Vertical Power Ethos dimensions, except for the relationship between vertical control and vertical secretness, wherein respondents report less perceived differentiation between vertical control and vertical secretness at the Workplace (.75) than in Society-at-large (.68).

Contrasting the Anglo-Western Society and Han-Chinese Society, correlations indicate a formidable association between vertical control and vertical secretness for both societies. Delineation between the vertical control and vertical secretness dimensions suggest separate latent variables exist, but the distinction was less apparent than with the other dimensions. Vertical control and vertical secretness are expected to co-vary, especially in Han-Chinese Society. Vertical control was less differentiated from vertical Patrimonialism in Anglo-Western Society than in Han-Chinese Society. Vertical Patrimonialism was expected to co-vary with vertical control to a greater extent in Han-Chinese Society than in Anglo-Western Society.

⁴⁴ Society-at-Large and Workplace in Society.

6.7.2 Horizontal Altruism

In Anglo-Western Society, for Horizontal Altruism, the correlation between *socinc.aw* and *socmut.aw* was .50 and the correlation of *worinc.aw* and *wormut.aw* was .63. Between *socmut.aw* and *sorec.aw* the correlation was .58 and the correlation of *wormut.aw* and *worrec.aw* was 0.69. All co-variances are notably tighter at the Workplace and Society-at-large. The findings show dimensions group differentially as contained by each tier. Indications are that Horizontal Inclusiveness, Horizontal Mutualism and Horizontal Reciprocation are less discriminant across dimensions in the Workplace than in Society-at-large. While the dimensions remain distinct, the higher covariance in the Workplace connotes extra blurring of the boundaries between Horizontal Inclusiveness, Horizontal Mutualism and Horizontal Reciprocation at the Workplace vis-à-vis Society at Large.

In Han-Chinese Society, for Horizontal Altruism, *socinc.hc* and *socmut.hc* present a correlation of .37. *Worinc.hc* and *wormut.hc* also offer a correlation of .37. The correlation between *socinc.hc* and *sorec.hc* was again .37 and between *worinc.hc* and *worrec.hc* was .41. A correlation of .55 was found for *socmut.hc* and *sorec.hc*, closely matched by a correlation of .58 for *wormut.hc* and *worrec.hc*. The findings indicate that there exists a palpable differentiation between the three dimensions, meaning there was notable divergence between Horizontal Inclusiveness, Horizontal Mutualism and Horizontal Reciprocation. While discrimination between all Han-Chinese dimensions was plainly evident, Society-at-large dimensions and Society in the Workplace dimensions are undifferentiated in terms of the magnitudes of divergence measured.

When contrasting societies, discrimination between the three dimensions, it was found to be more evident in Han-Chinese Society than in Anglo-Western Society. In Han-Chinese Society, perceptions between Society-at-large and Society in the Workplace were found to be

homogeneous suggesting that organisational culture essentially mirrors Han-Chinese Society-at-large. In Anglo-Western Society there was less discrimination between dimensions. In Western Society, higher altruism towards Horizontal Inclusiveness appears as an operator on Horizontal Mutualism and Horizontal Reciprocation, decreasing divergence between the dimensions, while facilitating horizontal co-operation.

6.7.3 Conventional Orthodoxy

In Anglo-Western Society, for Conventional Orthodoxy, the correlation between *soclan.aw* and *socapr.aw* was .57 and between *worlan.aw* and *worapr.aw* was .63. Between *soclan.aw* and *soccof.aw*, the correlation was .40 and between *worlan.aw* and *worcof.aw* was .51. *Socapr.aw* and *soccof.aw* present a correlation of .44 and, *worlan.aw* and *worcof.aw* show a correlation of .53. The findings indicate for Langsyne Attachment, *a priori* Validation and In-Role Conformity, the dimensions retain similar across relationships, with moderately more convergence of the dimensions in the Workplace. Although remaining statistically distinct, the strongest convergence was between Langsyne Attachment and *a priori* Validation, indicating an orientation towards nostalgia of the past, which was associated with an inclination to endorse the present in terms of the past. Overall, tier measures were found to be moderately differentiated between Society-at-large and Society in the Workplace.

In Han-Chinese Society, for Conventional Orthodoxy, *soclan.hc* and *socapr.hc* present a correlation of .69, while *worlan.hc* and *worapr.hc* show a correlation of .72. The correlation between *soclan.hc* and *soccof.hc* was .63 and between *worlan.hc* and *worcof.hc* the correlation was .68. Between *socapr.hc* and *soccof.hc*, the correlation was .53 and between *worapr.hc* and *worcof.hc* the correlation was .73. Findings indicate the correlations of the dimensions are similar between the tiers, with the notable exception of the '*a priori* Validation to in-role confirmation dyad'. The convergence between the proclivity to endorse

the present in terms of the past and the propensity towards In-Role Conformity was appreciably more pronounced at the Workplace than in Society at Large.

In terms of Conventional Orthodoxy, Anglo-Western Society was found to more visibly discriminate than Han Chinese Society *a propos* Society at Large and Society at the Workplace. Although statistically distinct, Han-Chinese Society demonstrates greater convergence among Conventional Orthodoxy dimensions than does Anglo-Western Society.

6.8 INTERIM SUMMARY AND INTERPRETATION: ANALYSES OF GOODNESS OF FIT AND CFA ANALYSES OF DIMENSIONALITY

Chi square analyses of absolute goodness-of-fit indicated that the null hypotheses be accepted for nine of the twelve Culture dimensions measured at a 95% confidence level for a two-tailed test. Acceptance of the null hypothesis is typically sought in preliminary Chi square data analyses, which underpin structural equation models. Therefore, the stand-alone Chi square results were agreeable for exploratory research developing new Cultural constructs. Impressively, the results for all Anglo-Western dimensions and all Han-Chinese dimensions demonstrated favourable fit for relevant approximate authentic Cultural situations: i.e., what is realistically achievable from complex real-world Culture-based models (Byrne 2010). Overall the absolute goodness-of-fit was favourable, undoubtedly sustaining the Thesis (you mean supporting the studies initial assumptions?). Except for HORWOR.HC and CONWOR.HC, all incremental measures indicated good fit. Constructively HORWOR.HC and CONWOR.HC were close to good fit. The absolute and incremental goodness-of-results demonstrated the integrity of the Data and confirmed hypothesised models all have acceptable proximity to a perfect model.

CFA confirmed the assumed unidimensionality and convergence of all Culture constructs and their associated dimensions. Thirty-four dimensions of the thirty-six dimensions measured revealed average variance extracted greater than highest shared value. The two exceptions, the socpat.hc dimension of the HORSOC.HC construct and the worpat.hc dimension of the HORWOR.HC, showed nominal difference from desired outcomes. Thirty-five dimensions of the thirty-six dimensions presented average variance explained measures greater than 0.5, with only the socinc.aw of the CONSOC.AW construct having negligible disparity from the preferred standard. Overall, findings from the computations applying average variance extracted, highest shared value and composite reliability have substantiated discriminant validity. Therefore, the fundamental structures of the Culture constructs have been empirically demonstrated as *bona fide*.

All required ‘main effects’ findings intimate that the architecture of the Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy constructs have been specified and research may safely be progressed to Study Two, which develops and assesses the intermediate path model, which reviews the influence of Cultural constructs (syndromes) on Knowledge Discovery in new product development (Chapter Seven).

All constructs and their related dimensions were contrasted by Society (Anglo-Western Society and Han-Chinese Society) and by societal tier (Society-at-large and in the Workplace in Society). Differentiated results were found between *societal* measures and between *tiers* within societies. The variations found in the current research are highly significant to researchers, because the abovementioned findings signal widespread non-segmented research studies found en-mass in the literature do not seek, discover and report discrepancies hidden by too high a level of analysis. In this manner, for example, the current preliminary research

finds for the societies measured that it is possible to differentiate scales between Anglo-Western Society and Han-Chinese Society on a case-by-case basis.

Moreover, the comparative influence of either Society at Large or Society in the Workplace was also observed and found to differ on a construct-by-construct basis. In this way, many earlier organisational studies and country-level studies could prove *prima facie* accurate, yet be on closer examination, incomplete or even imprecise: e.g., designating IBM organisational measures as country dimensions would seem problematic. On the other hand, more complex segmented Cultural structures have the potential to yield superior results. To address these findings, structural equation modelling is an appropriate technique to assess competing multifaceted realities, such as, Societal Syndromes tested in the current research. In Chapter Seven, the rival intermediation path models are developed using structural equation modelling.

6.9 CONCLUDING REMARKS ON MEASUREMENT MODELS

Chapter Six assessed measurement models developed to test the original Culture constructs Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy. The theories supporting the quantitative research design were justified. Psychometric measures, measures of goodness-of-fit, and measures of dimensionality were applied to new data sets (Churchill 1979). The relationships between dimensions within constructs were determined. Findings for all measures adopted were analysed to confirm or refute (Popper, 1972), the rightfulness of the fundamental data and associated molecular data structures. Confirmation of the measurement models would stanchion progression to the development of structural models.

Evaluation of findings from the measurement model established data as highly reliable, internally consistent and valid. Dimensionality, divergence and convergence were entirely consistent with expectations. Goodness-of-fit of data was unambiguously demonstrated.

Confirming the Thesis measured the same constructs (although means may differ), measurement invariance was shown between Anglo-Western society and Han-Chinese society for all new societal constructs. Overall, findings from the assessment of the measurement models were categorically favourable, buttressing the Thesis and establishing a secure base for the structural modelling presented in Chapter Seven.

Furthermore, when contrasting Anglo-Western Society *cum* Han-Chinese Society or Society at Large *cum* Society in the Workplace, the presented findings reveal cross-cultural research must measure each Society separately. Significantly, indications are within-Society business research must independently quantify Society-at-large and Society in the Workplace (within Society). After-which the sovereign results can be contrasted.

Chapter Six findings indicate that researchers should not extrapolate, as legitimate, Society (country or nation) measures that are derived from single-tier organisation based findings. Likewise, deriving conclusions about Workplaces from too generalised societal studies is expected to produce seemingly correct, yet, factually incomplete results. Chapter Six results suggest single-class research is perilous. Moreover, Chapter Six findings suggest research employing a multiplication of overlaid classes (Piaget, in Beard 1972) shall yield more explicable and comprehensive results, by comparison to a single-class approach. Any retort to the effect, 'precision should yield to parsimony' is weak. Precision is needed and must not be confused with any fair simplification of a correct model. Therefore, where true representations of the latent variable have been disguised, summing over hidden errors and

assuming uniformity between tiers of measurement is troublesome, and must be supplanted by a more trustworthy approach.

6.10 NEXT CHAPTER

Chapter Seven shall test structural models following-on from the measurement models, where results are presented in tables for reasons of parsimony and presentation. Chapter Seven shall examine the structure of path of an original intermediation path model and explore the moderation effects of Anglo-Western society (n=1,189) vis-à-vis Han-Chinese society (n=306) on the new intermediation path model. Hypotheses offered.

Chapter Seven shall be followed by a short propositional chapter on Anglo-Western and Western society as moderators of low, medium and high product-process transformation. It that time, propositions will be presented based on segmented samples.

CHAPTER SEVEN

**TESTING THE STRUCTURE
OF
PATH MODELS**

TESTING THE STRUCTURE OF PATH MODELS

- **INTERMEDIATION PATH MODEL**

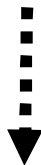
(Hypotheses)



- **MODERATION EFFECTS: SOCIETY**

~ Anglo-West and Han-China ~

(Hypotheses Tested)



MODERATION EFFECTS

- **PRODUCT-PROCESS TRANSFORMATION**

(Propositions Tested)

- **FURTHER STUDIES AND CONCLUSIONS**

(CHAPTER EIGHT)

CHAPTER SEVEN

TESTING THE STRUCTURE OF THE PATH MODELS

‘When you can measure what you are speaking about and express it in numbers, you know something about it.’ - Lord Kelvin

7.1 INTRODUCTION

Chapter Six assessed the societal syndromes, for new product developers *and* non-new product developers (n=1,495). All of the constructs and their associated dimensions were quantified and found to be reliable, internally consistent and valid. Likewise, measures of dimensionality and goodness-of-fit offered highly supportive results. Thus, the authenticity of the data, for these seminal tests, has been proven. Further exploratory examination throughout Chapter Seven extends on earlier quantitative analyses, to employ structural equation modelling and associated measurements using only the product-process developer sample (n=306) in order to specifically target elusive product-process development practitioners.

Please note, computer results were typically generated to three decimal places. In this context, where the sample size does not support, one should not assume accuracy to *approximately*¹ one in one thousand. Thus, commentary shows findings to two decimal places.

¹ In mathematics, exacting a fraction from a decimal can be imprecise.

In testing the structure of path models, Chapters Seven and Eight were partitioned into three separate sets of investigation. The first two of the three investigations are presented in this Chapter. Chapter Seven, herein, tests developed hypotheses, using early apposite sample sizes for investigations one and two. Elsewhere, investigation three, applies smaller sample sizes, owing to segmentation; and, therefore, is propositional. Thus, investigation three's *ostensible* and orientating results are presented, separately. All are presented in Chapter Eight.

Investigation One (Above): The intermediation primary path model analysed the primary path from the three new societal syndromes to new product-process conformance outcomes achieved, via the *intervening* transitional steps of knowledge building (Knowledge Sharing and Creative Synergies) and knowledge discovery. In adopting this extended model, The Thesis *does not* acquiesce to the extant literature, which presently claims a *direct* relationship between cultural antecedents measured and new product-process conformance outcomes, without including knowledge creation processes as intercessors. Knowledge building and knowledge discovery, it follows, are held by the Thesis to intermediate.

Consistent with the new, broader direction tested in this thesis knowledge building was proven to be responsive to cultural syndromes. At the later stages of the development path, final product-process conformance outcomes were found to be decisively responsive to knowledge building and knowledge discovery.

The new intermediation primary path model, moreover, clearly demonstrated high knowledge building was best achieved in the presence of low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy. High knowledge building supported high

product-process conformance, as hypothesised. These aforementioned relationships represent an idealised optimal value set, towards which all societies are closely or distantly positioned. Findings undeniably confirmed these expected relationships.

Once the core intermediation primary path model was established, The Thesis validated two strategic moderators influencing new product-process development. The first prime moderator is Society: e.g. Anglo-Western society vis-à-vis Han-Chinese society is evaluated in this chapter. The second prime moderator, which is assessed, latter, in Chapter Eight, is the level of product-process transformation required.

Investigation Two: The cross-culture interaction models thoroughly tested moderating effects of two significant cultures interceding the intermediation primary path model and the key function of non-moderating constructs. Thus, Anglo-Western society and Han-Chinese society were measured. Anglo-Western society offered results closer to the optimal value set; while, Han-Chinese society presented greater distance.

Knowledge building in new product development was found higher in Anglo-Western society than in Han-Chinese society. Higher knowledge building induced higher product-process conformance outcomes were evident in Anglo-Western society in comparison with Han Chinese society.

One unexpected discovery was evidence of *latent* potential towards high Horizontal Altruism discovered in Han-Chinese society. While this finding had not been foreseen upon reflection this new discovery is a rational outcome, upon re-entering underlying socio-cultural pointers.

In summation, previous researchers have not incorporated the intermediating effect of knowledge building and knowledge discovery on cultural antecedents and final product-process conformance outcomes into their cross-cultural modelling. For the first time, a new intermediation primary path model has integrated knowledge building and knowledge discovery, *in-between* cultural antecedents and final product-process conformance outcomes helpful to marketers, practitioners in allied fields and theorists. What is more, the new empirical testing employed, unified an entire field² rather than extending merely one selected researcher's model.

-Please turn page-

² Societal syndromes scales were developed based on the successful integration of three seminal studies in context with the broader literature rather than merely extending the contribution of a single researcher.

7.2 TWO GROUP ANALYSIS OF THE DEGREE OF VARIANCE: CREATIVE SYNERGIES, KNOWLEDGE SHARING, PRODUCT-PPROCESS DISCOVERY, FINAL PROCESS OUTCOMES AND FINAL PRODUCT OUTCOMES.

Desirable results of measurement invariance, readily acceptable for exploratory analysis of the dynamical Societal Syndrome Schema (Archetype) were presented in Chapter Six. Full or statistically partial invariance was evident for all six constructs measured.

Prior to further modelling, invariance was again measured, across Anglo-Western society (n=166) and Han-Chinese society (n=1,329), via two-group ($\Sigma n=1,495$), as tested in AMOS. Knowledge Building: viz. Created Synergies was assessed, composite Product-Process Discovery evaluated and, Final Process Outcomes and Final Product Outcomes (terminal construct) assessed, for the Intermediation Primary Path Model. Four of the five constructs returned full factorial invariance and one construct, Final Product Outcomes, showed partial factorial invariance³.

While full factorial invariance for *all* constructs would have been optimal. For the first measure of original constructs, these current results are most agreeable and definitely support the Thesis and the methodologies adopted for assessing the Thesis. Please refer to Table 7.1.

³ To achieve these results, following a responsible, popular Positivist approach, some items were culled from constructs to successfully achieve good fit. However, an Holistic-Analytical approach (Maslow 1970) might have retained all items and disclosed the mismatch in the proto-model.

**Table 7.1: The Factor Models For Invariance: Anglo-West And Han-China
Society – Knowledge Building & Product-Process Development ($\Sigma n=1,495$, Anglo-West $n=1,329$, Han-China $n=166$)**

Construct	AMOS Model	H	Model Versions	χ^2	df	$\chi^2\Delta$	df	RMSEA	TLI	CFI	PNFI	ECVI	AIC	Norm χ^2	Invariance Achieved
CRESYN ⁴	1	Configural	M1	18.32	10			0.52	0.98	0.99	0.49	0.19	58.32	1.83	
	2	Full	M2 vs M3	24.53	14	62.13	4	0.07	0.95	0.96	0.76	0.19	243.17	1.75	Yes
	3.1	Partial ¹	M3 vs M1												
	3.2	Partial ²	M3 vs M2												
KNOWSHR ⁵	1	Configural	M1	155.65	82			0.02	0.99	0.99	0.73	0.171	255.65	1.89	
	2	Full	M2 vs M3	110.90	46	44.75	36	0.07	0.95	0.96	0.76	0.53	162.90	2.41	Yes
	3.1	Partial ¹	M3 vs M1												
	3.2	Partial ²	M3 vs M2												
PRODDIS & PRODIS ⁶	1	Configural	M1	26.25	18			0.04	0.99	0.99	0.59	0.24	74.25	1.46	
	2	Full	M2 vs M3	34.52	23	8.27	5	0.02	0.99	0.99	0.75	0.24	72.53	1.50	Yes
	3.1	Partial ¹	M3 vs M1												
	3.2	Partial ²	M3 vs M2												
FINPROC ⁷	1	Configural	M1	44.42	10			0.11	0.92	0.96	0.47	0.28	84.42	4.44	
	2	Full	M2 vs M3	52.24	14	7.82	4	0.09	0.95	0.96	0.66	0.28	84.24	3.73	Yes
	3.1	Partial ¹	M3 vs M1												
	3.2	Partial ²	M3 vs M2												
FINPROD ⁸	1	Configural	M1	31.76	10			0.08	0.96	0.98	0.48	0.24	73.07	3.17	
	2	Full	M2 vs M3	59.68	14	27.91	4	0.10	0.94	0.96	0.66	0.30	91.68	4.26	No
	3.1	Partial ¹	M3 vs M1	37.07	12	5.307	2	0.08	0.96	0.98	0.58	0.24	73.07	3.09	
	3.2	Partial ²	M3 vs M2	37.07	12	22.60	2	0.08	0.96	0.98	0.58	0.24	73.07	3.09	Yes

⁴ Creative Synergies (in Knowledge Building)

⁵ Knowledge Sharing (in Knowledge Building)

⁶ Product-Process Discovery Process (at Marketing and Research & Development Interface)

⁷ Final Process Outcomes (Precedes Final Product Outcomes)

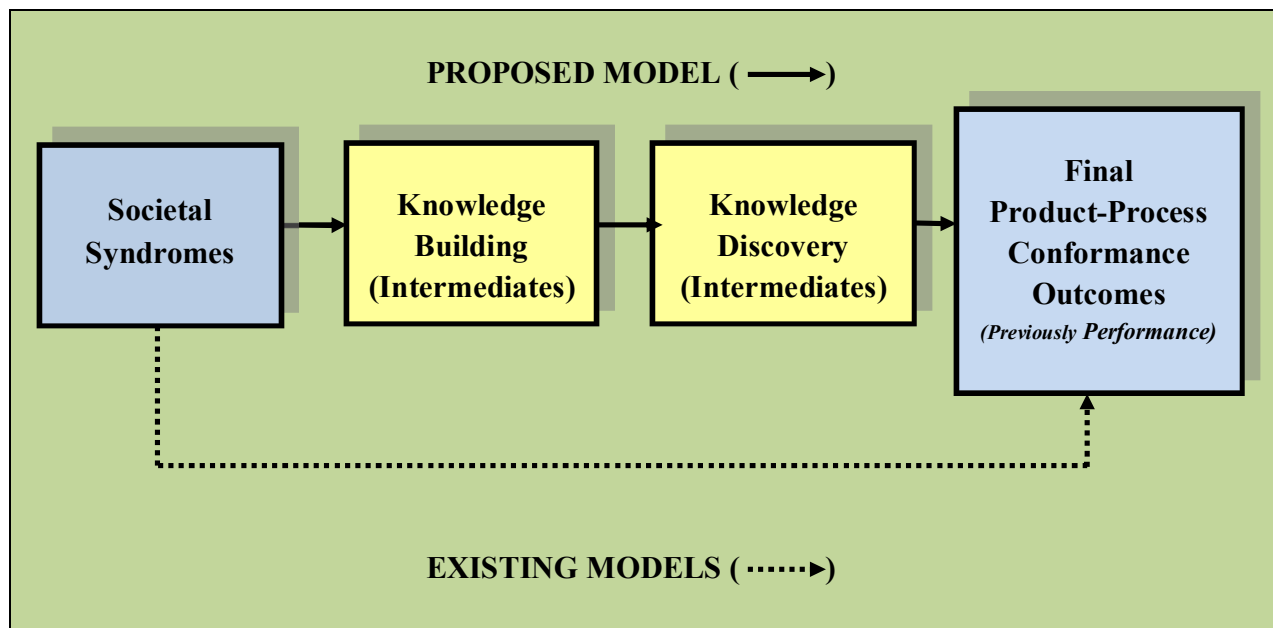
⁸ Final Product Outcomes (Terminal Construct)

7.3 INVESTIGATION ONE: THE INTERMEDIATION PRIMARY PATH MODEL

7.3.1 Overview of Intermediation Primary Path Model

The *extant literature* intimates a *direct* relationship existing between cultural antecedents and final product-process *performance outcomes* (Nakata and Sivakumar 1996, Hofstede 1980) without intermediation. By way of extension, The Thesis endeavours to create a new more expansive model, to show that product-process development involves more steps than is currently assumed.

Figure 7.1: Existing Models and New Intermediation Primary Path Model



Herein, Figure 7.1, posits Knowledge Building; viz. Knowledge Sharing and Creative Synergies; and Knowledge Discovery; viz. innovation, problem solving and new enterprise knowledge

captured; intermediate between societal syndromes and final product-process conformance⁹ outcomes.

Furthermore, rather than follow the familiar business studies one-tier methodology to assess the intermediation primary path; instead, small and large groups were measured in cultural-anthropological fashion, because differential behaviour is exhibited between groups having dissimilar sizes (Dunbar 1996). The groups were designated as follows:

1. Society at large (SOC), and
2. Workplace the society (WOR).

When addressing the two societal tiers in the survey, for societal syndromes, respondents were asked to comment separately on influences on personal knowledge contribution to society at large and in workplace in society. These two groups of questions were separated in the survey frustrating acquiescence bias.

The intermediation primary path model and attendant hypotheses (H_1-H_{14}) are shown in Figures¹⁰ 7.2.1 – 7.2.3. Other unreported frailer models were tested, but discarded and not cited, owing to the length conditions demanded of The Thesis. Two group tests were conducted and measurement invariances were confirmed. Standardised path coefficients were employed.

⁹ Conformance refers to the level of performance achieved against the developer's original plan. Measuring only end-of-project performance outcomes misses any in-project modifications effects to the original plan: e.g., in-project re-engineering to requirements. Measuring conformance outcomes recognises the entire project and compares *initial expectations* to *results achieved*.

¹⁰ Please note, CONSOC.COM is the only extraneous variable. Therefore, the CONSOC.COM variable is placed on the extreme left and other relationships are developed from this position in Figures 7.2.1 – 7.2.3. .

SmartPLS adopts a predictive approach to reflective models and does not seek to achieve a direct overall measurement of goodness of fit. SmartPLS does not apply a global secular function (Tuten and Ashley 2011). Arrows (i.e. paths), produced within the “inner” structural model, are in themselves *directional* entities, showing relationships between endogenous constructs (representing latent variables): i.e., changes in construct ‘x’ cause changes in construct ‘y,’ whether the relationship is either, negative or positive. The rigour of estimation of the relationship is determined by the strength of the path coefficient (+/-). Herein, correspondence is measured. Thus, this recent generation structural equation modelling (SmartPLS) does not require separate ‘measures of goodness-of-fit’.

Quantitative assessment of the intermediation primary path model applied five zones of measurement:

1. Societal syndromes schema intra-relationships (H_1 - H_8)
2. Societal syndromes to knowledge building relationships (H_9 - H_{11})
3. Knowledge building intra-relationships (H_{12})
4. Creative synergies to knowledge discovery relationships (H_{13})
5. Knowledge discovery to final product-process conformance relationships (H_{14})

Assessments newly linked qualitative results from hypotheses to theory and practice. In this way, raw results from the data were sometimes aligned to examples from history to cite manifestations of latent variables. Moreover, this form of presentation affords a higher cognitive domain than commenting on data alone (Bloom, 1956).

The following discourse relates the above zones of measurement to Figures 7.2.1 – 7.2.3 (n=306, Bootstrapping = 500):

‘Schema’ (H_1 , H_8), is defined in The Thesis as, ‘the pattern of the collective architecture of a group of constructs’. When framing a common schematic archetype for societal syndromes, constructs rationally yield high t scores on valid paths, because, path-mated-constructs mutually conserve both direction and magnitude: i.e., if, the societal syndromes schema is understood lightly analogous to Momentum (Newton); then, the Schema’s constructs would be comparable to Mass and Velocity in Physics. As with Euclidean vectors, as a closed system¹¹, dynamical constructs can ‘carry’ the properties of associated constructs, while remaining discrete entities.

Hence, expression of the schematic archetype, in this sense, is a cumulative product of its constructs, as a closed dynamical system. For example, an increase in Conventional Orthodoxy in Society is posited to lead to an *increase* in Vertical Power Ethos in Society and a *decrease* in Horizontal Altruism in Society. Magnitudes and directions remain constants on matched-paths. However, dynamically, Horizontal Altruism in the Workplace *retains* (and nets) the influence of; CONSOC.COM via VPESOC.COM and CONSOC.COM via HORSOC.COM. Thus, while very high t scores present themselves, between highly akin conservative constructs in the latticed network, the Societal Syndrome Schema also contains counterbalancing progress-enhancing constructs. Consequently, as shown in Figure 7.2.3, all t scores on paths directly inducing knowledge sharing, while, clearly statistically significant, do not retain the very high t scores of the concentrated affiliated construct communities.

¹¹ Albeit, in The Thesis, later modelling shall consider the moderating effects from open systems.

Unsurprisingly, as shown in Figure 7.2.2, path relationships of societal syndromes express high correlations between societal level and workplace level measures of the *same* theoretical concept. Likewise, with a path coefficient of 0.81 ($t = 36.02$), the magnitude of CONSOC.COM powerfully determines the extent of the VPESOC.COM relationship.

Generically, Conventional Orthodoxy in Society is more affixed to Vertical Power Ethos in Society, than is Vertical Power Ethos in Society to Vertical Power Ethos in the Workplace. Thus, Conventional Orthodoxy in Society (langsyne attachment, *a priori* validation and in-role conformity) feeds, to a lesser or greater extent, the development of Vertical Power Ethos in Society (vertical secrecy, vertical deference, vertical patrimonialism). Horizontal Altruism in the Workplace is negatively associated with both VPESOC.COM and VPEWOR.COM, demonstrating the HORSOC.COM receives separate, but, co-operative signals, from broader society-at-large and the workplace community of practice, regarding the extent of the presence of Vertical Power Ethos.

Similar promote-restrain patterned admixtures are evident, throughout the network; wherein, the tug-of-war between dynamical theoretical constructs are plainly expressed at two levels: i.e., society at large and in the workplace. Here, separate tier-specific measurement is a must and its pattern would be relevant to future cultural studies in marketing.

What is more, respective conduits are not equally conducive of precursor traits. Societal syndromes to knowledge building relationships (H_9, H_{11}) exist, deriving their level of significance

from the totalised societal schema. In this way, Knowledge Sharing (KNOWSHR.COM) and Creative Synergies (CRESYN.COM) receive the results of the machinations of the societal syndromes schema, which has its own internal dynamical properties.

Knowledge Building intra-relationships (H_{12}), as noted, respond to the dynamical properties of the societal syndromes schema *cum* archetype. Subsequently, a significant relationship exists between Knowledge Sharing and Creative Synergies as shown in Figures 7.2.2. and 7.2.3. Although, Knowledge Sharing and Creative Synergies are distinct constructs¹², Creative Synergies are closely related to Knowledge Sharing, as evidenced by an high t score of 20.06: wherein, essentially, Creative Synergies cannot advance without the nurturing of Knowledge Sharing (e.g. in new product-process development teams).

Knowledge Discovery, afterwards, is successively related to Creative Synergies (H_{13}): wherein, in Marketing, the level of New Product Discovery (H_{13a}) and New Process Discovery (H_{13b}), are derivatives of the level of Creative Synergies achieved. In addition, New Product Discovery, must receive not only the direct path from Creative Synergies, but, also, more significantly, the outcomes of the Process Discovery, via, Final Process Conformance Outcomes. Herein, logically, new product processes are very strongly associated with new product development discovery processes at the Marketing and Research & Development Interface.

For Figures 7.2.1 through to 7.2.3, prime moderators have been carefully and deliberately selected. A more complex model containing scores of potential moderators would have been

¹² Factor analysis in pretesting established Knowledge Sharing and Creative Synergies as separate constructs.

unwieldy and unnecessary for the current studies. Consistently, Maslow (1970) argues ultimately one can almost connect everything to everything. Further, we can assume a ‘single realm of discourse,’ rather than the ‘totality of the realms of discourse,’ if we are to assume that systems are relatively independent of one another (Maslow, p. 321). Hence, the present model, with its existing parameters, is held to be ‘fit for purpose’.

However, future studies can probe enlarged configurations, wherein, ‘No fairer destiny could be allotted to any ... theory, than that it should of itself point out the way to the introduction of a more comprehensive theory, in which it lives on as a limiting case’ (Einstein 1920)¹³.

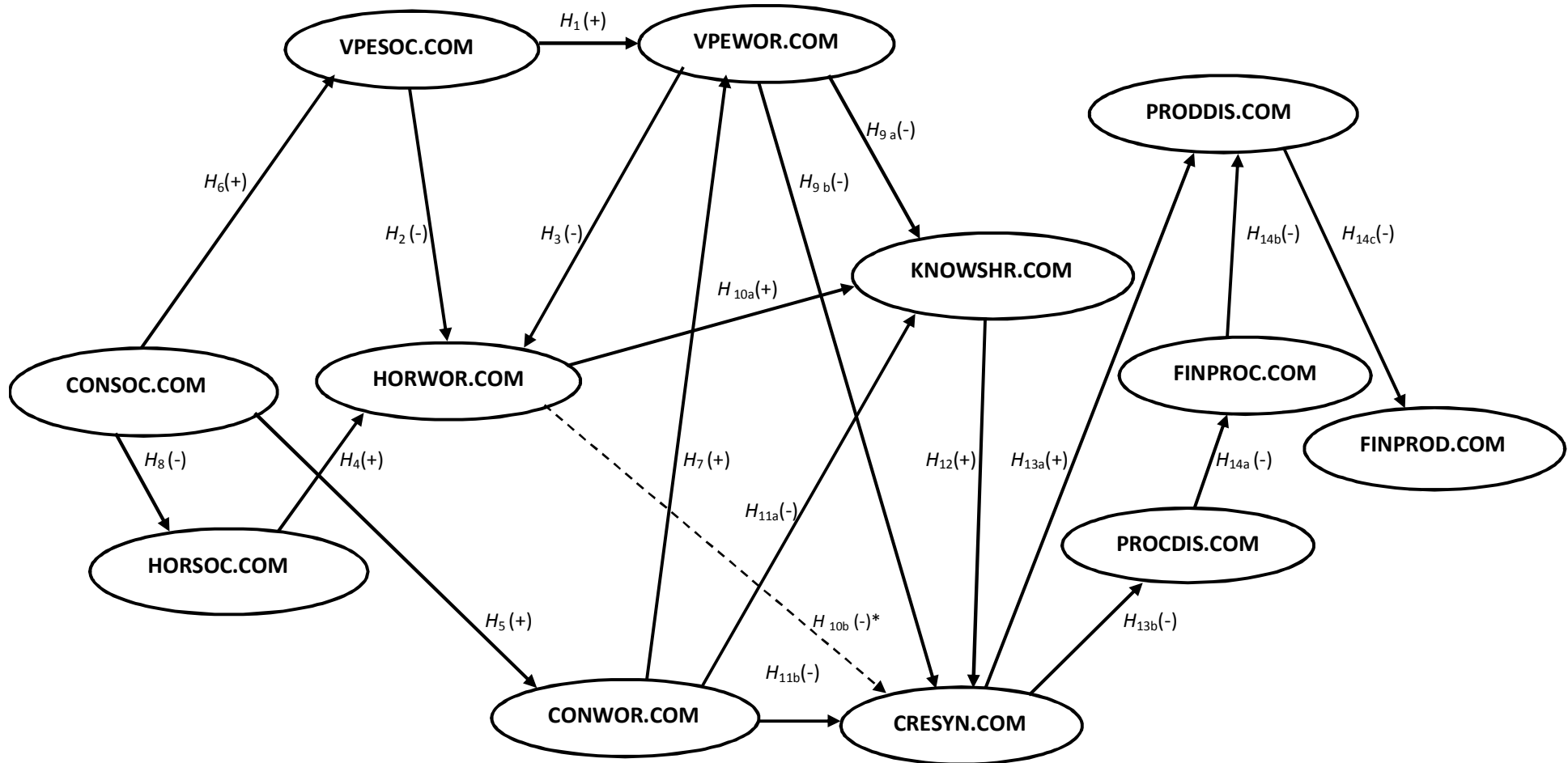
Lastly, New Final Product Conformance Outcomes are understandably and powerfully related to the level of new Product Discovery achieved (H_{14}). High t scores, as shown in Figures 7.2.2 and 7.2.3, are present owing to the close linear proximity of distinct constructs: e.g., the relationship between the level of Process Discovery and Final Process Conformance Outcomes or between the level of Product Discovery and Final Product Conformance Outcomes: Herein, with each structural duple, ‘it must follow, as the night the day’ (Hamlet by Shakespeare, c. 1600), regarding high t scores presented. Figure 7.2.4 provides the associated correlation matrix for the twelve path constructs. Diagrams referred to in this paragraph were calculated (n=1,495) using SmartPLS, and reported from the Latent Variable option Quality Criteria (within Default Model). Constructs are reported alphabetically, as computer generated. The extension .COM (Combined) applies to all construct designations.. Relationships, as measured, support the thesis.

¹³ ‘A Few Inferences from the General Theory of Relativity’ by Albert Einstein 1920

Figure: 7.2.1:

Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Hypotheses H_{1-14}

(N=306, Sample 500)

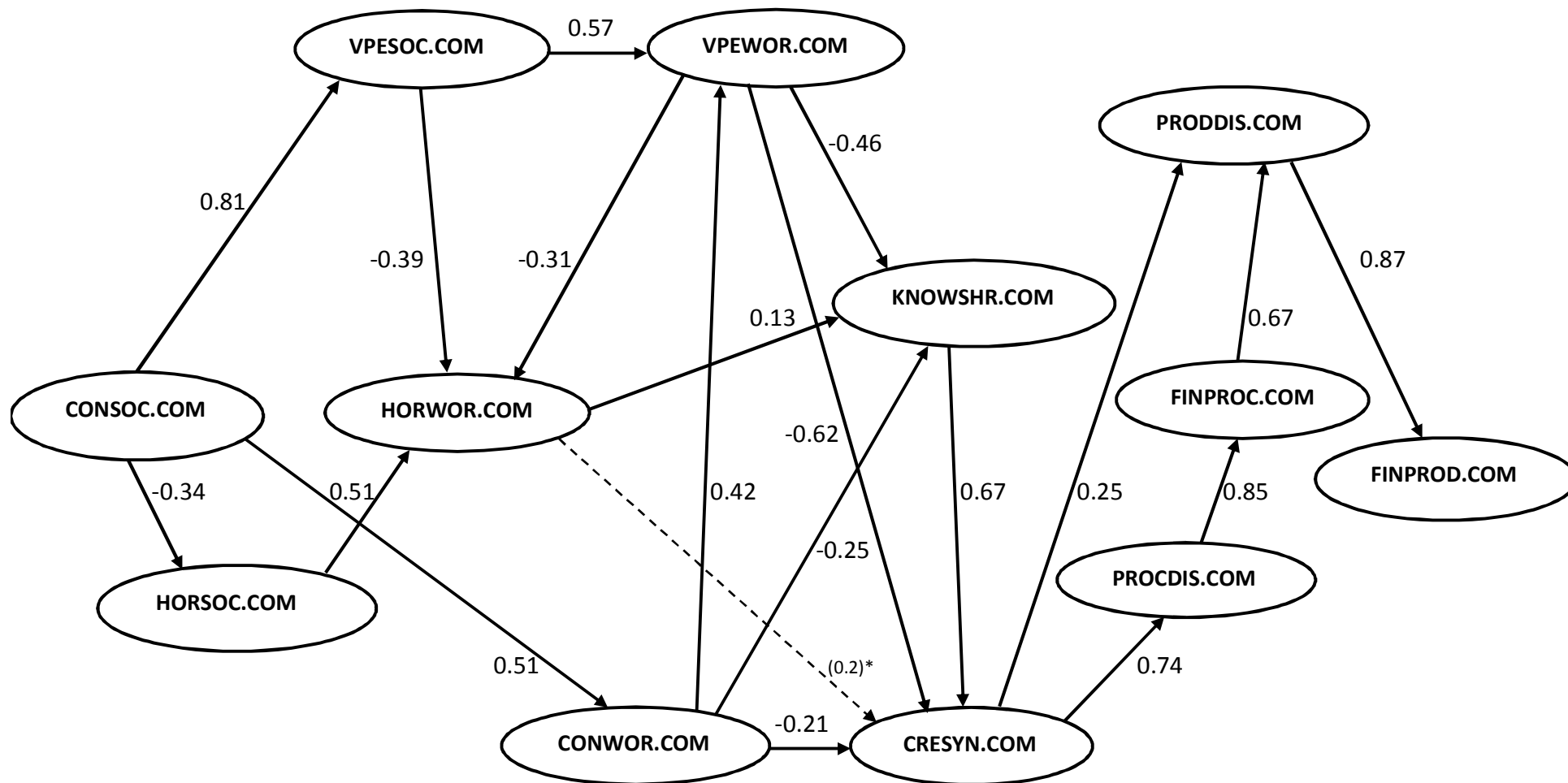


* For information only. Hypothesis H_{10b} not supported.

Figure: 7.2.2:

Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Path Coefficients

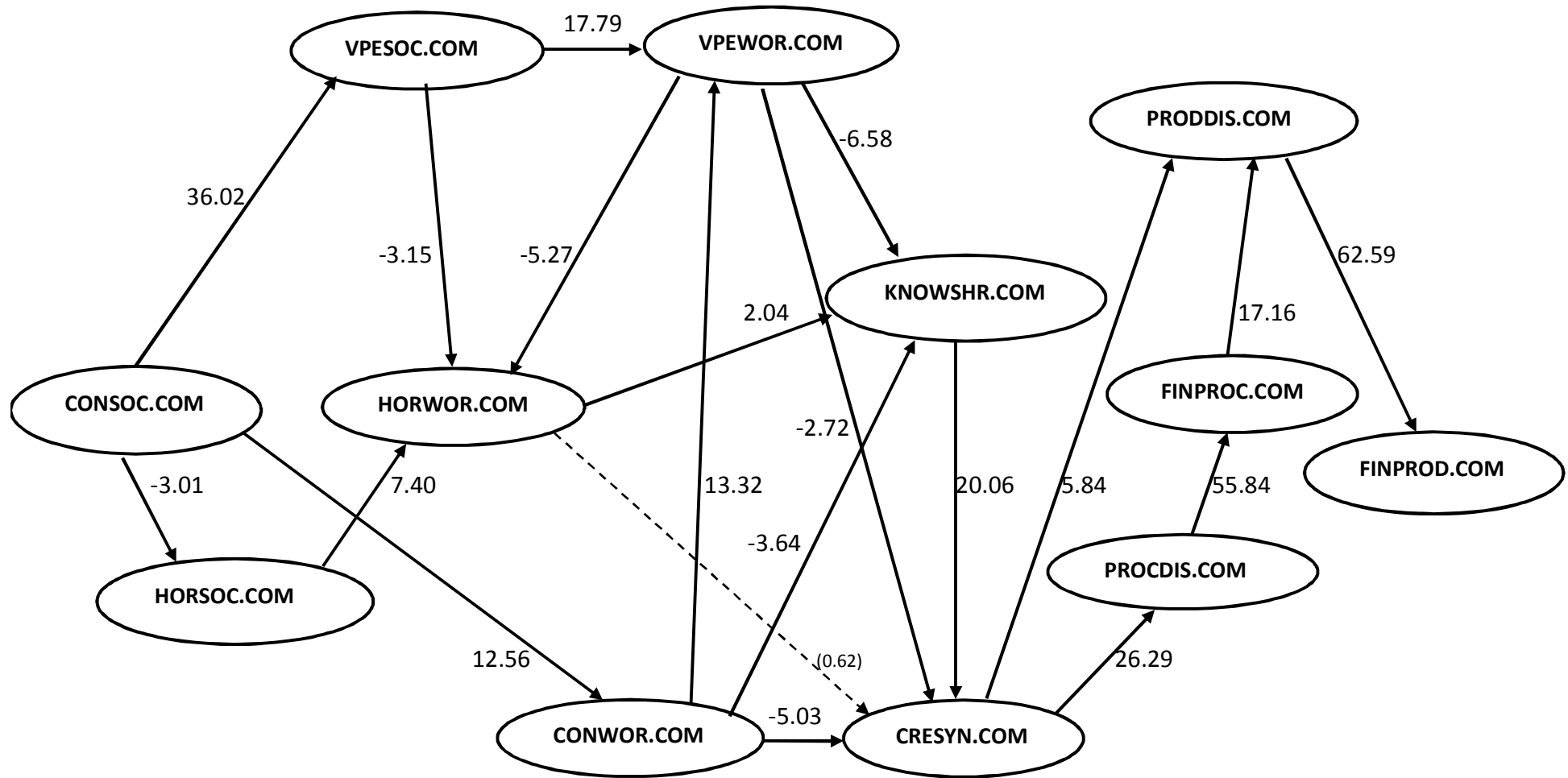
(N=306, Sample 500)



* For information only. Path for H_{10b} not supported.

Figure 7.2.3: Intermediation Path Model for Both Societies Combined and All Product Transformation Categories - T-Scores
 Bootstrapping

(N=306, Sample 500)



* For information only. T-Score for H_{10b} is diminutive and insignificant.

Table 7.2: Intermediation Path Model – Full Correlation Matrix – Both Societies Combined and All Product Transformation (n=1,495)

.COM¹⁴	CONSOC	CONWOR	CRESYN	FINPROC	FINPROD	HORSOC	HORWOR	KNOWSHR	PROCDIS	PRODDIS	VPESOC	VPEWOR
CONSOC	1.00											
CONWOR	0.51	1.00										
CRESYN	-0.70	-0.78	1.00									
FINPROC	-0.65	-0.66	0.74	1.00								
FINPROD	-0.64	-0.71	0.79	0.88	1.00							
HORSOC	-0.67	-0.67	0.78	0.66	0.70	1.00						
HORWOR	-0.52	-0.59	0.62	0.57	0.61	0.75	1.00					
KNOWSHR	-0.71	-0.70	0.92	0.75	0.79	0.77	0.66	1.00				
PROCDIS	-0.63	-0.67	0.75	0.86	0.86	0.67	0.61	0.74	1.00			
PRODDIS	-0.61	-0.68	0.75	0.86	0.87	0.70	0.63	0.76	0.85	1.00		
VPESOC	0.82	0.64	-0.75	-0.66	-0.67	-0.68	-0.56	-0.74	-0.65	-0.63	1.00	
VPEWOR	0.79	0.79	-0.81	-0.63	-0.68	-0.77	-0.71	-0.76	-0.64	-0.63	0.84	1.00

¹⁴ Please note extension. The extension .COM (Combined) applies to all construct designations.

7.3.2 Societal Syndromes Schema Intra-relationships - Hypotheses H_1 - H_8

Crucial societal syndromes schema intra-relationships were assessed along key paths. T scores, path coefficients and total effects measurement applied to determine significance and interconnectiveness.

While the need for two-tier measurement of societal syndromes was deemed important some homogeneity was expected between society and the workplace. However, this positive relationship cultural-anthological should not be one-to-one, as has been implicit in single level measurement.

In framing H_{2-3} and H_{7-8} , I was mindful of the rationale underpinning Anglo-Western Dynamics and Sino-Homeostatic Traditionalism. In this context, both Vertical Power Ethos and Conventional Orthodoxy were found to have a negative relationship with Horizontal Altruism. This new representation is important, because Knowledge Sharing is facilitated by high Horizontal Altruism, while it is restrained by low or limited Horizontal Altruism.

For H_1 - H_8 , calculation of the t scores (Bootstrapping = 500), using SmartPLS, indicated all paths were significant and the interconnectiveness (Path Coefficient) were high, as shown in Table 7.2. These anticipated results were complemented by the measurement of the H_1 - H_8 total effects of paths, which, below, are independently reported.

Table 7.3^{15, 16} Intra-relationships within Societal Syndrome Paths (H_1 - H_8) (n=306)^{17, 18}

Hyp.	From	To	Expected Relationship	T score	Path Coefficient	Supported?
H_1	VPESOC.COM ¹⁹	VPEWOR.COM	POSITIVE	17.79	0.57	YES
H_2	VPESOC.COM	HORSOC.COM	NEGATIVE	-3.15	-0.39	YES
H_3	VPEWOR.COM	HORWOR.COM	NEGATIVE	-5.28	-0.31	YES
H_4	HORSOC.COM	HORWOR.COM	POSITIVE	7.40	0.51	YES
H_5	CONSOC.COM	CONWOR.COM	POSITIVE	12.56	0.51	YES
H_6	CONSOC.COM	VPESOC.COM	POSITIVE	36.03	0.82	YES
H_7	CONWOR.COM	VPEWOR.COM	POSITIVE	13.32	0.42	YES
H_8	CONSOC.COM	HORSOC.COM	NEGATIVE	-3.01	-0.35	YES

The Thesis now presents the phrasing of H_1 - H_8 and reports the total effects of key paths.

- **H_1 : A positive relationship shall exist between Vertical Power Ethos in the society and Vertical Power Ethos in the workplace, for Anglo-Western society and Han-Chinese society combined²⁰.**

The H_1 was supported. H_1 tested the path between VPRESOC.COM and VPEWOR.COM.

The total effects measure for this path was 0.57 (intermediation primary path model). High VPESOC.COM supported high VPEWOR.COM, which creates a sustained bias toward exaggerated top-down control of subordinates and intervention into workplace activities.

¹⁵ Data reported from full Intermediation Primary Path Model.

¹⁶ From SmartPLS modelling. Tables are used in lieu of multifarious repetitions of the same diagram, to improve parsimony.

¹⁷ Full intermediation primary path model: Pages 418-420.

¹⁸ Data for the full Intermediation Primary Path Model *and* Reduced Models (i.e. segments of the full model) are presented in this chapter. Therefore, the path coefficients will differ according to purpose. For the full Intermediation Primary Path Model, please refer to Figures 7.2, 7.2.1 and 7.2.2.

¹⁹ Generic Measure having Anglo-Western data (n=194) and Han-Chinese data (n=112) and Combined (n=306) (Combined = .COM).

²⁰ Combined refers to combined data from both societies.

- ***H₂*: A negative relationship shall exist between Vertical Power Ethos the society and Horizontal Altruism the society, for Anglo-Western society and Han-Chinese society combined.**

H₂ was supported. *H₂* tested the path between VPESOC.COM and HOCSOC.COM. The total effects measure for this path was -0.39 (intermediation primary path model. High VPESOC.COM nurtures low HOCSOC.COM, stifling pluralism the society-at-large.

- ***H₃*: A negative relationship shall exist between Vertical Power Ethos in the workplace and Horizontal Altruism in the workplace.**

H₃ was supported. *H₃* tested the path between VPEWOR.COM and HORWOR.COM. The total effects measure was -0.31 (intermediation primary path model. High VPESOC.COM cultivates low HOCWOR.COM, restraining social mutualism and co-operation in the workplace; wherein, team Knowledge Sharing becomes limited apparently owing to superordinates' excessive top-down prescriptions.

- ***H₄*: A positive relationship shall exist between Horizontal Altruism the society and Horizontal Altruism in the workplace, for Anglo-Western society and Han-Chinese society combined.**

H₄ was supported. *H₄* tested the path between HORSOC.COM and HORWOR.COM. The total effects measure was 0.51 (intermediation primary path model. HORWOR.COM was only partially dependent on HORSOC, and is likely to reflect the varying localised organisational dispositions. High HORSOC.COM facilitates high HORWOR.COM, encouraging pluralism and open communication in the workplace.

- ***H*₅: A positive relationship shall exist between Conventional Orthodoxy in society and Conventional Orthodoxy in the workplace, for Anglo-Western society and Han-Chinese society combined.**

***H*₅ was supported.** *H*₅ tested the path between CONSOC.COM and CONWOR.COM. The total effects measure was 0.51 (intermediation primary path model. High CONSOC.COM heightens CONWOR.COM, facilitating greater traditional order in the workplace.

- ***H*₆: A positive relationship shall exist between Conventional Orthodoxy the society and Vertical Power Ethos the society, for Anglo-Western society and Han-Chinese society combined.**

***H*₆ was supported.** *H*₆ tested the path between CONSOC.COM and VPESOC.COM. The total effects measure was 0.82 (intermediation primary path model. High CONSOC.COM buttresses prolonging high VPESOC.COM, as an embedded *mortis operandi*.

- ***H*₇: A positive relationship shall exist between Conventional Orthodoxy in the workplace and Vertical Power Ethos in the workplace for Anglo-Western society and Han-Chinese society combined.**

***H*₇ was supported.** *H*₇ tested the path between CONWOR.COM and VPEWOR.COM. The total effects measure was 0.42 (intermediation primary path model. Where CONWOR.COM was high, VPEWOR.COM would have become enduring over time and resistant to change. High CONWOR.COM would have acted as a conduit to embed *mortis operandi*, as previously identified for high VPESOC.COM (*H*₆).

High CONWOR.COM would allow and culturally validate the continuance of high VPEWOR.COM, herein, restraining high HORWOR.COM. Conversely, low HORWOR.COM would not facilitate high KNOWSHR.COM.

- ***H₈*: A negative relationship shall exist between Conventional Orthodoxy the society and Horizontal Altruism the society, for Anglo-Western society and Han-Chinese society combined.**

H₈ was supported. *H₈* tested the path between CONSOC.COM and HORSOC.COM. The total effects measure was -0.35 (intermediation primary path model. Being deleterious to Knowledge Sharing, heightened CONSOC.COM would lower HORSOC.COM.

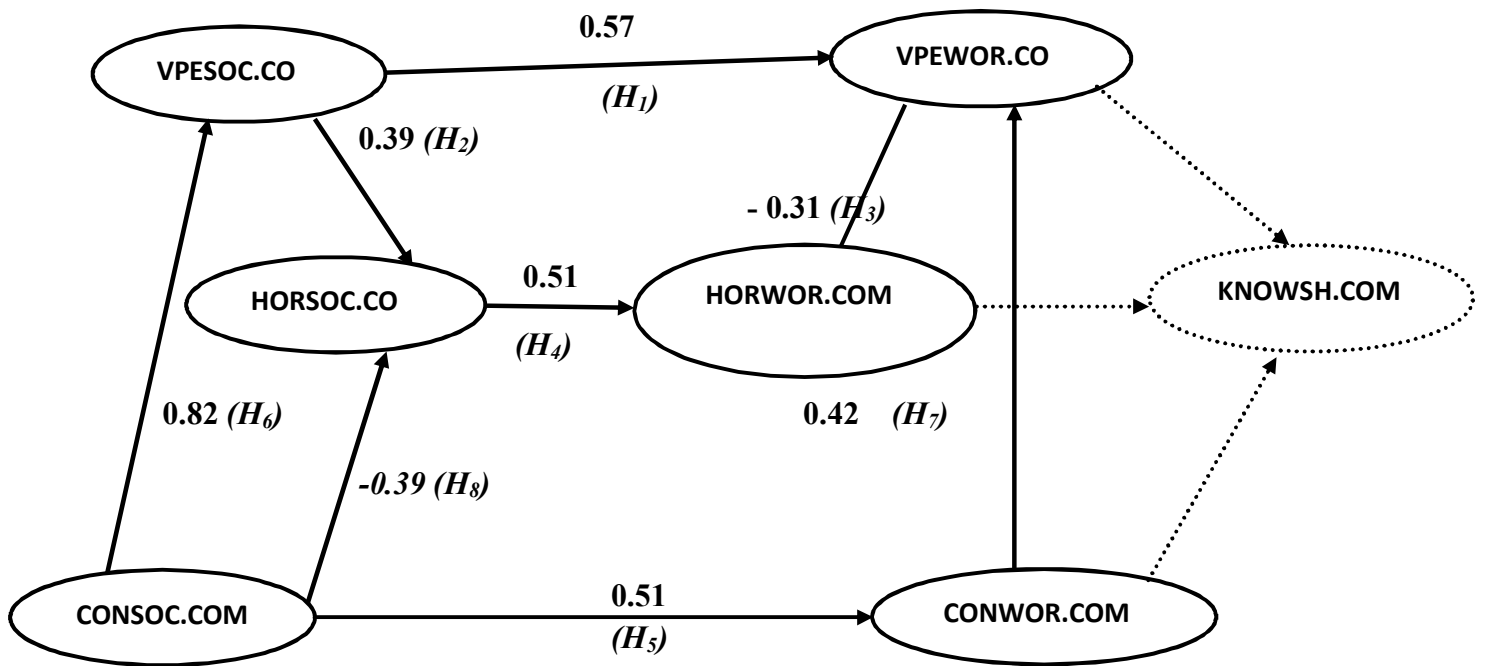
Adopting society-at-large and workplace, all hypotheses (*H₁*- *H₈*) were supported, when T scores (*H₁*-*H₇*: $p = 0.00$, $df = 305$ and *H₈*: $p = 0.00$, $df = 305$), path coefficients and total effects were measured.

As shown in Figure 7.3, CONSOC.COM presents as a positive influence on VPESOC.COM and CONWOR.COM. VPESOC.COM and CONWOR.COM exhibit a positive influence on VPEWOR.COM. The total effects measure between CONWOR.COM and VPEWOR.COM was markedly strong (0.82). Alternatively, negative (inverse) relationships existed between: (a) VPESOC.COM and HORSOC (b) CONSOC.COM and HORSOC, and (c) VPEWOR.COM and HORWOR.COM. The Thesis has foreshadowed the significance of the connection between societal syndromes and Knowledge Sharing.

Figure 7.3 also foreshadows Figure 7.4 wherein, (a) low Vertical Power Ethos and low Conventional Orthodoxy permitted high Horizontal Altruism and the autonomy to facilitate

Knowledge Sharing. Alternatively, (b) high Vertical Power Ethos and high Conventional Orthodoxy hindered Knowledge Sharing.

Figure 7.3: Reduced¹ Model of Societal Syndromes Internal Relationships (Societal Archetype)



As hypothesised and illustrated in Figure 7.4, on the next page, indications were low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy facilitated Knowledge Sharing²; while, alternative dispositions impeded Knowledge Sharing³. Together, regardless of the society measured, the constructs represent a dynamic societal syndrome archetype. The societal syndrome archetype influences Knowledge Sharing in the (extended) intermediation primary path model.

¹ **REDUCED MODEL:** “Reduced” means sectioned within the full Intermediation Primary Path Model. Here, representing the aggregate Societal Archetype international relationship *before* Knowledge Sharing. Partitioning allows autonomous and independent analysis of dissected construct formations. This term used several times in the Thesis.

² Hypothesised characteristic of Anglo-Western Dynamic Transformationalism.

³ Hypothesised characteristic of Sino-Homeostatic Traditionalism.

Extending beyond societal syndromes archetype intra-relationships, next, The Thesis tests the relationships between the societal syndromes archetype and knowledge building for the first time.

Figure 7.4: Summarised Societal Syndrome Schema to Knowledge Sharing and Creative Synergies

LOW VERTICAL POWER ETHOS	High HORIZONTAL ALTRUISM	LOW CONVENTIONAL ORTHODOXY
Low Vertical Secretness	High Horizontal Inclusiveness	Low Langsyne Attachment
Low Vertical Deference	High Horizontal Mutualism	Low <i>A priori</i> Validation
Low Patrimonialism	High Horizontal Reciprocation	Low In-role Conformity



FACILTATES KNOWLEDGE SHARING



KNOWLEDGE SHARING ACHIEVED → **CREATIVE SYNERGIES**



RETARDS KNOWLEDGE SHARING



HIGH VERTICAL POWER ETHOS	LOW HORIZONTAL ALTRUISM	HIGH CONVENTIONAL ORTHODOXY
High Vertical Secretness	Low Horizontal Inclusiveness	High Langsyne Attachment
High Vertical Deference	Low Horizontal Mutualism	High <i>A priori</i> Validation
High Patrimonialism	Low Horizontal Reciprocation	High In-role Conformity

7.3.3 Societal Syndromes to Knowledge Building Relationships - Hypotheses H_9 - H_{11}

Knowledge building²⁴ in the form of Knowledge Sharing and Creative Synergies was measured (n=306) in SmartPLS, Bootstrapping = 500. Survey respondents considered and revealed the level of individual personal knowledge contribution and collaboration evident in new product development-process teams. It was hypothesised that higher knowledge building would cultivate higher knowledge discovery. At this juncture, results from empirical tests were consistent with posited expectations, where respondents were asked to consider individual personal knowledge contribution and collaboration within workplace new product-process development teams. Thus, indicating the amount of personal knowledge offered for decision-making in support of new product-process team determinations.

Individual personal knowledge, as referred to in the previous paragraph, is specialised knowledge held by particular individual team members and needed by the product-process development team, to achieve the *de rigueur* to better complete a knowledge-based project. Significantly, not all people are equally willing to share their specific individual personal knowledge with others. Some people are keen to share personal knowledge, while others are personal knowledge retentive.

On the other hand, general knowledge does not count as individual personal knowledge, because there is no dependency on individuals, however new product-process development can still proceed anyway. Clearly, the level of product-product process transformation required is a determining factor with regards to personal Knowledge Sharing dependency.

²⁴ Beforehand, preparatory modelling, using CFAs, established knowledge building was divisible into two components, namely 'Knowledge Sharing' and 'Creative Synergies'. Typically in empirical research, factor analyses reduce the number of components. Knowledge building presented an opposite case.

Low product-process transformation, therefore, would be less personal knowledge dependent than intermediate or high product-process transformation.

Figure 7.5: Reduced²⁵ Model of Societal Syndromes in the Workplace and Knowledge Sharing (n=306, Bootstrapping = 500)

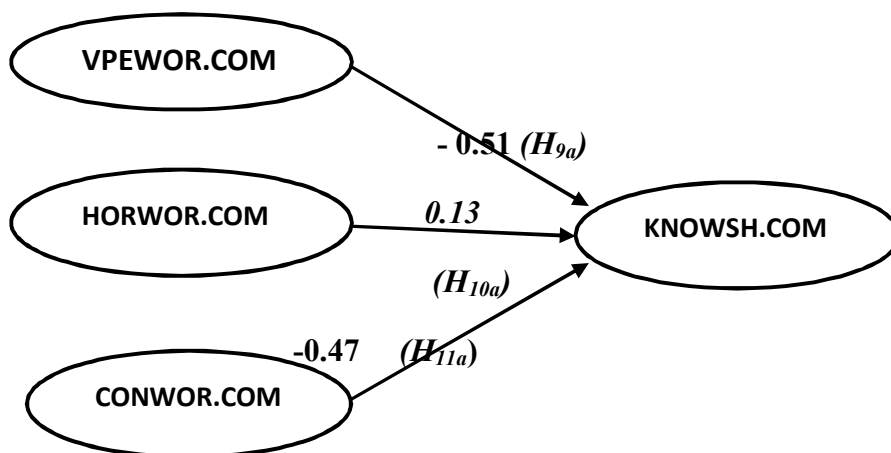


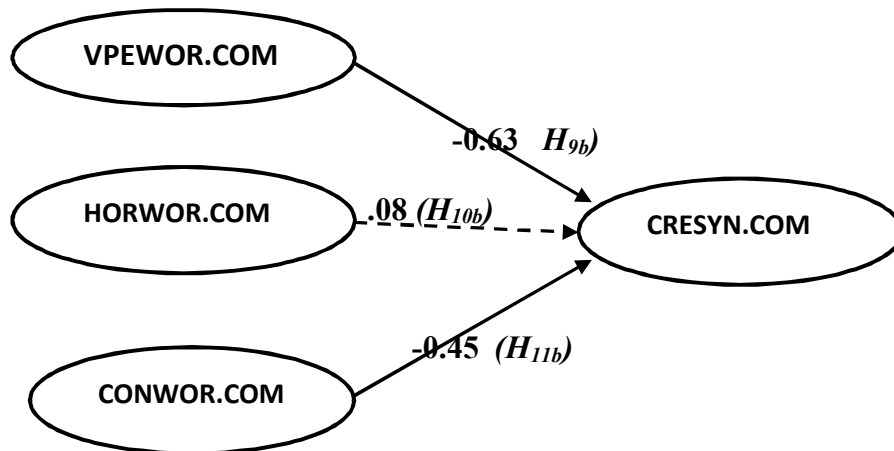
Figure 7.5 illustrates the total effects for the paths of Vertical Power Ethos and Conventional Orthodoxy inverse relationships with Knowledge Sharing. On the other hand, Horizontal Altruism displays a positive relationship with Knowledge Sharing in Knowledge Building. *Prima facie* high VPEWOR.COM and high CONWOR.COM have the faculty to overwhelm KNOWSHR.COM.

Similarly, in Figure 7.6, the total effects for paths of Vertical Power Ethos and Conventional Orthodoxy find inverse relationships with Creative Synergies in Knowledge Building. Conversely, Horizontal Altruism shows a positive connection with Knowledge Sharing.

²⁵ Reduced, partitioned and separated from full Intermediation Primary Path Model.

Figure 7.6: Reduced Model of Societal Syndromes in the Workplace and Creative Synergies

(n=306, Bootstrapping=500)



Five of six paths of the reduced models presented in Figures 7.5 and 7.6 reveal significant total effects. HORWOR.COM to CRESYN.COM (H_{10b}) presented a non-significant path. These findings, for the first time, established the significance of the relationships between societal syndromes and knowledge building, as a necessary intermediary, leading to product-process conformance outcomes. HORWOR.COM was quashed by high VPEWOR.COM and high CONWOR.COM.

7.3.3.1 Hypotheses (H_9 - H_{11}): Societal Syndromes to Knowledge Building Relationships on New Product-Product Process Teams.

- **H_9 : Vertical Power Ethos in the Workplace has a negative relationship with Knowledge Building .**
 - **H_{9a} : Vertical Power Ethos in the Workplace has a negative Knowledge Sharing contributed to new product-process teams in society at large.**
 - **H_{9b} : Vertical Power Ethos in the Workplace has a negative relationship Creative Synergies**

***H₉* was supported, including *H_{9a}* and *H_{9b}*.**

H_{9a} tested the relationship between VPEWOR.COM and KNOWSHR.COM and *H_{9b}* investigated the relationship between VPEWOR.COM and CRESYN.COM. The total effects measure for *H_{9a}* was -0.506 (reduced model) between Vertical Power in the workplace and Knowledge Sharing in knowledge building, as illustrated in Figure 7.5. Similarly, for Creative Synergies in knowledge building, the total effects measure for *H_{9b}* was -0.629 (reduced model), as shown in Figure 7.6.

Table 7.4: Vertical Power Ethos to Knowledge Building (*H₉*)^{26, 27}

Hyp.	From	To	Expected Relationship	T score	Path Coefficient	Supported?
<i>H_{9a}</i>	VPEWOR.COM	KNOWSHR.COM	NEGATIVE	-6.59	-0.51	YES
<i>H_{9b}</i>	VPEWOR.COM	CRESYN.COM	NEGATIVE	-2.75	-0.63	YES

For *H_{9a}* and *H_{9b}*, calculation of the t scores (Bootstrapping=500) indicated both negative paths were significant and the path coefficient interconnectiveness was demonstrated, as shown in Table 7.3.

- ***H₁₀*: Horizontal Altruism in the Workplace has a positive relationship with Knowledge Building.**
- ***H_{10a}*: Horizontal Altruism has a positive relations with the Knowledge Sharing.**
- ***H_{10b}*: Horizontal Altruism in the Workplace has a positive relationship with Creative Synergies.**

²⁶ Full Intermediation Primary Path Model

²⁷ Data for the full Intermediation Primary Path Model *and* Reduced Models (i.e. segments of the full model) are presented in this chapter. Therefore, the path coefficients will differ according to purpose. For the full Intermediation Primary Path Model, please refer to Figures 7.2, 7.2.1 and 7.2.2. (pp. 418-420).

H_{10} was partially supported, concerning H_{10a} and H_{10b} . H_{10a} was supported. H_{10} was not supported.

H_{10a} investigated the relationship between HORWOR.COM and KNOWSHR.COM and tested the relationship between HORWOR.COM and CRESYN.COM. The total effects measure for H_{10a} was 0.13 (reduced model) between Horizontal Altruism in the workplace and Knowledge Sharing in knowledge discovery.

The total effects measure for H_{10b} was 0.08 (reduced model) between Horizontal Altruism in the workplace and Creative Synergies in knowledge discovery, as shown in Figure 7.6. In agreement, between HORWOR.COM and CRESYN.COM a T score (Bootstrapping = 500) of 0.63 indicated merely a diminutive positive relationship on the full intermediation primary path model. Thus, a significant path does exist for H_{10a} , **but not for H_{10b} .**

Table 7.5: Horizontal Altruism in the Workplace and Knowledge Building (H_{10})²⁸

Hyp.	From	To	Expected Relationship	T score	Path Coefficient	Supported?
H_{10a}	HORWOR.COM	KNOWSHR.COM	POSITIVE	2.05	0.13	YES
H_{10b}	HORWOR.COM	CRESYN.COM	POSITIVE	0.63	0.08	NO SIG. PATH

For H_{10a} , calculation of the t scores (Bootstrapping=500) indicated a positive significant path and the interconnectedness was moderate, as shown in Table 7.3. As previously noted, H_{10b} did not present a significant path.

²⁸ Full Intermediation Primary Path Model

High HORWOR.COM is posited to advance knowledge building in all societies. High HORWOR.COM explicitly assists high KNOWSHR.COM. While the path between HORWOR.COM and CRESYN.COM (H_{10b}) is in sympathy with the path between HORWOR.COM and (H_{10a}), HORWOR.COM does not have a noteworthy direct affect on CRESYN.COM. The implication here is the direct influence on Creative Synergies in knowledge discovery comes via Knowledge Sharing, as was supported by H_{12} .

In overview, HORWOR.COM directed KNOWSHR.COM (H_{10a}). Indications are KNOWSHR.COM directed CRESYN.COM (H_{12}); wherein, logically, developers must have shared knowledge *before* synthesis was achievable.

- **H_{11} : Conventional Orthodoxy in the Workplace has a negative relationship with Personal Commitment to Knowledge Building**
- **H_{11a} : Conventional Orthodoxy in the Workplace has a negative relationship with Knowledge Sharing**
- **H_{11b} : Conventional Orthodoxy in the workplace a has a negative relationship with Creative Synergies**

Table 7.6: Conventional Orthodoxy in the Workplace and Knowledge Building (H_{11})²⁹

Hyp.	From	To	Expected Relationship	T score	Path Coefficient	Supported?
H_{11a}	CONWOR.COM	KNOWSHR.COM	NEGATIVE	-3.64	-0.47	YES
H_{11b}	CONWOR.COM	CRESYN.COM	NEGATIVE	-5.03	-0.45	YES

²⁹ Full Intermediation Primary Path Model

H_{11} was supported, including H_{11a} and H_{11b} . H_{11a} examined the relationship between CONWOR.COM and KNOWSHR.COM and H_{11b} examined the relationship between CONWOR.COM and KNOWSHR.COM. The total effects measure for H_{11a} of the reduced model was -0.47 (reduced model). The total effects measure for H_{11b} was -0.45 (reduced model). In this way, heightened CONWOR.COM restrains to high KNOWSHR.COM and high CRESYN.COM.

Investigations indicate high Knowledge Sharing in knowledge building was best achieved via a combination of low VPEWOR.COM, high HORWOR.COM and low CONWOR. Similarly, lower VPEWOR.COM and lower CONWOR support higher Creative Synergies. These results were consistent with the new theory posed, as supported by the extant literature.

7.3.4 Knowledge Building Schema Intra-Relationship - Hypothesis H_{12}

Earlier, factor analysis established Knowledge Sharing and Creative Synergies to be separate constructs. Afterwards, structural equation modelling found Creative Synergies were highly dependent on Knowledge Sharing. In this manner, solutions to problems required the active cross-fertilisation of personal knowledge, within teams; to collectively synergise the pertinent elements of novel solutions, which are beyond the capacity of a single individual.

Facilitated by high Horizontal Altruism, Western Society, including Anglo-Western Society, has demonstrated, developing from the Renaissance and the Great Divergence, an enhanced inclination to pursue co-operative endeavours involving transmuting Knowledge Sharing into Creative Synergies, to achieve the new. Consistently, in historically recent times, United States President John F. Kennedy said:

‘I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth. No single space project in this period will be more impressive to Mankind or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish. We propose to accelerate the development of the appropriate lunar space craft. We propose to develop *alternate liquid and solid fuel boosters* (emphasis added) much larger than any now being developed, *until certain which is superior* (emphasis added).’³⁰

The Western President’s intention was to draw on the amalgamated knowledge set of many scientists, other specialists and generalists to accomplish the Apollo 11 lunar landing. The key scientist, Wernher Von Braun, did not labour in isolation to apply only his *prior* personal knowledge of rocketry. In the case of the Space Race, Creative Synergies achieved relied on the openness of the many. Alternatively, not sharing personal knowledge with others, arrests development.

Logically, more novel and highly complex development throughout history has required higher Knowledge Sharing, to facilitate greater synergistic effects. Accordingly, Penrose (2010, p. 80) notes:

‘When, in 1908, the distinguished mathematician Hermann Minkowski found that he could encapsulate the basics of special relativity in terms of an unusual type of 4-dimensional geometry, Einstein was less than enthusiastic about the idea. But later

³⁰ ‘On The Importance of Space:’ A Special Presidential Address to the United States Congress on May 25, 1961. The theme is future oriented and exhibits very low Conventional Orthodoxy.

(1912³¹) he realised the critical importance of Minkowski's geometric notion of *space-time*. Indeed, it formed an essential ingredient of his own generalisation of Minkowski's proposal to provide the curved space-time basis of the general theory of relativity.'

One can contrast the previous two Western examples having positive results, with the earlier suppression of the works of the Westerners, Nicholas Copernicus and Gregor Mendel, regarding celestial mechanics and proto-genetics respectively (Bronowski 1974). In both of these instances, the historical Catholic Church asserted high Vertical Power Ethos and high Conventional Orthodoxy, curtailing Horizontal Altruism, which The Thesis holds is an underpinning principle of pluralism and co-operation, and, are therefore, necessary conduits of communication between persons³² of different cognition and skill sets.

On the other hand, in the post-Great Divergence West, as argued in *Bloom's Taxonomy* (1956)³³, the West promotes 'analysis', 'synthesis' and 'evaluation', as being qualitatively superior to 'knowledge' (remembering), 'comprehension' (understanding) and application.

By way of extrapolation, successful new novel product-process development teams shall synthesise many ideas relatively uninhibited, across a wide loose network (pluralism); and, therefore open teams are better placed to combine multifarious elements towards novel solutions, than recall and reproduction of previously and generally known facts. In consort,

³¹ 'By 1912, Einstein had accepted Hermann Minkowski's neat representation of special relativity in terms of flat, four dimensional space-time.' (Gribbon, 2003, p.593)

³² Including highly separated persons, not only in terms of physical distance; but also, cognition and skill sets.

³³ Educational psychologist, Lorin Anderson (Bloom's student) headed a team of educational and cognitive psychologists. The team met twice annually (1995-2000) revising and updating Bloom's taxonomy, to review and modernise Bloom's (1956) seminal contributions, to create a new cognition pyramid. Of special interest, is transliteration of Bloom's nouns-of-hierarchy, from top-to-bottom to the verbs; 'creating', 'evaluating' analyzing, applying, understand and remembering (Anderson 2005). High Knowledge Sharing and high Creative Synergies would be required to achieve 'evaluating' (next generation products and processes) and 'creating' (new core-products and advanced research in product-process development. In recent centuries in history, the characteristics of Western science and sociology favourably fits in with the capacity towards novel creation, as discussed throughout The Thesis.

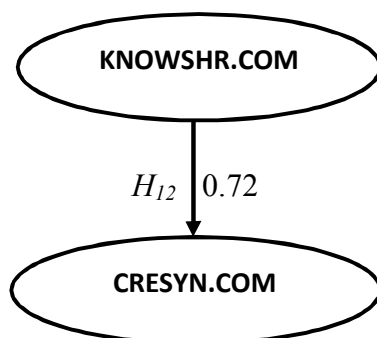
the post Great Divergence method, typically associated with the West, is identifiable with Anderson *et al.*'s (1995-2000, in Lorin 2005) revised cognitive hierarchy, which identifies from top to bottom of the pyramid, the level-designators; 'creating', 'evaluating', 'analysing', 'understanding' and 'remembering'.

The abovementioned citations demonstrate a *realised* high Horizontal Altruism trajectory developing in the West in recent centuries. Old World ways were first set aside in the West vis-à-vis other societies (Pomeranz 2000). Yet, one should not suppose the Western encounter could not be experienced in other societies. Herein, in any society, if localised innovation is the goal, machinations between Vertical Power Ethos, Horizontal Altruism and conventions require calibration towards greater lateral autonomy among the developer caste, in lieu of high superordinate intervention. Innovative developers need to exercise high Horizontal Altruism *in the relative absence of* top-down interference and tradition.

In the next section, The Thesis reports on the results of quantitative assessments. These assessments anticipate that regardless of society greater sharing of personal knowledge in teams stimulates higher levels of creative synergy.

-Please turn page-

Figure 7.7: Reduced Model of Knowledge Sharing on Creative Synergies in Knowledge Building (n=306, Bootstrapping=500)



- **H_{12} : Commitment to Personal Knowledge Sharing has a positive relationship with Product Creative Synergies achieved.**

H_{12} was supported. H_{12} tested the relationship between KNOWSHR.COM and CRESYN.COM. The total effects were 0.72 (reduced model). When no distinction was made between Anglo-Western society and Han-Chinese society, a positive significant relationship was found between KNOWSHR.COM and CRESYN.COM. High KNOWSHR.COM encouraged high CRESYN.COM; high CRESYN.COM promoted knowledge discovery, which was especially important for high transformational products and processes.

Table 7.7: Knowledge Sharing to Creative Synergies (H_{12})³⁴

Hyp.	From	To	Expected Relationship	T score Bootstrapping	Path Coefficient	Supported ?
H_{12}	KNOWSHR.COM	CRESYN.COM	POSITIVE	20.07	0.72	Yes

³⁴ Full Intermediation Primary Path Model

For H_{12} , calculation of the t scores (Bootstrapping=500) indicated a positive significant path and the interconnectiveness was high, as shown in Table 7.5. Clearly, Creative Synergies depend on Knowledge Sharing to a high degree.

7.3.5 Creative Synergies to Knowledge Discovery Relationships – Hypothesis H_{13}

As expected, higher knowledge building achieved higher knowledge discovery. Individual personal contribution led to (a) more innovative ideas, (b) greater problem solving, and (c) increased new enterprise knowledge captured for future purposes.. Knowledge building, in this way, was tightly allied to knowledge discovery outcomes, along the path of the intermediation primary path model.

The new product-process development, from conception to launch, is a multi-functional process. For example:

(a) A ‘product’ encompasses tangible goods and intangible services, wherein, product development includes the capture of consumer, business and supplier requirements and strategies for the implementation of marketing plans. Product development also entails marketing-related change management and the translation of marketing requirements towards guiding research and development specialists. Thus, new product development is specifically associated with marketing specialists, who represent *one-side* of the product-process development programmes assessed.

(b) The ‘process’ includes physical design, technical management, and review and analysis, manufacturing and technology specifications, and technology selection. Process development also necessitates process-related change management to facilitate resource

planning to achieve the final production plan, and, if applicable original equipment design considerations. Thus, process is specifically associated with research and development specialists, whom represent the *other side* of the product-process development programmes assessed.

In this way, the enjoined product-process elements of the intermediation path analyses employed, values the authenticity of the entire marketing and research interface. The current marketing scenario being allegorical to a surgical operation so that outcomes are not merely the surgeon's efforts, but also the consequence of the contributions of specialist support teams and the development and use of necessary instrumentation. Stand-alone product analysis only provides the 'Smile on the Cheshire Cat' (Wolcott 1792³⁵, thence, Carroll, 1865³⁶); whereas, successful product-process development would have Cheshire Cats being more than their smiles.

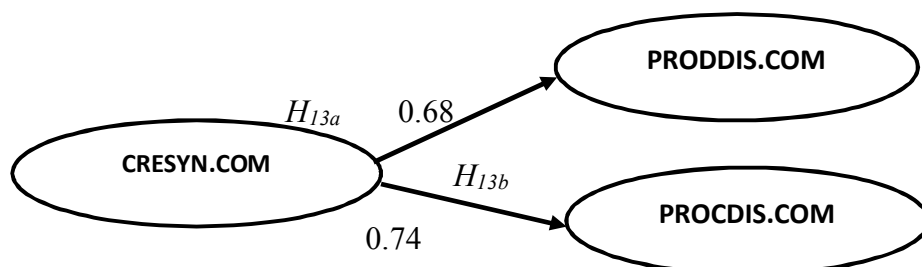
Discourse on knowledge discovery arising from knowledge building has been presented. Moreover, The Thesis has foreshadowed the reporting of successful empirical results, concerning hypothesised relationships between knowledge discovery and knowledge building.

Next, The Thesis assesses final product-process outcomes derived from knowledge discovery in new product-process development teams.

³⁵ 'Smile on the Cheshire Cat': 'Lo like a Cheshire cat our court will grin' John Wolcott (1792). For more detail see: http://www.sccs.swarthmore.edu/users/08/ajb/tmve/wiki100k/docs/Cheshire_Cat.html

³⁶ 'Adventures of Alice in Wonderland', Lewis Carroll (1865)

Figure 7.8: Reduced Model of Creative Synergies on Product and Process Knowledge Discovery (n=306, Bootstrapping=500)



- **H_{13} : Personal Commitment to Knowledge Building has a positive relationship with Product-Process Knowledge Discovery achieved**
 - **H_{13a} : Personal Commitment to Creative Synergies has a positive relationship with higher Product Knowledge Discovery achieved.**
 - **H_{13b} : Personal Commitment to Creative Synergies has a positive relationship with Process knowledge discovery achieved**

H_{13} was supported, including H_{13a} and H_{13b} . H_{13a} tested the relationship between CRESYN.COM and PRODDIS.COM and H_{13b} tested the relationship between CRESYN.COM and PROCDIS.COM. The total effects measure for H_{13a} was 0.68 (reduced model) between Creative Synergies and product discovery. Between creative strategies and process discovery, the total effects statistic was 0.75 (reduced model). Both product discovery and process discovery are highly interconnected with Creative Synergies. Newly recognising the strength of the interconnectiveness of the CRESYN.COM and PROCDIS.COM indicates the need to include process to complement product in research design.

Table 7.8: Creative Synergies to Product and Process Discovery (H_{13})³⁷

Hyp.	From	To	Expected Relationship	T score Bootstrapping	Path Coefficient	Supported?
H_{13a}	CRESYN.COM	PRODDIS.COM	POSITIVE	5.84	0.68	Yes
H_{13b}	CRESYN.COM	PROCDIS.COM	POSITIVE	26.39	0.75	Yes

For H_{13} , calculation of the t scores (Bootstrapping =500) indicated a positive significant path and the interconnectiveness was high, as shown in Table 7.4. Clearly, Creative Synergies depend on Knowledge Sharing to a high degree.

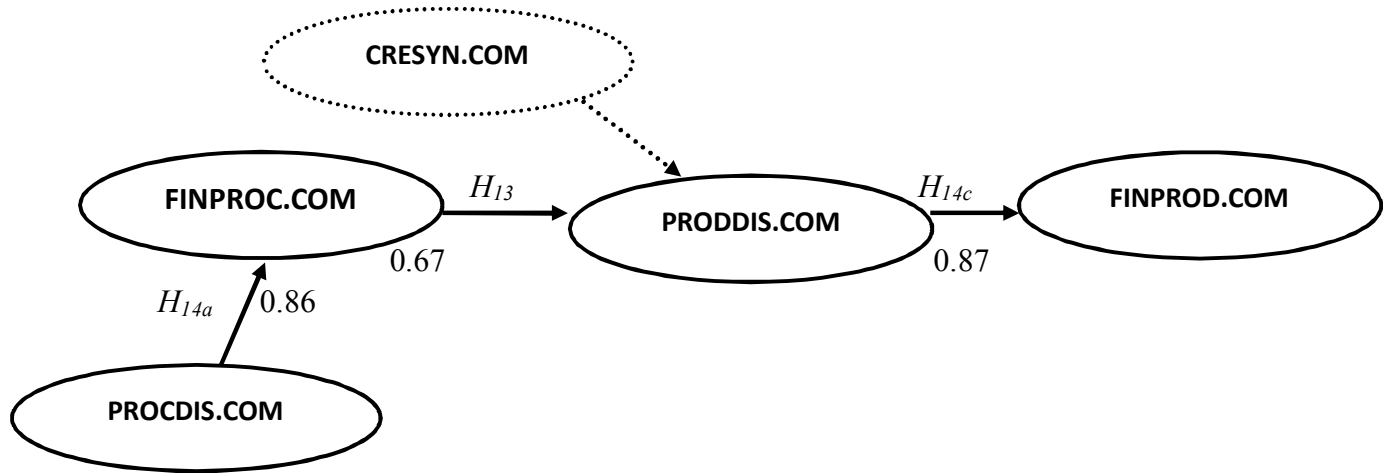
7.3.6 Knowledge Discovery Relationships to Final Product-Process Relationships – Hypothesis H_{14}

As previously noted, product discovery was found to be highly reliant on final process conformance outcomes. Issues surrounding new processes require firm resolution *prior* to successful product discovery. Subsequently, final product conformance outcomes are highly dependent on product discovery.

-Please turn page-

³⁷ Full Intermediation Primary Path Model

Figure 7.9: Reduced Model of Knowledge Discovery Relationships to Final Product-Process Relationships (H_{14}) (n=306, Sample = 500)



H_{14} : The Product-Process Discovery has a positive relationship with Final Product Conformance achieved

- **H_{14a} : Process Discovery has a positive relationship with Final Process Discovery Conformance outcomes achieved**

- **H_{14b} : Final Process Discovery Conformance Outcomes has a positive relationship with product discovery achieved**

- **H_{14c} : Product Discovery has a positive relationship with final product discovery outcomes achieved**

H_{14} was supported. H_{14a} , H_{14b} , and H_{14c} were confirmed. H_{14a} tested the relationship between PROCDIS.COM and FINPROC.COM; whereby the workplace total effects measure was 0.86 (reduced model). H_{14b} tested the relationship between FINPROC.COM and PRODDIS.COM; whereby the workplace total effects measure was 0.67 (reduced model). For H_{14c} , the relationship between PRODDIS.COM and FINPROC.COM, the total effects measure was 0.87 (reduced model).

Table 7.9: Product-Process Discovery and Final Product-Process Outcomes (H_{14})³⁸

Hyp.	From	To	Expected Relationship	T score Bootstrapping	Path Coefficient	Supported?
H_{14a}	PROCDIS.COM	FINPROC.COM	POSITIVE	55.84	0.86	Yes
H_{14b}	FINPROC.COM	PRODDIS.COM	POSITIVE	17.17	0.67	Yes
H_{14c}	PRODDIS.COM	FINPROD.COM	POSITIVE	62.59	0.87	Yes

As shown in Table 7.7, the measured paths robustly demonstrate the expected positive relationship between the two knowledge discovery constructs, viz., PROCDIS.COM and PRODDIS.COM and the two final product-process conformance outcomes constructs; viz., PROCDIS.COM and PRODDIS.COM.

Final product conformance outcomes was the terminal construct of the intermediation primary path model, in this case, representing the final dependent variable in new product-process development teams.

7.3.7 Investigation One : Summary Of Findings

Intermediation Primary Path Model (H_1-H_{14})

Investigation One found H_1-H_{14} statistically confirmed. A dynamic schema was shown to exist, generated by societal syndrome interrelationships. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy all demonstrated valence (combining power), within

³⁸ Full Intermediation Primary Path Model

the hypothesised schema (H_1-H_8). Knowledge building (H_9-H_{11}) was found to be a product of the societal syndromes schema (H_1-H_8). Thence, a domino effect was found from knowledge building (H_{12}), through to knowledge discovery and to final product-process conformance outcomes ($H_{13}-H_{14}$). Thus, Investigation One statistically endorsed the existence of an original intermediation primary path model, finding, knowledge building and knowledge discovery dynamically interposed between newly identified societal syndromes, as cultural antecedents, and, final product process conformance outcomes. The full intermediation primary path model and all the reduced models were solidly established, for the first time.

7.4 INVESTIGATION TWO: MODERATION EFFECTS OF SOCIETY: CONTRASTING ANGLO-WESTERN SOCIETY AND HAN- CHINESE SOCIETY

‘Every man is a quotation from all his ancestors.’ - Ralph Waldo Emerson

7.4.1 Introduction

Investigation One illustrated the *basic* intermediation primary path model was added to the earlier discourse on the affect of cultural antecedents on new product-process development. For the first time the newly elongated product-process main effects model recognised the significance of knowledge building and knowledge discovery as intermediators.

Beyond this frame, The Thesis found (a) society, and (b) the level of product process transformation to be the two main moderators acting on the intermediation primary path model, pertaining to new product-process development. Investigation Two

In this construction, the more fundamental casual relationships along the main path were found to be subject to externally imposed sway from the moderators. Investigation Two examined the influence of the two key arbitrators on the intermediation primary path model; this included the comparative relationships of Anglo-Western society vis-à-vis Han-Chinese society and level of product transformation, both of which were empirically tested and assessed, and confirmed as authentic moderators.

7.4.2 Contrasting Anglo-Western and Han-Chinese Moderation Effects on the Intermediation Primary Path Model.

7.4.2.1 Introduction to Moderation Effects of Society³⁹

The casual relationships of $x_n \rightarrow y_n$ on the intermediation primary path model were held to be moderated by the societal variable (z). Developing this theme, Anglo-Western society and Han-Chinese society were measured, as exemplars of societal moderators, using linear regression in SPSS, to report path coefficients and t scores. Where path coefficients were dissimilar and t scores were statistically⁴⁰ significant, the moderation effect was held to be evident and therefore designated localised phenomena.

Alternatively, homogeneous phenomena were identified by non-significant t scores and undifferentiated path coefficients. With these cases, societal syndromes did not have a direct influence on the paths $x_n \rightarrow y_n$, as moderators. However, while, stable paths $x_n \rightarrow y_n$ were

³⁹ Anglo-Western society and Han-Chinese society are posited illustrative. The Thesis forecasts model would hold across multiple societies.

⁴⁰ < -1.96 or > 1.96

insulated from outside modifiers, these paths, conduit-like, carried information from earlier malleable localised constructs forward, to affect subsequent constructs on the intermediation primary path model.

Thus, the Thesis suggests to modelling methodologists that product-process development information transfer can act, in a genetics-like fashion; wherein, (a) indigenous moderators can affect coding and (b) enduring carriers can forward antecedent characteristic effects along a model's constructed lineage.

7.4.2.2 Cross-Societal Path Coefficients and T score Moderation Effects (H_{15} - H_{21})

Societal syndromes and knowledge building paths (H_{15} - H_{17}) show dissimilar path coefficients and unlike moderation effects. Anglo-Western society and Han-Chinese society often presented significant localised connections on the primary path. In this framework, both societies clearly experience all three new societal syndromes, yet express different manifestations of the shared cross-societal attributes.

The path coefficients and t scores were calculated using SmartPLS (n=306, Bootstrapping = 500). Table 7.8, over the page, herein, contrasts *side-by-side*, the distinct relationships between Anglo-Western society and Han-Chinese society, with the goal specifying *localised* vis-à-vis *globalised* constructs, regarding each society *apropos* key constructs, along the intermediation primary path model.

Viewed in more detail, cross-societal modelling contrasted the relationships of Anglo-Western society and Han-Chinese society to the intermediation primary path model. Moderating effects and independent means were measured. With this approach, I contended

the moderating effects of societal syndromes on Anglo-Western society and Han-Chinese society shall manifest as localised. Based on this formulation, Sino Homeostatic Traditionalism in Han-Chinese society and Western Dynamic Transformationalism in Anglo-Western society each present a *different* relationship with the intermediation primary path model, which is based on influence of the societal syndromes cited.

Table 7.10 Cross-Societal Path Coefficients and T score Moderation Effects (H_{15} - H_{21})

Hyp.	From	To	Path Coefficient of Anglo-Western	Path Coefficient of Han-Chinese	T score	p	Expected Result	Actual Result	Supported?
H_{15a}	VPEWOR	KNOWSHR	-0.57	-0.80	5.82	0.00	Localised	Localised	Yes
H_{15b}	VPEWOR	CRESYN	-0.62	-0.80	4.87	0.00	Localised	Localised	Yes
H_{16a}	HORWOR	KNOWSHR	0.49	0.90	-8.64	0.00	Localised	Localised	Yes
H_{16b}	HORWOR	CRESYN	0.51	0.86	-8.13	0.00	Localised	Localised	Yes
H_{17a}	CONWOR	KNOWSHR	-0.47	-0.73	6.09	0.00	Localised	Localised	Yes
H_{17b}	CONWOR	CRESYN	-0.58	-0.70	3.25	0.00	Localised	Localised	Yes
H_{18}	KNOWSHR	CRESYN	0.86	0.84	-0.77	0.44	Global	Global	Yes
H_{19a}	CRESYN	PRODDIS	0.78	0.85	1.88 ⁴¹	0.06	Localised	÷ Local	Marginally
H_{19b}	CRESYN	PROCDIS	0.72	0.85	-3.22	0.00	Localised	Localised	Yes
H_{20}	FINPROC	PRODDIS	0.95	0.84	3.77	0.00	Localised	Localised	Yes
H_{21a}	PROCDIS	FINPROC	0.87	0.85	0.85	0.39	Localised	Global	No
H_{21b}	PRODDIS	FINPROD	0.86	0.84	0.80	0.42	Localised	Global	No

Furthermore, comparative cross-cultural results presented elasticity. Along these lines, equal values were *not* evident between societies, regarding the aforesaid culturally directed relationships and associated outcomes. Hence, for paths, from societal syndromes to other constructs, T scores measuring moderation were presumed significant; testing confirmed these assertions.

All non cross-societal path relationships were assumed to have a roughly common effect.

⁴¹ Theoretically supported but not statistically supported.

7.4.2.3 Moderation Effects: Hypotheses H_{15} - H_{21}

The Thesis next examines the moderation effects of society on the intermediation primary path model, as represented by Anglo-Western society and Han-Chinese society, by testing H_{15} - H_{21} .⁴² Comparative independent means are reported separately afterwards.

Moderation effects measure the impact *cum* impression made by moderators on the main path, but moderation effects do not point towards the actual survey values reported by respondents. Consequently, comparative independent means of main path constructs must also be autonomously ascertained in parallel, to determine overall case-by-case effects.

H_{15} : Society moderates the inverse relationship between Vertical Power Ethos in the workplace and knowledge building. Specifically, Han-Chinese society has a higher negative relationship than Anglo-Western society.

- H_{15a} : Society moderates the inverse relationship between Vertical Power Ethos in the workplace and Knowledge Sharing. Specifically, between Vertical Power Ethos in the workplace and Knowledge Sharing, Han-Chinese society has a higher negative relationship than Anglo-Western society.
- H_{15b} : Society moderates the inverse relationship between Vertical Power Ethos and Creative Synergies. Specifically, between Vertical Power Ethos in the workplace and Creative Synergies, Han-Chinese society has a higher negative relationship than Anglo-Western society.

H_{15} was supported, including H_{15a} and H_{15b} . Vertical Power Ethos in the workplace did have a negative moderation affect on Knowledge Sharing and Creative Synergies in Anglo-Western society and Han-Chinese society. The impact was strongest in Han-Chinese society. A moderation effect was evident, stemming from Vertical Power Ethos in the workplace to influence knowledge building; viz. Knowledge Sharing and Creative Synergies.

⁴² Comparative independent means are reported separately later in thesis. Moderation effects alone cannot substantiate cross-cultural relativities. Independent means reveal magnitudes to be compared.

As expected, the moderation impact was strongest in Han-Chinese society. This finding confirms Redding (1990) and Silin (1976), both of whom assert that in Chinese society, subordinate capacity is broken through edifying superordinate superiority in all matters. Accordingly, talented staff will not wish to appear to be more knowledgeable than their bosses on any topic and certainly would not act to create conflict by moving development teams towards unsanctioned, albeit enhanced, superior solutions. Thus, high Vertical Power Ethos and Conventional Orthodoxy were found overpowering in Han-Chinese society vis-à-vis Anglo-Western society, as found in H_{15a} and H_{15b} .

- **H_{16} : Society moderates the positive relationship between Horizontal Altruism and knowledge building. Specifically, Anglo-Western society has in higher positive relationship than Han-Chinese society.**
 - H_{16a} : Society moderates the positive relationship between Horizontal Altruism and Knowledge Sharing. Specifically, between Horizontal Altruism in the workplace and Knowledge Sharing, Anglo-Western society shall have a higher positive relationship than Han-Chinese society.
 - H_{16b} : Society moderates the positive relationship between Horizontal Altruism and Creative Synergies. Specifically, between Horizontal Altruism in the workplace and Knowledge Sharing, Anglo-Western society shall have a higher positive relationship than Han-Chinese society.

H_{16} was partially supported in H_{16a} and H_{16b} . Horizontal altruism in the workplace did have a positive moderation affect on Knowledge Sharing and Creative Synergies in Anglo-Western society and Han-Chinese society, as anticipated. Yet, unexpectedly, the impression was strongest in Han-Chinese society. Along these lines, there appears to be a valuable unrealised capacity towards facilitating knowledge building in Han-Chinese society, which is curtailed by high Vertical Power Ethos and high Conventional Orthodoxy. Thus, of top-down

(Vertical Power Ethos) and the status quo (Conventional Orthodoxy) hinder subordinate contribution to the company, Silin (1976, p. 82) quotes a Chinese middle manager:

‘If the boss feels that your ability is greater than his, then he will not be happy and you will probably have to go. You cannot exhibit too much ability.’

Clearly, if high Horizontal Altruism is to reign and reach problem solvers, knowledgeable personnel require more autonomy. Chinese bosses and owners need to back-off and allow specialists to be specialists.

***H₁₇*: Society moderates the inverse relationship between Conventional Orthodoxy and knowledge building. Specifically, Han-Chinese society has a higher negative relationship than Anglo-Western society.**

- *H_{17a}*: Society moderates the inverse relationship between Conventional Orthodoxy and Knowledge Sharing. Specifically, Conventional Orthodoxy and Knowledge Sharing, Han-Chinese society has a higher negative relationship than Anglo-Western society.
- *H_{17b}*: Society moderates the inverse relationship between Conventional Orthodoxy and Creative Synergies. Specifically, Conventional Orthodoxy and Creative Synergies, Han-Chinese society has a higher negative relationship than Anglo-Western society.

***H₁₇*: was supported, including *H_{17a}* and *H_{17b}*.** Conventional orthodoxy in the workplace had a negative influence on Knowledge Sharing and Creative Synergies in Anglo-Western society and Han-Chinese society. The impression was greatest in Han-Chinese society. A moderation effect, in this way, was traceable from Conventional Orthodoxy in the workplace to have a negative influence on knowledge building; viz. Knowledge Sharing and Creative Synergies. Likewise, Hsu (1982, p. 373) maintains that of all societal virtues, weaknesses appear, when ‘carried to excess’.

In step with Chinese society, Hsu (1982, pp. 376-377) asserts that tradition is carried to excess and ‘for centuries the conservative (of contemporary day) has simply produced more conservatives for tomorrow, and the result has been a static society’ and ‘the eldest are not always the wisest and old ways are not always the best’⁴³.

Moreover, when revolts occurred in ancient China, the goal was not change, instead the overriding aspiration was the restoration of Confucian ideals, which are embedded in a deeper conservatism from very ancient pre-Confucian times (Hsu 1982). In agreement with histology, the empirical results achieved from testing H_{17} , indicate Chinese conventionality has been preserved into the contemporary era (Pye, 1985), where it buttresses and sustains Vertical Power Ethos in suppressing Horizontal Altruism.

H₁₈: Society does not moderate the positive *etic* relationship between Knowledge Sharing and Creative Synergies. Specifically, this universal internal relationship shall be undifferentiated between Anglo-Western society and Han-Chinese society.

H₁₈: was supported. As anticipated, the relationship between Knowledge Sharing and Creative Synergies was found to be *etic* and unaffected by cross-societal influences. Approximately equal variances existed across the two cultures; wherein, any dependencies of Knowledge Sharing on Creative Synergies were commonly shared between cultures.

While Knowledge Sharing and Creative Synergies were independently moderated by *all* societal syndromes, in the workplaces tested; the relationship between Knowledge Sharing and Creative Synergies was non-cultural and can be presumed universal. Instead, cultural

⁴³ In a similar fashion Latinisation and Hellenism underpin legal, political and religious practices in Anglo-Western society.

influences, *a priori*, precede the highly immutable connection between Knowledge Sharing and Creative Synergies.

- ***H*₁₉: Society moderates the positive relationship between Creative Synergies and product-process discovery. Specifically, Han-Chinese society has a lower positive relationship than in Anglo-Western society.**
- *H*_{19a}: Society moderates the positive relationship between Creative Synergies and Product Discovery. Specifically, between Creative Synergies and product discovery, closed Han-Chinese society has a lower positive relationship than open pluralistic Anglo-Western society.
- *H*_{19b}: Society moderates the positive relationship between Creative Synergies and process discovery. Specifically, between Creative Synergies and process discovery, Anglo-Western society has a higher positive relationship than in Han-Chinese society.

***H*₁₉ was largely unsupported. Yet, the unforeseen results are theoretically explicable.** As expected, the relationship between Creative Synergies and process discovery was positive. Counter-intuitively, the *impact* of co-operation and mutualism on product-process discovery was higher in Han-Chinese society than in Anglo-Western society, while *the extent and implementation* of pluralism was visibly more successful in Anglo-Western society. As previously identified in Han-Chinese society, high Vertical Power Ethos, high Conventional Orthodoxy, ‘limited and bounded trust’ (Redding 1990) and familialism; all work to limit knowledge-transfer and to restrain inherent ability. Consequently, the scope of skilled participation is reduced, despite the high indigenous potential measured by *H*₁₉.

If unrestrained, the unrealised personal societal proclivities of Chinese team members were applied to an open environment, rather than a closed environment, Han-Chinese new product-process development would be better placed to undertake innovative research and development, beyond replicative manufacturing competencies. Unfortunately, the Han-

Chinese closed system (Jin *et al.* 1999) has been embedded for centuries in the absence of pluralistic feudalism of the kind historically known to Japan and the West, where pluralist inter-familial co-operation, from many sources, brought solutions to common problems: e.g. ploughing (McNeill, 1991).

Redding (1990), argues that regarding values and beliefs, there exists a series of concentric circles emanating away from the self to society via relationships and organisations. The self and relationships represent psycho-social influences, while organisations and society represent wider influencers. In a similar framework, Hsu (1983, pp. 199-200) expands Freud's (1943, in Hsu 1983) model of the unconscious and conscious mind beyond the individual, to recognise external shells of expression, including the cultures of 'intimate society' and 'operative society'.

Intimate society embodies close and venerated relationships, the loss of which would be despondently and emotionally felt by individuals: e.g. familial relationships¹. Here affective bonds established in intimate society are *extended to the roles* individuals' express. Otherwise, according to Hsu (1983, p. 201), an operative society, such as the Anglo-West, progresses with *less emotional devotion*, allowing a wider net to be thrown, thereby facilitating free communication between distributed groups. Intimate society is like a local area network, operational society is more like the Internet. In order to explain H_{19} findings, The Thesis claims intimate society and operative society can vary in bandwidth across societies and become less distinguishable overlapping in Venn diagram fashion².

¹ Furthermore, Matsumoto (1992, in Triandis 1994, p. 198) found that collectivists experience 'more negative emotions than individuals in out-group situations'.

² Hsu (1983) and Redding (1990) would have a series of ripples extending outwards from the Self. I would further argue theirs' is an approximation of a larger scheme, where many selves, each with their own 'ripples', interact and overlap communications. In this case, intimate society (a) could be seen to be spreading outwards, while operational society (b), in the absence of barriers, spreads from the external *towards* the Self. The Thesis

Thus, Han-Chinese familial and familial-styled hierarchies are to a significant extent based on cardinal relationships and role (Confucius) ‘limited and bounded trust’, and (often unwanted) obligation. These act to determine societal ‘rules of action’ (Redding 1990, pp. 66-70), herein, restricting full engagement with wider operative society. On the other hand, in Chinese society, the penchant towards developing horizontal ties was very strong: Alas, the *allowable field of engagement* between individuals becomes *too self-contained*, to support an open knowledge system³: Long and far-reaching Venn-like chains are normatively absent.

In a similar mode, extending Mowerer and Kluckhohn’s (1944, in Hsu 1983, pp. 130-131) discourse on utility towards invention and knowledge creation, finds the open Anglo-Western system an ‘education process’ and the closed Han-Chinese system is a ‘re-education process’. Both societal processes benefit from high Horizontal Altruism; but only the forward-reaching education process truly primes novel innovation into extensive operational realms. On the contrary Han-Chinese re-education is highly tethered to repetition and reproduction.

- ***H*₂₀: Society moderates the positive relationship between Final Process Conformance Outcomes and Product Discovery. Specifically, Anglo-Western society has a higher positive relationship than Han-Chinese society.**

supports the notion that discourse and Knowledge Sharing are possible at $A \cup B$ and that a knowledge-based society must act to maximise the area represented by the set $A \cup B$. Further, The Thesis posits Anglo-Western Society ($A \cup B$) > Han-Chinese Society ($A \cup B$). $A \cup B$ is being constrained in Han-Chinese Society.

³ Metaphorically, one might think of Sino Homeostatic Traditionalism to be an earnest supercomputer readily operationalising *passé* software and not communicating with other systems While, Western Dynamic Transformationalism is akin a widely distributed looser new system. The former shall incline Han-Chinese society towards refining the known past, while, the latter to disposing Anglo-Western society towards an unknown future with confidence in change and progress.

H₂₀: was supported. As expected, in Anglo-Western society and Han-Chinese society, a significant positive relationship existed between final process conformance outcomes and product discovery. Very high path coefficients emphasised the importance of due consideration towards rightful completion of precursory processes, before new product discovery was achieved: e.g., the transitions from valves, to solid state to micro-chip electronic products, required a major intellectual investment in Knowledge Sharing to understand processes, *before* new products were developed. Understanding process was essential.

H₂₁: Society moderates the positive relationship between Product-Process Discovery and Final Product-process Conformance Outcomes. Specifically, differences between Anglo-Western society and Han-Chinese society shall be significant.

- *H_{21a}*: Society moderates the positive relationship between process discovery and final process outcomes. Specifically, differences between Anglo-Western society and Han-Chinese society shall be significant for process discovery and final process outcomes.
- *H_{23b}*: Society moderates the positive relationship between product discovery and final product outcomes. Specifically, differences between Anglo-Western society and Han-Chinese society shall be significant for product discovery and final Product Outcomes.
- **H₂₁: was not supported, including H_{21a} and H_{21b}.** Erroneously, The Thesis expected society would moderate the relationships between product-process discovery and final product outcomes; wherein, innovation, problem solving and new enterprise knowledge captured would be more likely to be *set aside* in Han-Chinese society vis-à-vis Anglo-Western society, due to top-down superordinate interference. However, this was not the case. Instead, an *etic* relationship was found. It appears, when palpable solutions were discovered by new product-process development teams that last-minute superordinate intrusions were not evident. Once product-process completion becomes a *fait accompli* superordinate interference stops.

Investigation Two found H_{15} - H_{18} and H_{20} statistically confirmed, H_{19} marginally confirmed and H_{21} was rejected. Moderation effects and non-moderation conductors *cum* conduits were ostensibly in accord with The Thesis, with some minor exceptions, which can be explained by revisiting cultural histories.

Representing societies (z) generally⁴⁷; Anglo-Western society and Han-Chinese society, were genuine moderators that changed the metrics of many constructs along the intermediation primary path model. Other paths were immutable to societal influence, yet carrying *a priori* information⁴⁸.

The societal syndromes, Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy again moderated multiple casual relationships along the intermediation primary path model. Anglo-Western society and Han-China presented disparate metrics having significant t scores .

The path coefficients indicate the societal syndromes measured had a stronger impact in Han-Chinese society than in Anglo-Western society. As hypothesised, Vertical Power Ethos and Conventional Orthodoxy presented an inverse (-) relationship and Horizontal Altruism offered a positive relationship.

⁴⁷ Not all societies were empirically tested: Anglo-Western society and Han-Chinese society were the indicative examples.

⁴⁸ In Physics a similar situation is known. The speed of light in a vacuum (c) is universal within the space-time continuum, but does not engage metric time within the universe. Yet, information can be conducted at c , via photons, through metric time (Penrose 2010)

Between Horizontal Altruism in the workplace and Knowledge Sharing, the path coefficients for Anglo-Western society and Han-Chinese society were 0.49 and 0.90, respectively. These last two couplings connote the high positive relationship between Horizontal Altruism and knowledge building; viz. Knowledge Sharing and Creative Synergies. Han-Chinese new product-process developers would greatly benefit from exploiting this finding but would need to address counter-balancing inhibiting factors, as previously identified.

7.5 CONTRASTING ANGLO-WESTERN AND HAN-CHINESE COMPARATIVE INDEPENDENT MEANS ON INTERMEDIATION PRIMARY PATH MODEL

7.5.1 Cross-Cultural Manifestations

Understanding cross-cultural manifestations on the intermediation primary path model to *convey predictive capacities* required that moderation effects to be complemented by measures of comparative independent means.

From the next page, the Thesis presents H_{22} . H_{24} and makes more detailed remarks on findings.

Table 7.11: Cross-societal Independent Means of Anglo-Western Society and Han-Chinese (H_{22} - H_{24})

Hyp.	Construct	Society	N	Mean	Std. Deviation	Std. Error Mean	T Score	r	Supported?
H_{22a}	VPESOC	A-West	194	3.38	0.45	0.03	-11.50	0.63	Yes
		H-China	112	4.08	0.55	0.05			
H_{22b}	VPEWOR	A-West	194	3.25	0.69	0.05	-11.89	0.64	Yes
		H-China	112	4.05	0.48	0.04			
H_{23a}	HORSOC	A-West	194	4.29	.097	0.07	-3.49	0.57	Yes
		H-China	112	3.95	0.73	0.07			
H_{23b}	HORWOR	A-West	194	4.06	0.99	0.07	-0.33	0.20	No
		A-China	112	4.09	0.42	.040			
H_{24a}	CONSOC	A-West	194	3.05	0.71	0.05	-8.92	0.56	Yes
		H-China	112	4.01	0.99	0.09			
H_{24b}	CONWOR	A-West	194	3.08	0.88	0.06	-11.93	0.57	Yes
		H-China	112	4.09	0.60	0.06			



Moreover, the Levine's tests provided measures of variance (F), where the *equality of variance* was tested, and rejected, as a *null* hypothesis. Contrary to the *null* hypothesis, inequality of variance existed.

Testing of comparative independent means were found in five out of six instances, as shown in Table 7.9. These results were in accordance with expectations. Horizontal altruism in the workplace was the

exception where Han-Chinese society (4.09) offered an independent means slightly higher than Anglo-Western society (4.06). For H_{23b} a non-significant T score (0.33) was registered between the societies, meaning the two societies are statistically differentiated.

Comparative Independent Means, Measures of Variance and Effect: Hypotheses H_{22} - H_{24}

For H_{22} - H_{24} the independent means between Anglo-Western society and Han-Chinese society were compared. Further, equality of variance and extent of effect were measured.

- **H_{22} Vertical Power Ethos shall measure higher independent means in Han-Chinese society than in Anglo-Western society.**
- H_{22a} : Vertical Power Ethos shall measure higher independent means in Han-Chinese society, the society-at-large, than in Anglo-Western society.
- H_{22b} : Vertical Power Ethos shall measure higher independent means in Han-Chinese society, in the workplace, than in Anglo-Western society.

H_{22} was supported, including H_{22a} and H_{22b} .

H_{22a} : For Vertical Power Ethos the society (VPESOC), on average, the results, as reported in Table 7.9, confirmed Han-Chinese society presented a higher independent means ($M=4.09$, $SE=0.03$) than did Anglo-Western society ($M=3.38$, $SE=0.052$), $t^{49} (196) = -11.46^{50}$, $p = 0.00$, $r = 0.63^{51}$. For Levine's test of equality of variance, $F = 13.58$, $p = 0.00$. Equal variances were not assumed. Overall, these data were both statistically significant and the effect (r) was very large, representing a substantive finding (Field 2009).

H_{22b} : For Vertical Power Ethos in the workplace (VPEWOR), on average, the results, as reported in Table 7.9 confirmed Han-Chinese society presented a higher independent means ($M=4.06$, $SE=0.04$) than did Anglo-Western society ($M=3.25$, $SE = 0.05$), $t (293) =$

⁴⁹ At 95% Confidence Interval of Difference.

⁵⁰ For Equality of Means.

⁵¹ $r > 0.05$ is 'the threshold for a very large effect' (Field, 2009, p.332).

-11.89, $p = 0.00$, $r = 0.641$. For Levine's test of equality of variance, $F = 11.51$, $p = 0.00$. Overall, these data were both statistically significant and the effect was very large, representing a substantive finding.

- ***H*₂₃: Horizontal Altruism shall measure lower Independent Means in Han-Chinese society than in Anglo-Western society.**

- *H*_{23a} Horizontal Altruism shall measure lower independent means in Han-Chinese society, the society-at-large, than in Anglo-Western society.

- *H*_{23b} Horizontal Altruism shall measure lower independent means in Han-Chinese society, in the workplace, than in Anglo-Western society.

***H*₂₃ was partially supported. *H*_{16b} was not statistically supported but was consistent with theory.**

*H*_{23a}: For Horizontal Altruism the society (HORSOC), on average the results as reported in Table 7.9 confirmed Anglo-Western society presented higher independent means ($M=4.29$, $SE=0.07$) than did Han-Chinese society ($M=3.95$, $SE = 0.07$), $t(284) = -3.49$, $p = 0.00$, $r = 0.57$. For Levine's test of equality of variance, $F = 11.65$, $p = 0.00$. Equal variances were not assumed. Overall, these data were both statistically significant and the effect was very large, representing a substantive finding.

*H*_{23b}: For Horizontal Altruism in the workplace (HORWOR), on average, the results, as reported in Table 7.9 unexpectedly found Han-Chinese society presented higher independent means (4.09 , $SE=0.04$) than did Anglo-Western society ($M=4.07$, $SE = 0.07$), $t(283) = -0.33$, $p = 0.74$, $r = 0.20$. For Levine's test of equality of variance, $F = 65.08$, $p = 0.00$. Overall, data were statistically non-significant and there was no substantive effect. This

finding is an example of Vertical Power Ethos and Conventional Orthodoxy restraining pluralism and mutualism in Han-Chinese Society and curtailing knowledge building.

What is more, based on the data analysed, Han-Chinese teams, *prima facie*, should perform at least as competently (highly) as Anglo-Western teams on the HORWOR.HC and KNOWSHR.HC path, if given a significant lessening of top-down superordinate intervention, which evidently stifles beneficial latent competent subordinate capacities. With less superordinate intercession in practical decision making and innovative design, as with the Japanese *Ringi* system, Han-Chinese teams would improve their performance, regarding medium to high levels of product-process transformation, which require aggregating specialised personal knowledge from multiple contributors. In this last case, professional and technical know-how would become more important than role status.

- ***H₂₄* Conventional Orthodoxy shall measure higher Independent Means in Han-Chinese society than in Anglo-Western society.**

- *H_{24a}* Conventional Orthodoxy shall measure higher independent means in Han-Chinese society, the society-at-large, than in Anglo-Western society.

- *H_{24b}* Conventional Orthodoxy shall measure higher independent means in Han-Chinese society, in the workplace, than in Anglo-Western society.

***H₂₄* was supported, including *H_{24a}* and *H_{24b}*.**

***H_{24a}*:** For Conventional Orthodoxy the society (CONSOC), on average the results reported in Table 7.9 confirmed Han-Chinese society presented a higher independent means (M=4.01, SE=0.09) than did Han-Chinese society (M=3.06, SE = 0.51), $t(178) = -8.92$, $p = 0.00$, $r =$

0.56. For Levine's test of equality of variance, $F = 27.55$, $p = 0.00$. Equal variances were not assumed. Overall, these data were both statistically significant and the effect was very large, representing a substantive finding.

H_{24b}: For Conventional Orthodoxy in the workplace (CONWOR), on average, the results, as reported in Table 7.9 unexpectedly found Han-Chinese society presented a higher independent means ($M=4.10$, $SE=0.06$) than did Anglo-Western society ($M=3.09$, $SE = 0.06$), $t(297) = -11.93$, $p = 0.00$, $r = 0.57$. For Levine's test of equality of variance, $F = 13.21$, $p = 0.00$. Overall, data were statistically significant and there was a very substantive effect.

7.5.2 Evaluation of Comparative Independent Means

The research established that lower Vertical Power Ethos and lower Conventional Orthodoxy had an inverse negative relationship with Horizontal Altruism. This finding indicated Anglo-Western society less restrained by the *pincer effect* compared with Han-Chinese society.

Testing the hypothesised relationships of magnitude (means) by comparing Anglo-Western society and Han-Chinese, predominantly confirmed predicted relationships. Vertical Power Ethos and Conventional Orthodoxy combined to shape a harmful *pincer effect*, squeezing and inhibiting the beneficial spread of high Horizontal Altruism. High Vertical Power Ethos and high Conventional Orthodoxy, thus, confined the development of horizontal inclusiveness, horizontal mutualism and horizontal reciprocity capabilities in Han-Chinese product-process teams. The resulting loss of creative capacity in Han-Chinese product-process teams constrained wider interaction challenging knowledge building and knowledge discovery.

Consequently, superordinates in Han-Chinese enterprises, to be like bosses in Japan Inc., would be advised to loosen their direct control over product-process development teams to better facilitate novel innovation. In practice this would support medium to high transformation product-process development locally. It follows, any transmutation of core cultural values would be a major challenge to China; yet, the West⁵², Japan⁵³ and Turkey⁵⁴ have undergone similar transitions.

7.6 CONCLUDING REMARKS ON INVESTIGATIONS ONE AND TWO

Chapter Seven employed SmartPLS structural equation modelling and other relevant quantitative methods to extend researchers' understanding of effects of key cultural antecedents on new product-process development, by examining a multi-industry practitioner sample (n=306), from Anglo-Western society (n=194) and Han-Chinese society (n=112). In all, three major investigations were implemented. Original results were derived from each investigation. A high degree of measurement invariance was confirmed in context with 'first measurements'.

Remarks for Investigation One: Whereas, earlier researchers contended a direct relationship to exist between various cultural antecedents and final new product outcomes, Investigation One, revealed, for the first time, knowledge building and knowledge discovery constructs mediate the relationship between societal syndromes and product-process conformance outcomes.

⁵² The Renaissance, the Enlightenment and the Great Divergence drove massive changes in the West. Neither a Roman Augustus nor a Chinese Emperor would find 1500s Europe particularly unfamiliar. Yet, a monarch from 1500s Europe would be astounded with the twenty-first century transformations.

⁵³ The Convention of Kanagawa (1854) allowed the opening up of Japan from the time Commodore Perry, the Meiji Restoration and *fukoku kyohei*, permitting the industrialisation of Japan (1868-1945) and post-World War II Western occupation and Japan Inc. (1945 to present) aiding the democratisation of Japan.

⁵⁴ Modernisation and secularisation in the 1920s of Turkey under the Kermal Mustafa Atatürk's *Devrimleri* reforms.

Rather than accept the contemporary explanation of a direct antecedent to outcome relationship, the new empirical research conducted has firmly established how three elastic malleable cultural syndromes direct knowledge processes along an elongated intermediation primary path ultimately to determine final new product-process development conformance outcomes. Herein, the new intermediation primary path model and its main effects were empirically authenticated; thus, expanding (internally) earlier one-to-one cultural antecedents to product outcome model frameworks.

During the process leading to verification of the intermediation primary path model, the compound architecture of the new societal syndrome scheme was accepted (H_1-H_8), supported by convincing T scores and path coefficient showing high interconnectedness between key syndromes, as hypothesised. The architecture, adopted from socio-anthropology (Dunbar 1996), sought to incorporate the practice of taking into account the behaviour of both large groups (society) and small groups (workplace). This two-level modelling provided a more comprehensive theoretical representation than would have been the case if measuring nation only or workplace only levels. Business studies academic and workplace practitioners would benefit from adopting this two-tier measurement approach, as advocated from anthropological method (Dunbar 1996).

Low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy were posited to facilitate Knowledge Sharing and Creative Synergies and to be normative of Anglo-Western Dynamic Transformationalism. Alternatively, high Vertical Power Ethos, low Horizontal Altruism and high Conventional Orthodoxy were advanced to be normative to Sino Homeostatic Transformationalism.

Except for H_{10} ; H_9 - H_{11} were supported and most posited relationships between cultural syndromes to knowledge building were confirmed. Vertical Power Ethos and Conventional Orthodoxy were verified antagonists to knowledge building having inverse relationships with Knowledge Sharing and Horizontal Altruism. As alluded to in H_7 - H_8 and empirically tested in H_9 - H_{11} , high Vertical Power Ethos⁵⁵ and high Conventional Orthodoxy inhibited knowledge building. Conversely, low Vertical Power Ethos⁵⁶ and low Conventional Orthodoxy facilitated knowledge building. Moreover, both Vertical Power Ethos and Conventional Orthodoxy had inverse relationships with Horizontal Altruism. These last inverse relationships must be recognised, because together low Vertical Power Ethos and low Conventional Orthodoxy create a *pincer* effect on the affective capacity of the positive potency of Horizontal Altruism to weaken the potential of the path between Horizontal Altruism and Knowledge Sharing⁵⁷. Also, the power and control aspects of these two constructs would be mutually reinforcing.

A T score of 20.07 and path coefficient of 0.72 presents the foundation for what The Thesis calls a KIDO⁵⁸ Effect, which is highly significant between Knowledge Sharing and Creative Synergies. This is because of the positive relationship between Knowledge Sharing and Creative Synergies. Effects from the cultural syndrome schema were readily carried through the knowledge building process to later have an affect on knowledge discovery and final product conformance outcomes. In this way, knowledge building was found to intermediate the new model, by reading the score provided by societal syndrome schema, to conduct the course of product discovery and process discovery. In this respect knowledge discovery, as

⁵⁵ As held by The Thesis to be present in Han-Chinese society.

⁵⁶ As held by The Thesis to be present in Han-Chinese society.

⁵⁷ The path between Horizontal Altruism in the workplace and Creative Synergies (H_{10b}) is non-significant.

⁵⁸ The Thesis contracts Knowledge In (then) Discovery Out as KIDO

the second intermediating influence, regulates, in the first instance, the machinations between product development and process development interactivity, and, in the second instance, product-process conformance outcomes found to result from (H_{13} - H_{14}).

Thus, H_1 - H_{14} (except H_{10b}) established the *bona fides* of the original intermediation primary path model, while confirming its main effects. The intermediation of knowledge building and knowledge discovery in-between cultural antecedents were securely ascertained. The new extended model (more drawn out) with its intermediation effects enlarges theoretical understanding having practical implication for knowledge management in new product-process internationally.

Remarks for Investigation Two: Investigation One validated the core intermediation primary path model. Moderators on the basic intermediation primary path model were not measured in Investigation One.

Investigation Two examined the moderation effects of Anglo-Western society and Han-Chinese society on the intermediation primary path model; wherein, society, represented by Anglo-Western society and Han-Chinese society, was hypothesised to moderate the basic model (H_{15} - H_{21}). Moderation effects required testing the veracity of moderators prior to contrasting independent means⁵⁹. Both relevance of moderation (interaction of z on x and y) and magnitude of societies (contrasting societal relativities), therefore, required discernment, before rational unified conclusions were drawn.

⁵⁹ Presented later in the chapter

Empirical analyses, found all moderation effects for H_{15} - H_{17} to be significant. Fully consistent with prior main effects modelling, Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy, exhibited negative, positive and negative impressions on the intermediation primary path model, respectively. Thus, on re-testing, fundamental relationships were ratified, as expected.

$H_{16\ a-b}$ yielded unexpected results, showing Han-Chinese society in the workplace interacted Horizontal Altruism more than Anglo-Western society. Onset expectations were weaker than empirical findings. Those expectations were based on the assumption that pluralism in Anglo-Western society (and Japanese society) facilitated high Horizontal Altruism, while Han-Chinese in-groups, instead, exhibited significant 'limited and bounded trust' (Redding 1990) towards *most* others.

Resolution of the paradox is now seen to rest on the negative influence of Vertical Power Ethos and Conventional Orthodoxy on Horizontal Altruism, *before* Horizontal Altruism affects Knowledge Sharing and knowledge building. Moreover, a new distinction has been found *latent* (unrealised and unexpressed) high Horizontal Altruism, as in the Han-Chinese workplace, and, *manifest* (realised and expressed) high Horizontal Altruism, as in the Anglo-West. But in the Han-Chinese workplace out-group contact is highly curtailed.

Consequently, if desired, to achieve *manifest* high Horizontal Altruism in Han China, changes to Han-Chinese normative organisational behaviour would be necessary. This course would mean retreating from rank-based cardinal relationships and traditions, so to accomplish highly creative outcomes from Han-Chinese product-process development teams, in time. Inter-company co-operation would need to be widespread and how *guanxi* operates across

commercial communities of practice adapted towards more loose openness and lower fear of obligation bonding attachments.

Herein, *hypothetically*, given our two societies, both widely operationalised high Horizontal Altruism. An extension of Hecksher-Ohlin theorem (1954) to include knowledge created, as a factor production, would have that society maintaining a high level of *manifest* Horizontal Altruism and *sustaining the lowest opportunity cost* to be best placed to leverage commercial advantage.

Moreover, comparative product-process advantages could be interlaced and organisations cross-societally owned to facilitate the funding of novel innovation (high cost) and low cost (high profit) mass production. Herein, the current penchant of nations to group geographically (e.g. European Union) might not optimise opportunities to continue to innovate while maintaining profitability for the innovator. The duality, based on cultural predispositions, of separate locations for novel innovation and mass production needs to be addressed by cross-societal stakeholders. Chapter Eight shall develop this last point regarding cross-cultural product-process transformation.

As hypothesised (H_{18}), the Knowledge Sharing and Creative Synergies path was *etic* and unresponsive (non-significant) to external moderation effects from Anglo-Western society and Han Chinese society binary. Instead, culture-flexible societal syndromes *passed-on* effects along the mainstay intermediation primary path model to differentially affect Knowledge Sharing, and, thence Creative Synergies. This expected result shows the specific positive relationship incorporating the level of Knowledge Sharing and the level of Creative Synergies was enjoined, ostensibly universal and self-directed.

The Thesis anticipated a formidable positive bound Creative Synergies and product-process discovery (H_{19a}). Yet, for H_{19a} , the hypothesised relationship of the Creative Synergies to product discovery path was marginal and not statistically supported ($t=1.880$). Nonetheless, the Creative Synergies en route process discovery path was significant (H_{19a}). This result appears to highlight the importance of the intermediating effect of process discovery, along the path to knowledge discovery. Future modellers might be advised to more closely consider this major antecedent effect, before modelling product relationships in isolation from process.

Of the final process conformance outcomes to product discovery path (H_{20}), moderation effects were evident showing Anglo-Western society more impacted than Han-Chinese society. One coherent explanation for this is Anglo-Western society more often employs non-conventional forms of innovation⁶⁰.

H_{21} was not empirically confirmed. The moderation effect between Anglo-Western and Han-Chinese was non-significant. Society, represented by Anglo-Western and Han-Chinese moderated neither, (a) the process discovery to final process conformance outcomes path, nor (b) the product discovery path to Final Product Conformance Outcomes path. However, one should not conclude from the absence of societal moderation effects, these two paths are unimportant, rather this *etic* path received homeward bound information, while top-down managerial interference receded, once completion appears essentially accomplished.

In abstract, up to this point, societal moderation effects, as represented by Anglo-Western society and Han-Chinese society, were markedly evident for all cultural and knowledge

⁶⁰ The Thesis posits where innovation exists in Han-Chinese society, it is directed towards improving the precision and quality of known practices.

building paths, while demonstrating differential results. Most times, the moderation effects were more robust in Han-Chinese society. Also, knowledge building to knowledge discovery process paths returned abundant moderation effects, except for the Creative Synergies to product discovery path, which was merely theoretically, but not statistically supported. Towards the end of the product-process development life cycle, societal moderation on the intermediation primary path model did not exist. However, *etic* relationships remained important for project completion.

Thus, the entire present model was explained in terms of prolific, substantial moderation effects accompanied by a few necessary conduit constructs. The next step was to use independent means to establish the relationships between the two societies.

Measurement of cross-societal independent means of Anglo-Western society (n=194) and Han Chinese society (n=112), without any discrimination between levels of product-process transformation required, for H_{11} - H_{24} confirmed, except H_{23b} . The hypothesised architecture of the societal syndromes schema was evident and all Anglo-Western society vis-à-vis Han Chinese society were as anticipated, aside from H_{23b} , which discovered *latent* high Horizontal Altruism on a non-significant ($T = 0.33$) path. Given these general overarching findings⁶¹, normative Anglo-Western society was undeniably more proficient than normative Han Chinese society in achieving product-process conformance outcomes, as hypothesised.

⁶¹ While not discerning between various levels of product-process transformation required.

7.7 NEXT CHAPTER

Next, Chapter Eight, Volume III, adopting Anglo Western society and Han Chinese society, presents a preliminary study investigating the effects of the level of product-process transformation required on the intermediation path model. The Chapter Eight results are highly favourable to the Thesis, yet require validation or rejection, by a repeat study, employing larger populations for cited segments. Subsequently, Chapter Nine, offers other comments concerning more further studies and conclusions.

-Please turn page-

**Exploring the Comparative Effects of Societal Syndromes
on
Knowledge Discovery
in
New Product-Process Development
~
Contrasting Anglo-Western Society and Han-Chinese Society**

by

Peter James Sinclair

Volume III

Submitted to Marketing Discipline Group, UTS Business School
in partial fulfilment of the requirements for the degree of

Doctor of Philosophy in Marketing

at the

University of Technology, Sydney

September, 2012

© 2012 Peter James Sinclair. All rights reserved. Permission is herein granted to the University of Technology, Sydney to store; and, after **28 September 2013**, to copy and circulate for non-commercial purposes at the University's own discretion, the above title and content contained therein, upon the request of academic researchers, students and educational institutions. Title and authorship must be attributed.

Certificate of Authorship and Originality

I, Peter James Sinclair, hereby certify that the work in this thesis has not been previously been submitted for another degree, nor has the work been submitted as the part of any other degree. Furthermore, I certify that the thesis was written by me and that any sources cited in the preparation of the thesis have been fully and rightfully acknowledged.

Thesis Author..... Peter James Sinclair
28 September 2012

TABLE OF CONTENTS

VOLUME ONE

CHAPTER ONE: INTRODUCTION AND THESIS OUTLINE

1.1 JUSTIFICATION FOR THESIS	2
1.2 OUTLINE OF THESIS	6
1.3 FORMAT OF LITERATURE REVIEW	7
1.3.1 Establishing the Current State of Understanding	7
1.3.2 Establishing Deep Histological Understanding	7
1.3.3 Theory and Archetype Transformation	8
1.3.4 Research Design and Methodology	8
1.3.5 Assessment of Measurement Models	9
1.3.6 Structural Modelling and Further Assessment	9
1.3.7 Conclusions and Discussion	10
1.4 NEXT CHAPTER	10

CHAPTER TWO: LITERATURE REVIEW – PART ONE

2.1 INTRODUCTION	12
2.1.1 Chapter Synopsis	12
2.1.2 Preface to Literature Review	13
2.2 THREE PARENT DISCIPLINES	19
2.2.1 Knowledge Management	19
2.2.1.1 Definitions of Knowledge Management	19
2.2.1.2 Trends towards a Knowledge Based Economy	24
2.2.1.3 Innovation	31
2.2.1.4 Knowledge Sharing and Information Flow	33
2.2.1.5 Japanese Management Systems	35
2.3 THREE PARENT DISCIPLINES	38
2.3.1 Preface to New Product Development in Marketing	38
2.3.2 Definitions of New Product Development	40
2.3.3 Cross-functional Team Research in New Product Development	42
2.3.4 Innovation in New Product Development	46
2.4 CULTURAL STUDIES	49
2.4.1 Ecology	49
2.4.2 Culture's Foundations	50
2.4.3 Defining Culture	52

2.5 DEVELOPING A NEW INTERGRATIVE QUALITATIVE MODEL	61
2.5.1 Three Perspectives On Culture’s Constituent Parts	61
2.5.1.1 Fiske’s Four Elementary Forms of Social Reality	62
2.5.1.2 Triandis’ Cultural Syndromes	71
2.5.1.3 Redding’s Chinese Capitalism	75
2.5.2 Non-Empirical Models: Integrating Seminal Culture Literature: Anglo-West And Han-China	79
2.6 LITERATURE REVIEW PART I: SUMMARY AND CONCLUSIONS	84
2.7 NEXT CHAPTER	86

CHAPTER THREE: LITERATURE REVIEW – PART TWO
--

3.1 INTRODUCTION	88
3.1.1 Chapter Synopsis	88
3.1.2 Scope of the Literature Review for Chapter Three	89
3.2 VERTICAL ORDER IN TRADITIONAL CHINESE HISTORY	90
3.2.1 Contrasts in History	90
3.2.2 The <i>li</i> and <i>wu lun</i>	95
3.3 HORIZONTAL ORDER IN CHINESE HISTORY	101

3.4	CONTRASTING SINO-HOMEOSTATIC AND WESTERN DYNAMIC TRANSFORMATIONALISM	108
3.5	LITERATURE REVIEW PART II: SUMMARY AND CONCLUSIONS	114
3.6	NEXT CHAPTER	115

**CHAPTER FOUR: THEORY AND RESEARCH ARCHETYPE
TRANSFORMATION**

4.1	INTRODUCTION	118
4.2	SCOPE OF CHAPTER FOUR	119
4.2.1	Revisiting the Modelling of the Non-Empirical Literature	119
4.2.2	Interlude on Modelling Archetypes Applied	121
4.2.2.1	Non-Empirical Models	121
4.2.2.2	Template for Empirical Models	122
4.2.3	Investigation One: Introduction to Intermediation Primary Path Model	123
4.2.4	Investigation Two: Introduction to Cross-Cultural Moderation Model	124
4.2.5	Investigation Three: Introduction to Product Transformation Requisites Moderation Model	125

4.3	RETURNING TO CULTURAL STUDIES	127
4.3.1	Revising Cultural Studies	127
4.3.2	Integration of Fiske’s Elementary Forms and Triandis’ Culture Syndrome	131
4.3.3	Social Complexity - Triandis	134
4.3.3.1	Tight versus Loose Cultures - Triandis	135
4.3.3.2	Individualism and Collectivism	136
4.4	SOCIETAL CULTURE AND SOCIAL BEHAVIOUR	140
4.5	PLURALISM	141
4.6	INTERLUDE REGARDING DEVELOPMENT	147
4.7	CONSTRUCTING AN ORIGINAL CULTURAL STUDIES MODEL	151
4.8	INTERLUDE REGARDING DEVELOPMENT	158
4.8.1	Vertical Power Ethos	160
4.8.2	Horizontal Altruism	162
4.8.3	Conventional Orthodoxy	166
4.9	CONCLUDING REMARKS ON ORIGINAL CULTURAL SYNDROMES	168
4.10	KNOWLEDGE BUILDING IN NEW PRODUCT DEVELOPMENT TEAMS	169

4.11	KNOWLEDGE DISCOVERY IN NEW PRODUCT- PROCESS DEVELOPMENT	171
4.12	FINAL CONFORMANCE OUTCOMES IN PRODUCT- PROCESS	173
4.13	SUMMARISED OUTLINE OF INTERMEDIATION PRIMARY PATH MODELS	174
4.14	HYPOTHESES RELATING TO THE INTERMEDIATION PRIMARY PATH MODEL	178
14.14.1	Hypotheses pertaining to Societal Syndrome Internal Relationships	178
14.14.2	Hypotheses pertaining to Knowledge Building	180
14.14.3	Hypotheses pertaining to Knowledge Discovery	183
14.14.4	Hypotheses pertaining to Final Product-Process Outcomes	184
4.15	MAIN EFFECTS MODEL FOR ALL PRODUCT TRANSFORMATION CATEGORIES OF ANGLO WESTERN SOCIETY AND HAN CHINESE SOCIETY COMBINED - INCLUDING HYPOTHESES	189
14.15.1	Introduction to Cross-Culture Models	189
14.15.2	Contrasting Cultural Syndromes in Anglo Western and Han Chinese Societies	196
14.15.3	Hypotheses pertaining to Anglo-Western and Han-Chinese Culture Moderation Model Relationships	200
4.16	PRODUCT-PROCESS TRANSFORMATION REQUISITE MODELS FOR ANGLO WESTERN SOCIETY AND HAN CHINESE SOCIETY	204
4.16.1	Preface to Product-Process Transformation Moderation	204
4.16.2	Propositions Pertaining to Product-Process Transformation	205

4.17 SUMMARY AND CONCLUSIONS: THEORY AND RESEARCH ARCHETYPE TRANSFORMATION	206
4.18 NEXT CHAPTER	209

-Please turn page-

TABLE OF CONTENTS

VOLUME TWO

CHAPTER FIVE: RESEARCH METHODOLOGY

5.1	INTRODUCTION	212
5.1.1	Chapter Synopsis	212
5.1.2	Scope of Chapter Five	213
5.1.3	Reflective Model Adopted	215
5.2	BUSINESS PROBLEMS	217
5.3	RESEARCH PROBLEMS	219
5.4	RESEARCH QUESTION	219
5.4.1	Research Question Posed	219
5.4.2	Research Issues	220
5.5	RESIGN DESIGN	224
5.5.1	Outline for the Operation of Constructs and the Creation of New Scales	224
5.5.2	Determination of Measures	225

5.5.3	Generation of Item Pool	226
5.5.4	Expert Panel Revision	227
5.6	PRETESTING THE SURVEY INSTRUMENT	229
5.7	FINAL SURVEY INSTRUMENTS	231
5.7.2.	Data Collection and Sampling	233
5.7.3.	Respondents	234
5.7.3.1	New Product-Process Developers	234
5.7.3.2	Non New Product-Process Developers	237
5.8	MEASUREMENT OF THE THEORETICAL CONSTRUCTS	244
5.9	ORIGINAL MODELS	246
5.9.1	Measurement Models - Societal Syndromes Study	246
5.9.2	Structural Equation Modelling -Three Investigations	247
5.9.2.1	Intermediation Primary Path Model	249
5.9.2.2	Two Moderation Models	250
5.9.3	<i>Post hoc</i> Test for Common Method Variance	255
5.10	SUMMARY AND CONCLUSIONS	255
5.11	NEXT CHAPTER	259

CHAPTER SIX – ASSESSMENT OF MEASUREMENT MODELS

6.1	INTRODUCTION	262
6.1.1	Chapter Synopsis	262
6.1.2	Contributions of Societal Syndromes	262
6.1.3	Statement of Scope	265
6.1.4	Outline of Chapter Six	266
6.2	THEORETICAL FOUNDATIONS OF PSYCHOMETRIC MEASURES	267
6.2.1	Measurement	268
6.2.2	Reliability	270
6.2.3	Validity	276
6.2.4	Content Validity and Dimensionality	278
6.2.5	Criterion-Related Validity	280
6.2.6	Convergence Validity and Discriminate Validity	280
6.2.7	Nomological Networks	281
6.2.8	Dimension Specification and Confirmatory Factor Analysis Specification	282
6.2.9	Interim Summary: Psychometric Theory	284
6.3	RELIABILITY AND DIMENSIONALITY	285

6.4	PRINCIPAL AXIS FACTORING	291
6.4.1	Two Group Analysis of Degree of Variance: Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy	294
6.5	THEORY OF MEASURES OF GOODNESS-OF-FIT	297
6.5.1	Confirmatory Factor Analyses	297
6.5.2	Goodness-of-Fit	298
6.5.3	Interim Summary and Interpretation: Goodness-of-Fit (Theory)	303
6.6	ANALYSES OF GOODNESS OF FIT AND CFA ANALYSES OF DIMENSIONALITY	304
6.6.1	Vertical Power Ethos	304
6.6.1.1	VPESOC.AW: VPE in Society-at-Large in Anglo-Western Society	304
6.6.1.2	HORWOR.AW: HOR at the Workplace for Anglo-Western Society	306
6.6.1.3	VPESOC.HC: HOR in Han-Chinese Society-at-Large	307
6.6.1.4	VPEWOR.HC: VPE at the Workplace in Han-Chinese Society	309
6.6.2	Horizontal Altruism	310
6.6.2.1	HORSOC.AW: HOR in Society-at-Large in Anglo-Western Society	311
6.6.2.2	HORWOR.AW: HOR at the Workplace for Anglo-Western Society	312
6.6.2.3	HORSOC.HC: HOR in Society-at-Large for Han-Chinese Society	314
6.6.2.4	HORWOR.HC: HOR at the Workplace in Han-Chinese Society-at-Large	315
6.6.3	Conventional Orthodoxy	317

6.6.3.1	CONSOC.AW: CON in Society-at-Large in Anglo-Western Society	317
6.6.3.2	CONWOR.AW: CON at the Workplace in Anglo-Western Society	319
6.6.3.3	CONSOC.HC: CON in Society-at-Large for Han-Chinese Society	321
6.6.3.4	CONWOR.HC: HOR at the Workplace for Han-Chinese Society	322
6.7	CONTRASTING ANGLO-WESTERN SOCIETY AND HAN-CHINESE SOCIETY PRELIMINARY MEASURES	325
6.7.1	Vertical Power Ethos	325
6.7.2	Horizontal Altruism	326
6.7.3	Conventional Orthodoxy	327
6.8	INTERIM SUMMARY AND INTERPRETATION: ANALYSES OF GOODNESS OF FIT AND CFA ANALYSES OF DIMENSIONALITY	328
6.9	CONCLUDING REMARKS ON MEASUREMENT MODELS	330
6.10	NEXT CHAPTER	332

CHAPTER SEVEN: TESTING THE STRUCTURE OF THE PATH MODELS

7.1	INTRODUCTION	335
7.2	TWO GROUP ANALYSIS OF THE DEGREE OF VARIANCE: CREATIVE SYNERGIES, KNOWLEDGE SHARING, PRODUCT-PPROCESS DISCOVERY, FINAL PROCESS OUTCOMES AND FINAL PRODUCT OUTCOMES	339
7.3	INVESTIGATION ONE: INTERMEDIATION PRIMARY PATH MODEL	341
7.3.1	Overview of Intermediation Primary Path Model	341
7.3.2	Societal Syndromes Schema Intra-relationships - Hypotheses H ₁ - H ₈	352
7.3.3	Societal Syndromes to Knowledge Building Relationships - Hypotheses H ₉ - H ₁₁	359
7.3.4	Knowledge Building Schema Intra-Relationship - Hypothesis H ₁₂	365
7.3.5	Creative Synergies to Knowledge Discovery Relationships - Hypothesis H ₁₃	370
7.3.6	Knowledge Discovery Relationships to Final Product-Process Relationships - Hypothesis H ₁₄	373

7.3.7	Investigation One : Summary Of Findings	375
7.4	INVESTIGATION TWO: MODERATION EFFECTS OF SOCIETY: CONTRASTING ANGLO-WESTERN SOCIETY AND HAN-CHINESE SOCIETY	376
7.4.1	Introduction	376
7.4.2	Contrasting Anglo-Western and Han-Chinese Moderation Effects on the Intermediation Primary Path Model	377
7.4.2.1	Introduction to the Moderation Effects of Society	377
7.4.2.2	Cross-Society Path Coefficients and T Score Moderation Effects $H_{15} - H_{21}$	378
7.4.2.3	Moderation Effects: Hypotheses $H_{15} - H_{21}$	380
7.5	CONTRASTING ANGLO-WESTERN AND HAN-CHINESE COMPARATIVE INDEPENDENT MEANS ON INTERMEDIATION PRIMARY PATH MODEL	389
7.5.1	Cross-Cultural Manifestations	389
7.5.2	Evaluation of Comparative Independent Means	394
7.6	CONCLUDING REMARKS ON INVESTIGATIONS ONE AND TWO	395
7.7	NEXT CHAPTER	403

-Please Turn Page-

TABLE OF CONTENTS

VOLUME THREE

CHAPTER EIGHT: PROPOSITIONAL STUDY: EXPLORING THE EFFECTS OF PRODUCT PROCESS TRANSFORMATION

8.1 REVISION OF EARLIER INVESTIGATIONS	405
8.2 RATIONALE FOR MEASURING PRODUCT-PROCESS TRANSFORMATION	406
8.3 PROPOSITIONAL NATURE OF QUANTITATIVE RESULT	408
8.4 PROPOSITIONS REGARDING THE MODERATING EFFECTS OF PROCESS TRANSFORMATION	409
8.5 MAIDEN FINDINGS FOR PRODUCT-PROCESS INFORMATION DEVELOPMENT	418
8.6 NEXT CHAPTER	422

CHAPTER NINE: DISCUSSION, CONCLUSIONS AND FURTHER STUDIES

9.1	OUTLINE OF CHAPTER NINE	424
9.2	ADDRESSING RESEARCH PROBLEMS	426
9.3	DISCUSSION DRAWN FROM RESEARCH ISSUES	431
9.3.1	Can societal syndromes be derived from collected research data?	431
9.3.2	Can societal measures be differentiated between Anglo-Western society and Han-Chinese society?	431
9.3.3	How do posited societal syndromes relate Knowledge Sharing and Creative Synergies in Anglo-Western society and Han-Chinese society?	432
9.3.4	How do Knowledge Sharing and Creative Synergies in knowledge building relate to product-process conformance outcomes in Anglo-Western society and Han Chinese society?	433
9.3.5	How does the extent of Product-Process Transformation Required by management relate to new product conformance in Anglo-Western society and Han-Chinese society?	433
9.3.6	How can societal syndromes be best applied by international marketers in Anglo-Western society and Han-Chinese society in new product-process development?	434
9.4	CONTRIBUTIONS AND IMPLICATIONS	434
9.4.1	Contributions to Methodology	434
9.4.2	Major Cultural Anthropological Studies Integrated and Operationalised	436
9.4.3	Operation of Latent High Horizontal Altruism Revealed	437

9.4.4	Knowledge-Based Intermediation Effects Confirmed	439
9.4.5	Anglo-Western and Han-Chinese Societal Moderation Effects on the Intermediation Primary Path Model Established	441
9.4.6	Effects of Product-Process Transformation on the Intermediation Primary Path Model Established in Anglo-Western Society an Han-Chinese society	443
9.5	ADDRESSING THE RESEARCH QUESTION	444
9.5.1	Framework for Answering the Research Question	444
9.5.2	Answering the Research Question	446
9.6	SUMMARY OF MAIN IMPLCATIONS	447
9.6.1	Implications for Theory	447
9.6.2	Implications for Practice	449
9.6.3	Implications for achieving Product-Trade Advantage	452
9.7	LIMITATIONS	454
9.8	FUTURE RESEARCH STUDIES	456
9.8.1	Introduction to Future Research Studies	456
9.8.2	Future Research Design Approaches	456
9.8.3	Specific Future Research Recommendation	458
9.9	REGARDING APPENDICES	460
	BIBLIOGRAPHY	461

LIST OF TABLES

VOLUME ONE

Table 3.1	Vertical Order, Horizontal Order and Traditionalism in China and the West	89
Table 3.2	Antecedents to Sino Homeostatic Traditionalism and Western Dynamic Transformationalism	109
Table 4.1	Main Constructs and Underlying Factors	159
Table 4.2	Anglo-Western and Han-Chinese Culture Moderation Model Relationships	199

VOLUME TWO

Table 5.1	Format of Surveys	231
Table 5.1.1	Survey Formats (a)	231
Table 5.1.2	Survey Formats (b)	232
Table 5.2	Anglo Western and Han Chinese Sample Sets	234
Table 5.3	Product Transformation Categories	252
Table 6.1	Recommended Levels of Cronbach alphas from the Literature	273
Table 6.2	Main Constructs and Associated Dimensions (Scales/Factors) (Reprise)	278
Table 6.3	Measurement Data For Vertical Power Ethos in Society at Large (SOC) and Workplace (WOR)	288
Table 6.4	Measurement Data: For Horizontal Altruism in Society at Large (SOC) and Workplace (WOR)	289

Table 6.5	For Conventional Orthodoxy in Society at Large (SOC) and Workplace (WOR)	290
Table 6.6	Vertical Power Ethos (Eigenvalues)	292
Table 6.7	Horizontal Altruism (Eigenvalues)	293
Table 6.8	Conventional Orthodoxy (Eigenvalues)	293
Table 6.9	The Factor Models For Invariance In Society: Anglo-West And Han-China - Societal Syndromes	295
Table 6.10	The Factor Models For Invariance at the Workplace: Anglo-West And Han-China -Societal Syndromes	296
Table 7.1	The Factor Models For Invariance: Anglo-West And Han-China Society - Knowledge Building & Product-Process Development	340
Table 7.2	Intermediation Path Model -Full Correlation Matric - Both Societies Combined and All Product Transformation	351
Table 7.3	Intra-relationships within Societal Syndrome Paths (H ₁ - H ₈)	353
Table 7.4	Vertical Power Ethos to Knowledge Building (H ₉)	362
Table 7.5	Horizontal Altruism in the Workplace and Knowledge Building (H ₁₀)	363
Table 7.6	Conventional Orthodoxy in the Workplace and Knowledge Building (H ₁₁)	364
Table 7.7	Knowledge Sharing to Creative Synergies (H ₁₂)	369
Table 7.8	Creative Synergies to Product and Process Discovery (H ₁₃)	373
Table 7.9	Product-Process Discovery and Final Product-Process Outcomes (H ₁₄)	375
Table 7.10	Cross-Societal Path Coefficients and T score Moderation Effects (H ₁₅ - H ₂₁)	379
Table 7.11	Cross-societal Independent Means of Anglo-Western Society and Han-Chinese (H ₂₂ -H ₂₄)	390

VOLUME THREE

Table 8.1	Societal Syndromes and Knowledge Building by Level of Product-Process Transformation (P ₁)	410
Table 8.2	Creative and Knowledge Building by Level of Product-Process Transformation (P ₂)	412
Table 8.3	Evaluation of Comparative Independent Means by Product Transformation the society - for Cultural Syndromes (P ₃)	414
Table 8.4	Evaluation of Comparative Independent Means by Product Transformation the society - for Knowledge Building (P ₃)	415
Table 8.5	Evaluation of Comparative Independent Means by Product-Process Transformation in Product-Process Discovery	416
Table 8.6	Evaluation of Comparative Independent Means by Product-Process Transformation in Final Product-Process Conformance Outcomes	417

~

LIST OF FIGURES

VOLUME ONE

Figure 2.1	Outline of Disciplines & Studies – Literature Review	14
Figure 2.2	Generic Attributes of Product-Process Conformance (Four Steps)	17
Figure 2.3	Japanese Decision Making Processes (Fakuda 1988)	37
Figure 2.4	Product Decisions and Planning and Knowledge-based Innovation	39
Figure 2.5	Dissimilar Environments and Normative Behaviours Exhibited	51
Figure 2.6	Necessity for Two-Level Analysis of Societal Domains	64
Figure 2.7	Communal Sharing and Authority Ranking and Asian Collectivism	67
Figure 2.8	Relationships of Equality Matching and Market Pricing in Western Society	70
Figure 2.9	The Spirit of Chinese Capitalism (Redding 1990)	76
Figure 2.10	Literature Integration – New Model for Chinese Society	82
Figure 2.11	Literature Integration – New Model for Western Society	83
Figure 3.1	Primary Effects of Sino-Homeostatic Traditionalism and Western-Dynamic Transformationalism	112
Figure 3.2	Detailed Effects of Western Dynamic Transformationalism and Sino-Homeostatic Traditionalism on Knowledge-based Products	113
Figure 4.1	Integration of Fiske’s Elementary Forms and Triandis’ Culture Syndromes	133
Figure 4.2	Effects of Western Feudal Pluralism vis-à-vis Chinese Familialism and Limited & Bounded Trust	145

Figure 4.3	Bridging the Literature to New Societal Syndromes	149
Figure 4.4	For China - Effects of the Absence of Pluralism Stemming from Relationship of Non-Empirical Contributions (Part A)	153
Figure 4.5	For China - Effects of the Absence of Pluralism Stemming from Relationship of Non-Empirical Contributions (Part B)	154
Figure 4.6	For The West - Reprise of the Relationship of Non-Empirical Contributions (Part A)	155
Figure 4.7	For The West - Effects of the Presence of Pluralism Stemming from the Relationship of Non-Empirical Contributions (Part B)	156
Figure 4.8	Basic Structure of the Intermediation Primary Path Model	174
Figure 4.9	Generic Intermediation Primary Path Model (Without Moderators)	176
Figure 4.10	Internal Relationships of Posited Society Syndromes	179
Figure 4.11	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Hypotheses	183
Figure 4.12	Relationships of Knowledge Building from Societal Syndromes & Knowledge Discovery from Knowledge Building to Final Product-Process Conformance	186
Figure 4.13	Hypothesised Moderation Effect of Anglo Western Society on Intermediation Primary Path	197
Figure 4.14	Hypothesised Moderation Effect of Han-Chinese Society on Intermediation Primary Path	198

LIST OF FIGURES

VOLUME TWO

Figure 5.1	Coalescing Samples Recruited to Measure Societal Syndromes	239
Figure 5.2	Society-at-Large and Workplace-in-Society	243
Figure 5.3	Basic Structure of Intermediation Primary Path Model (Reprise)	249
Figure 5.4	Moderation Effects of Anglo-Western Society or Han-Chinese Society on Intermediation Primary Path	254
Figure 6.1	Principal Factor Measurement	283
Figure 6.2	Confirmative Factor Analysis of VPESOC.AW	305
Figure 6.3	Confirmative Factor Analysis of VPEWOR.AW	306
Figure 6.4	Confirmative Factor Analysis of VPESOC.HC	308
Figure 6.5	Confirmative Factor Analysis of HORWOR.HC	310
Figure 6.6	Confirmative Factor Analysis of HORSOC.AW	311
Figure 6.7	Confirmative Factor Analysis of HORWOR.AW	313
Figure 6.8	Confirmative Factor Analysis of HORSOC.HC	314
Figure 6.9	Confirmative Factor Analysis of HORWOR.HC	316
Figure 6.10	Confirmative Factor Analysis of CONSOC.AW	318
Figure 6.11	Confirmative Factor Analysis of CONWOR.AW	320
Figure 6.12	Confirmative Factor Analysis of CONSOC.HC	322
Figure 6.12	Confirmative Factor Analysis of CONHOR.HC	324

LIST OF FIGURES

VOLUME TWO

Figure 7.1	Existing Models and New Intermediation Primary Path Model	341
Figure 7.2.1	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories - Hypotheses H ₁ - H ₁₄	348
Figure 7.2.2	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories - Path Coefficients	349
Figure 7.2.3	Intermediation Path Model for Both Societies Combined and All Product Transformation Categories – Scores	350
Figure 7.3	Reduced ¹ Model of Societal Syndromes Internal Relationships (Societal Archetype)	357
Figure 7.4	Summarised Societal Syndrome Schema to Knowledge Sharing and Creative Synergies	358
Figure 7.5	Reduced Model of Societal Syndromes in the Workplace and Knowledge Sharing	360
Figure 7.6	Reduced Model of Societal Syndromes in the Workplace and Creative Synergies	361
Figure 7.7	Reduced Model of Knowledge Sharing on Creative Synergies in Knowledge Building	369
Figure 7.8	Reduced Model of Creative Synergies on Product and Process Knowledge Discovery	372
Figure 7.9	Reduced model of Knowledge Discovery Relationships to Final Product-Process Relationships	374

¹ **REDUCED MODEL:** Definition as requested by Thesis Examiner. “Reduced” means sectioned within the full Intermediation Primary Path Model. Here, representing the aggregate Societal Archetype international relationship *before* Knowledge Sharing. Partitioning allows autonomous and independent analysis of dissected construct formations. This term used several times in the thesis.

VOLUME THREE

Figure 8.1	Product Transformations by Final Product Conformance Outcomes: Contrasting Anglo-Western Society and Han-Chinese Society	421

LIST OF INCLUSIONS

Inclusion 3.1	Confucius and Traditionalism (Conventional Orthodoxy): Revering the Past	92
Inclusion 3.2	The <i>wu lun</i>	97
Inclusion 4.1	Systematic Experiment	144

APPENDICES ALL VOLUMES

A	Behavioural Approach to Comparative Management	A-I to A-IV
B	Survey Structure with Annotation	B-I to B-XLII
C	Principal Axis Factoring & Correlation Matrices for Anglo-Western Society	C-I to C-XXII
D	Principal Axis Factoring & Correlation Matrices for Han-Chinese Society	D-I to D-XXII

CHAPTER EIGHT

PROPOSITIONAL STUDY

~

EXPLORING

THE

MODERATION EFFECTS

OF

PRODUCT-PROCESS

TRANSFORMATON



CHAPTER NINE: FINAL DISCISSION AND CONCLUSIONS

CHAPTER EIGHT

‘The significant problems we face cannot be solved at the same level of thinking we were at when we created them.’ - Albert Einstein

8.1 REVISION OF EARLIER INVESTIGATIONS

The veracity of the intermediation primary path model has already been established given results achieved from earlier multiple investigations recognised in the Thesis, including testing for measurement invariance. Herein, justifying the choice and use of the constructs assessed. The intermediation primary path model was found to be germane, based on these investigations. Using Han-Chinese society and Anglo-Western society, as examples, *localised* characteristics were identified as key moderators of the casual relationship between societal syndromes and final product-process conformance outcomes. Other constructs acted as conduits complementing and transporting moderating effects, channelling information through the intermediation primary path model, towards product-process conformance outcomes, but were structurally unaltered by societal syndromes.

As preliminary research, the Thesis extended its evaluation of product-process transformation moderation effects on the intermediation primary path model, by comparing various levels (low, intermediate and high) of product-process transformation, within Anglo-Western and Han-Chinese society, based on degrees of developmental complexity.

In general, the research revealed that Anglo-Western society outperforms Han-Chinese society, *where there was no discrimination* made between levels of product transformation. Also, the Thesis confirmed the benefits of high Horizontal Altruism on successful product-process development; while, identifying high Vertical Power Ethos and high Conventional Orthodoxy curtailed the wider-penetration of high Horizontal Altruism, even where the expression of high Horizontal Altruism is an indigenous trait. In this way, Han-Chinese teams appear hampered, from developing their full potential, because the development of Knowledge Sharing and Creative Synergies was inhibited.

8.2 RATIONALE FOR MEASURING PRODUCT-PROCESS TRANSFORMATION

Investigation Three was framed on the logical presumption that, as the level of product-process transformation increases, project dependency on Knowledge Sharing and Creative Synergies intensifies. Within this structure, successful new product or new process development requires high Horizontal Altruism to be *manifestly realised* and not suppressed by high Vertical Power Ethos and high Conventional Orthodoxy, as in the case of Han-Chinese society.

In the research and commercial environments, the knowledge elements required to create synthesis on a multidimensional task are often distributed across a wide-spread population. Therefore, individuals in teams across in-groups and out-groups must be allowed; to freely communicate, to integrate old knowledge, and explore novel ideas in order to create new configurations (synthesised domains). This need is strongest for high transformational products and processes.

Investigations uncovered good viable solutions from teams are best advanced without ardent superordinates acting to circuit break, for example, (a) the independence of task professionals, and (b) team consensus. Against this backdrop, Anglo-Western society, in the absence of *overt* top-down involvement, was more inclined towards the optimal societal syndrome schema than was Han-Chinese society. Embracing this metaphor, Western product-process development teams confronted fewer circuit breakers than their Han-Chinese counterparts. The Anglo-Westerners could search and engage wider-a-field: A most desirable situation for knowledge capture.

In closed societal systems (Jin *et al.* 1996), as in Han-China, the burden to meet increasingly higher project demands grows heavier, as product-process transformation complexity augments. Consequently, the testing of conjectures was based on the following assertions:

- Where the demands on knowledge discovery and knowledge building are low, the capacities between societies shall be roughly equal.
- Where loose, laterally distributed across-groups communication occurs, specifically at the level of task competency¹; product-process development teams (economic considerations aside) are better placed to achieve intermediate to high product-process development.

¹ Consensus is reached among specialists and problems are not resolved by owners and superordinates. Professionalism trumps seniority on technical matters.

- Where pressure is placed on actualisation of *permissible* and *executable* higher Horizontal Altruism, Han-Chinese society shall be inclined to fall behind pluralist Anglo-Western society in proficiency because, for Han-Chinese teams, new knowledge capture is limited² and what new knowledge is discovered is subject to overzealous superordinate censorship and vetting.

8.3 PROPOSITIONAL NATURE OF QUANTITATIVE RESULTS

Regarding Investigation Three, Chapter Eight presents a decidedly exploratory *quantitative* exploration; requiring duplication in a future large-sample-size study, to ratify or refute preliminary findings, *empirically*. Else put, despite the evident consistency of nominal quantitative findings with the qualitatively derived predictions; *conclusive quantitative* findings cannot be claimed. Thus, as a first empirical study, the confirmed propositions, present supposed quantitative support.

On the other hand, these preliminary findings, regarding product transformation in the Anglo-West and Han-China, should be allowed high *prima facie* substance, because of the strong evident equivalency with known qualitative societal contentions. Correspondingly, a first measure can be a durable indicator towards subsequent more strictly endorsed quantitative findings³. Thus, the writer forecasts repetitive studies would be confirmatory, even if, at this time findings, here, are not statistically conclusive.

² Close intimate networks where *guanxi* sets limits on how far the net is cast and obligation-bounding deters the establishment of close relationships, because trust must be first established (Redding 1990).

³ Albert Einstein in September 1915 applied the Theory of General Relativity to explain variations in the precession of the perihelion of the planet, Mercury, not explicable to Newtonian Mechanics. In May 1919, Einstein's, prediction concerning the deflection of light near the Sun, owing to space-time curvature was measured, confirmed and accepted, from only two measurements taken, that is, in Africa and Brazil (Kaufmann,

8.4 PROPOSITIONS⁴ REGARDING THE MODERATING EFFECTS OF PRODUCT-PROCESS TRANSFORMATION

The following groundwork propositions were designed to explore the moderating effects of product-process transformation on the intermediation primary path model, contrasting Anglo-Western society and Han-Chinese society. Of the propositions, the general expectation that society, specifically Anglo-Western society vis-à-vis Han-Chinese society, offers separate measures for product-process transformation levels was confirmed for all cultural syndrome paths leading to knowledge building, which was a precursor to knowledge discovery and new product-conformance outcomes achieved.

Knowledge building was confirmed to be an *etic*, endogenously dynamic phenomenon immutable to off primary path societal moderation. On the other hand, knowledge building responded to societal syndromes, but only when measures were conveyed along the core intermediation primary path model.

The postulation that the differential between independent means from Anglo-Western society and Han-Chinese society would widen with increased product-process complexity was tested.

Here, the Thesis proposed (P_3) that Anglo-Western society would outperform Han Chinese

1979, pp. 65-74). Since the 1970s, multiple further studies have measured the radio waves of quasars passing the Sun, herein, ratifying Einstein's originally nominally tested proposition. Thus, the moderating effect of space-time curvature was (a) visually observed, (b) nominally measured (1919) and (c) routinely measured (1972-present). Not accepting the *prima facie* substance of nominal measure would have had The General Theory of Relativity wait fifty years for statistical acceptance, despite the overtures of Physicists.

⁴ Owing to the small sample sizes of segments, especially for high product-process transformation (n=14), *propositions* are next offered, rather than hypotheses. Accordingly, the results should be regarded as plausibly exploratory symptomatic findings, rather than concrete quantitative outcomes. Alluding findings did achieve the groundwork for more substantial research.

society, owing to the West's greater facility to convey and aggregate information from broader networks. But initial expectations were not fully realised. The West did not have advantage in all transformation categories. Instead, Han-Chinese society held advantage (measured via independent means) over the Anglo-Western society *a propos* in low product-process transformation achievement. Nonetheless, general exploratory expectations were for the most part confirmed, even though, the smooth extrapolation of linear function from low to high product-process transformation was not as predicted.

***P₁*: The level of product-process transformation required moderates the localised relationship between societal syndromes and knowledge building and during knowledge building in societies. Specifically, the path coefficients of Anglo-Western society and Han-Chinese society shall indicate moderation and independent cross-cultural elasticity.**

Table 8.1: Societal Syndromes and Knowledge Building by Level of Product-Process Transformation (*P₁*)

From	To	Level To be Transformed	Path Coefficient Anglo-Western		Path Coefficient Han-Chinese	
			n		n	
VPEWOR	KNOWSHR	Low	63	-0.52	39	-0.51
		Intermediate	86	-0.65	59	-0.83
		High	45	-0.14	14	-0.64
VPEWOR	CRESYN	Low	63	-0.61	39	-0.61
		Intermediate	86	-0.70	59	0.86
		High	45	-0.36	14	-0.74
HORWOR	KNOWSHR	Low	63	0.58	39	0.70
		Intermediate	86	0.47	59	0.16
		High	45	0.53	14	0.47
HORWOR	CRESYN	Low	63	0.68	39	0.87
		Intermediate	86	0.49	59	0.84
		High	45	0.46	14	0.44
CONWOR	KNOWSHR	Low	63	-0.38	39	-0.50
		Intermediate	86	-0.60	59	-0.95
		High	45	-0.08	14	-0.58
CONWOR	CRESYN	Low	63	-0.52	39	0.49
		Intermediate	86	-0.68	59	-0.89
		High	45	-0.27	14	-0.66

The Thesis held moderation would be evident for all key societal syndromes. The results of testing this proposition are shown in Table 8.1 on the previous page (n=306).

P₁ was supported as a groundwork result in Table 8.1. Generalised indications for paths represented suggest, between societies, a narrower moderation effect on low product-process transformation paths than on the intermediate or high product-process transformation paths. While the segmented sample sizes were too small to draw definitive conclusions, the expected distinctive moderation effects were evident from Anglo-Western society and Han-Chinese Societies; both societies showed independent patterns of elasticity, while demonstrating interaction affecting the intermediation primary path model.

Ratification of the current encouraging findings by a more elaborate study would be beneficial and this would require a larger sample size and preferably apply stratified sampling⁵. Further validation of Investigation Three's exploratory findings, from large sample size research, would be highly significant, having the potential to influence how transnational and multinational companies operate, regarding global product-process development assignment, based on the level of product-process transformation demanded.

P₂: The level of product-process transformation required shall not moderate the relationship between societal syndromes and knowledge building⁶ during knowledge building in societies. Specifically, the path coefficients of Anglo-Western society and Han-Chinese society shall not indicate moderation. Cultural impact shall be inelastic.

⁵ High product-process transformation examples were too rare in a general population, and not specifically targeted. Any repeat experimentation might consider a sample size of one thousand, two hundred respondents; i.e., two hundred respondents each of the low, intermediate and high product-process transformation category tiers for each society.

⁶ Knowledge Building and Creative Synergies.

The Thesis' testing, as predicted, found knowledge building effects from Knowledge Sharing and Creative Synergies are universal and unbiased by cultural influences. Subtleties are involved in understanding these phenomena: Cultural dimensions were found to affect knowledge building, but culture does not modify the endogenous relationship between Knowledge Sharing to Creative Synergies.

Table 8.2: Creative and Knowledge Building by Level of Product-Process Transformation (P_2)

From	To	Level To be Transformed	Path Coefficient Anglo-Western		Path Coefficient Han-Chinese	
			n		n	
KNOWSHR	CRESYN	Low	63	0.86	39	0.82
		Intermediate	86	0.95	59	0.94
		High	45	0.71	14	0.62

P_2 was supported as a groundwork result in Table 8.2: Knowledge sharing and Creative Synergies were found to be *etic* and immutable to societal syndrome effects, irrespective of the level of product-process transformation developed.

P_3 : The differential between the independent means between Anglo-Western society and Han-Chinese society shall tend to widen, as the complexity level of product-process transformation required increases in a linear fashion.

Of Cultural Syndromes in Table 8.3: In the main, the measures of independent means between Anglo-Western Society and Han-Chinese society did widen for Vertical Power Ethos and Conventional Orthodoxy, as expected. Yet, not in the linear fashion initially envisaged by the P_3 .

As product-process complexity increased, for Han-Chinese society, Vertical Power Ethos and Conventional Orthodoxy increased (blue arrows), while Horizontal Altruism (red arrow) decreased, as shown in Table 8.3. Thus, an inverse relationship was found in the data. Anglo-Western society, in this structure, experienced higher Horizontal Altruism than Han-Chinese society, where conspicuous high product-process transformation was required.

For low product-process transformation, independent means reported were very close between societies. Alternatively, as the proposition alludes intermediate product-process transformation and high product-process transformation measures did commonly widen, vis-à-vis low transformation. On the other hand, P_3 was in partial error. The disparity between the independent means was widest for intermediate product transformation, rather than high product transformation. Regarding Table 8.3, most plausibly, other inhibiting factors are inherent in high-end innovation and complexity, such as scarcity of know-how and new-phase developmental failure: e.g. rocketry in 1950s or managing quantum effects on microchips in the near future⁷.

-Please turn page-

⁷ New knowledge (new to the entire knowledge network) will be required. Early experiments may fail.


Table 8.3: Evaluation of Comparative Independent Means by Product Transformation the society for Cultural Syndromes (P_3)

Construct	Society	Low	Intermediate	High	
VPEWOR	Anglo-Western	M=3.67 (SE = 0.05) (n=63)	M=2.93 (SE =0.06) (n=86)	3.26 (SE=0.09) (n=45)	↑ V P E
	Han-Chinese	M=3.69 (SE =0.05) (n= 39)	M=4.22 (SE =0.09) (n=59)	4.36 (SE =0.07) (n=14)	
HORWOR	Anglo-Western	M=3.43 (SE = 0.12) (n=63)	M=4.53 (SE = 0.10) (n=86)	4.08 (SE=0.11) (n=45)	↓ H O R
	Han-Chinese	M=4.41* (SE = 0.04) (n= 39)	M=3.94 (SE = 0.05) (n=59)	3.86 (SE =0.146) (n=14)	
CONWOR	Anglo-Western	M=3.55 (SE = 0.05) (n=63)	M=2.91 (SE= 0.10) (n=86)	3.13 (SE = 0.11) (n=45)	↑ C O N
	Han-Chinese	M=3.76 (SE= 0.10) (n= 39)	M=4.17 (SE=0.52) (n=59)	4.26 (SE=0.10) (n=14)	

Of Knowledge Building in Table 8.4: As with cultural syndromes knowledge building found wider separation between independent means of intermediate and high transformation than was the case for low transformational products. Again, the existence of a steady linear path was unproven, yet overall societal differences concerning lower-higher transformation relationship were plainly evident. In all four high product-process transformation cells, the independent means of high product-process transformation measures retreat from intermediation product-process transformation measures. Therefore, future research might consider whether highly reified fields of knowledge reduce competence to contribute personal knowledge making solutions.

Table 8.4: Evaluation of Comparative Independent Means by Product Transformation the society for Knowledge Building (P_3)

Construct	Society	Low	Intermediate	High
KNOWSHR	Anglo-Western	M=3.77(*) (SE = 0.12) (n=63)	M=4.71 (SE =0.10) (n=86)	4.09 (SE=0.12) (n=45)
	Han-Chinese	M=4.01 (SE =0.10) (n= 39)	M=2.91 (SE =0.12) (n=59)	2.67 (SE =0.15) (n=14)
CRESYN	Anglo-Western	M=3.68(*) (SE = 0.11) (n=63)	M=4.61 (SE = 0.11) (n=86)	4.21 (SE =0.10) (n=45)
	Han-Chinese	M=3.84 (SE = 0.010) (n= 39)	M=2.92 (SE = 0.10) (n=59)	2.65 (SE =0.13) (n=14)



The independent means *within societies* and *between* Knowledge Sharing and Creative Synergies are highly coherent (*), suggesting the absence of external moderators.

Of Product-Process Discovery in Table 8.5: Product-process discovery results continued to follow a now familiar pattern on non-linearity between low to high product-process transformation. Be that as it may, the effects of the societal syndromes, post-knowledge building were found to have higher comparative independent means in Anglo-Western society, *where new discovery was most required*; i.e. with intermediate product-process transformation and high product-process transformation. With low transformational product-process development, where novel-build expectations are low, means were comparatively high for both societies. In fact, Han-Chinese society vis-à-vis the Anglo-Western society

returned higher independent means for low product-process transformation, suggesting, intense, but not novel activities based on in-group cohesiveness in Han-Chinese society.

Table 8.5: Evaluation of Comparative Independent Means by Product-Process Transformation in Product-Process Discovery

From	Society	Low	Intermediate	High
PROCDIS	Anglo-Western	M=4.04 (SE = 0.09) (n=63)	M=4.69 (SE =0.10) (n=86)	4.36 (SE=0.15) (n=45)
	Han-Chinese	M=4.62* (SE = 0.17) (n=39)	M=3.56 (SE =0.10) (n=59)	3.16 (SE =0.15) (n=14)
PRODDIS	Anglo-Western	M=4.01 (SE = 0.10s) (n=63)	M=4.93 (SE = 0.11) (n=86)	4.54 (SE =0.05) (n=16)
	Han-Chinese	M=4.67* (SE =0.08) (n= 39)	M=3.89 (SE = 0.10) (n=59)	3.52 (SE =0.9) (n=14)



Of Final Product-Process Conformance Outcomes in Table 8.6:

Contrary to early expectations, the differential between independent means was higher for intermediate product-process transformation than for high product-process transformation. The anticipated smooth linearity was not expressed, except marginally, for final process conformance outcomes. Han-Chinese product-process development teams strongly outperformed Anglo-Western product-process development teams; yet, for knowledge-based product-processes, Anglo-Western product-process development teams performed better than their Han-Chinese counterparts, based on calculated independent means.

Table 8.6: Evaluation of Comparative Independent Means by Product-Process Transformation in Final Product-Process Conformance Outcomes

From	Society	Low	Intermediate	High
FINPROC	Anglo-Western	M=3.93 (SE = 0.08) (n=63)	M=4.60 (SE =0.10) (n=86)	4.14 (SE=0.15) (n=45)
	Han-Chinese	M=4.44* (SE = 0.09) (n=39)	M=3.52 (SE =0.11) (n=59)	3.40 (SE =0.07) (n=14)
FINPROD	Anglo-Western	M=3.97 (SE = 0.11) (n=63)	M=4.72 (SE = 0.11) (n=86)	4.32 (SE =0.13) (n=16)
	Han-Chinese	M=4.36* (SE =0.58) (n=39)	M=3.46 (SE = 0.10) (n=59)	3.24 (SE =0.9) (n=14)



P_3 was partially supported in Table 8.6 as a groundwork finding. Anglo-Western society, on average, was more proficient than Han-Chinese society, which achieved favourable conformance results, where higher levels of product-transformation were required of the development project. This finding confirms the kernel of P_3 .

Table 8.6 results augur greater potential for low transformational product-process development in Han-Chinese society (*). Preliminary indications derived from Investigation Three, in this way, reveal tasks not requiring the contribution of significant personal knowledge were manageable in both Han-Chinese society (especially) and Anglo-Western society. Original micro-results highlight the considerable- potential benefit of subdividing product-process transformation into low, intermediate and high requirements. Otherwise,

without segmentation, of the level of transformation required, valuable insights may be lost in the consolidated data,

By way of extension, segmentation of cultural predispositions and knowledge-based product-process transformation might yield models helpful to developing new production-development theories. Such theories would consider the nature of innovation to societally locate Advantage based on creative innovation of high product-process transformation (primary research; first development) and innovative existing product-process development improvement (mass production).

8.5 MAIDEN FINDINGS FOR PRODUCT-PROCESS INFORMATION DEVELOPMENT

The testing of propositions of Investigation Three extended earlier thesis inquiries and findings, to test the moderation effects of product-process transformation required on the intermediation primary path model. Owing to the small sample size *within* refined segments, propositions were stated in lieu of hypotheses. Remarks regarding findings made are conjectures and require ratification using larger populations. On the other hand, quantitative findings, based on small sample size should not be dismissed, because these findings, in general are in strong agreement with triangulated qualitative assessments, as provided in the Literature Review, including Redding (1990), Pye (1985) Hsu (1982), and Silin (1976)⁸.

For societal syndromes, moderation effects were in concert with the Thesis propositions, for Anglo-Western society and Han-Chinese society, when measuring low, intermediate to high

⁸ Observation and measurement should agree.

product-process transformation. All societal syndromes; viz. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy; were found to be universal, yet culturally biased. On the other hand, knowledge building, which determines knowledge discovery and final product-process conformance outcomes were not penetrated by cultural influences.

Knowledge building was the nexus between the cultural syndromes and all other new progression towards achieving final product-process conformance. Herein, both cultural facilitation and cultural inhibition were channelled through the nexus (knowledge building), which itself offers an independent *etic* positive path relationship between Knowledge Sharing and Creative Synergies.

Evaluation of independent means confirmed a wide performance gap between Anglo-Western society and Han-Chinese society for intermediate to high transformation products. On average, Anglo-Western society product-process development teams were more successful. Han-Chinese teams were triumphant vis-à-vis Anglo-Western teams regarding low product-product transformation delivery. Both findings were in line with expectations, albeit, the high magnitude of the latter was unanticipated.

For all, but the most complex product-process development, an obvious dichotomy was present. Han Chinese teams exhibited competitive advantage in developing low transformational product (given the constraints of high Vertical Power Ethos and high Conventional Orthodoxy); while Anglo-Western teams exhibited competitive advantage in developing intermediate transformational products.

Investigation Three presented exploratory research, for the first time, segmented the level of product-process transformation required by society; i.e. Anglo-Western vis-à-vis Han-

Chinese society to allude to; (a) new theories of competitive advantage based on cross-cultural product-process capacities, and (b) potentially support international marketers globally by providing a new understanding of product-process development aligned to cultural-based distinctive competencies.

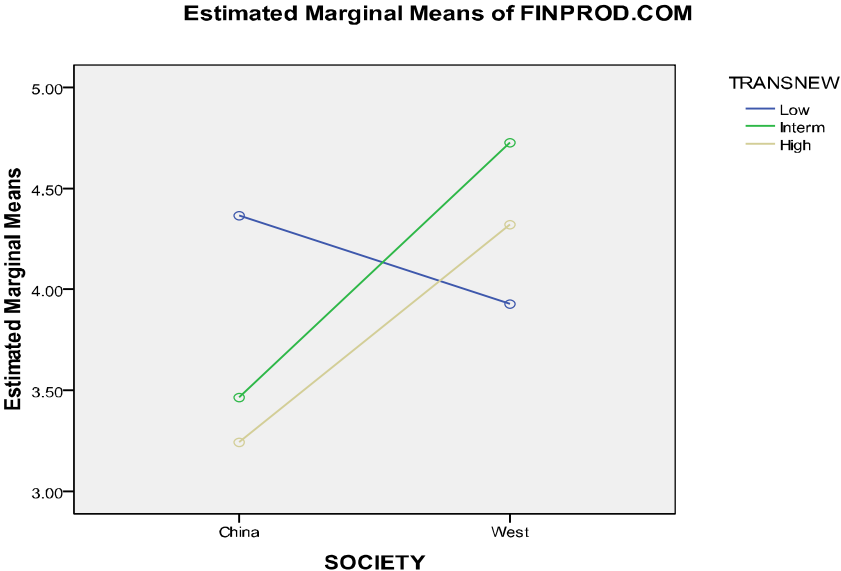
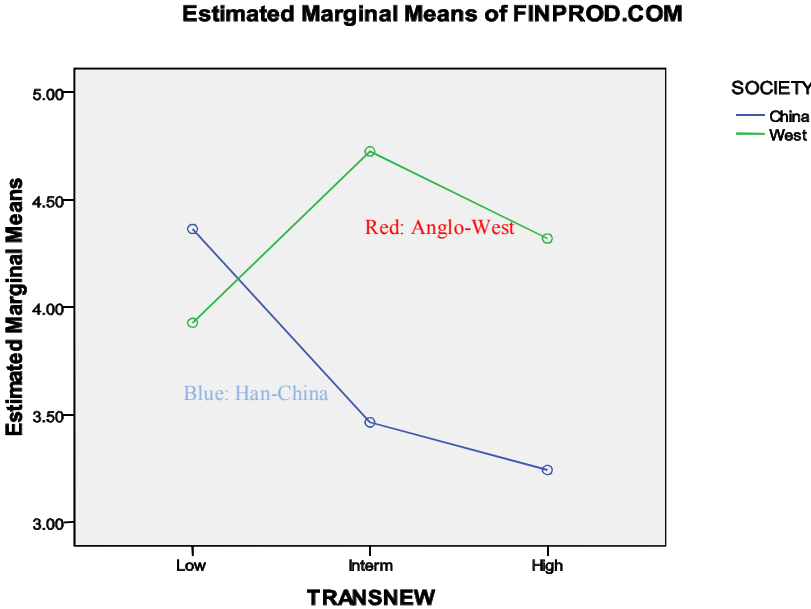
When the moderation effects and independent means of Anglo-Western developers were compared in P_1 - P_2 , it was evident that product-processes can be segmented by the level of product-process transformation required in order to yield usable original micro-results, which would have otherwise been lost by more generalised non-discriminate skim testing.

Developed in SPSS, Figure 8.1 illustrates two perspectives⁹ of the trend of estimated marginal means by Society (Anglo-Western society and Han-Chinese society China) and the level of new product-process transformation required (TRANSNEW), pertaining final product conformance outcomes (FINPROD.COM). Clearly, the Anglo-West held general comparative advantage, except the low-end of low product-process transformation. If P_3 was altogether true, the blue line in both Figure 8.2 diagrams would not intersect the other coloured lines as was the case. However, while P_3 was not fully confirmed, the byroad *a priori* conviction, that Anglo-Western product-process development teams would outperform Han-Chinese product-process development teams as the level of product-process transformation ratcheted-up, was provisionally¹⁰, yet evidently validated.

⁹ The axes are swapped.

¹⁰ Small samples sizes when segmented.

**Figure 8.1: Product Transformations by Final Product Conformance Outcomes:
Contrasting Anglo-Western Society and Han-Chinese Society**



As previously noted, unexpectedly, Han-Chinese product-process development teams outdistanced Anglo-Western product-process development teams concerning low product-process transformation¹¹. Contrary to initial expectations, the Thesis now assumes *in situ* lower Vertical Power Ethos (less superordinate interference on team following routines) and absence of pressure to change (Conventional Orthodoxy not threatened) permitted¹² higher Horizontal Altruism¹³ than otherwise might have been the case in Han-Chinese product-process development teams, where task complexity is low and novel innovation was absent or diminutive.

It follows, if these new findings are typical of new product-process development; and the Thesis suggests it is; earlier research activities may have missed the opportunity to develop major theory, owing to a penchant towards over-arching investigations and avoiding critical subdivision, involving levels of product-process transformation. Regrettably, this deeper level of analysis involves opportunity costs, because time spent on micro-analysis takes away from knowing less about more. The Thesis, however, asserts knowing more about a delimited discipline is more likely to yield original results.

8.6 NEXT CHAPTER

Next, in Chapter Nine, Final Discussion and Conclusions are presented.

¹¹ The situation of dividing partitioning lower and higher product-process transformation was also known to the Union in the American Civil War (1861-1865). Independent, private entrepreneurs focused on new firearms innovation, while the State concentrated on mass production (White 2010, pp.15-16). The gun *developers* (Smith and Wesson, Remington and Colt) held comparative advantage in knowledge-intensive production. The gun *manufacturer* (the State) held comparative advantage in achieving lower costs from economies of scale in production. White (2010, p.16) notes, 'Most innovative weaponry of the war came from private firms, with federal plants concentrating on turning out volume rather than new products'. Not unlike Western novel innovation and Chinese low-cost massive manufacture of today.

¹² The posited *pincer effect* is mute.

¹³ Wide, loose networks.

CHAPTER NINE

**DISCUSSION,
CONCLUSIONS
AND
FURTHER STUDIES**

CHAPTER NINE

DISCUSSION, CONCLUSIONS AND FURTHER STUDIES

'It is proof of a base and low mind, for one to wish to think with the masses or majority, merely because the majority is the majority. Truth does not change because it is, or is not, believed by a majority of the people.' - Giordano Bruno

9.1 OUTLINE OF CHAPTER NINE

The key goal of this thesis has been to answer the Research Question posed;

'How do societal syndromes affect relative knowledge discovery in the achievement of new product-process development conformance outcomes when contrasting Anglo-Western society and Han-Chinese society?'

Chapter Nine returns to the Research Question in a comprehensive fashion and shows associated research problems and research issues have been resolved. Answers to the research question were sought by undertaking three new investigations which yielded a number of original findings that will be useful to both theorists and practitioners.

Emphasising Anglo-Western society and Han-Chinese society, from its onset, the thesis aimed to improve current understanding of the influence of cultural antecedents on knowledge building and knowledge discovery in new product-process development. Within this framework, the thesis successfully developed a new empirically-validated societal archetype. In so doing, a new quantitative archetype was successfully operationalised, based on the first-time integration of accredited discipline-specific qualitative socio-cultural

research and knowledge having deep histological foundations to an extent not previously achieved in the business studies discipline.

To better understand the relationship between cultural antecedents and final product-process outcomes an original intermediation primary path model was developed to measure overall main effects. Here, earlier models did not apprehend knowledge building and knowledge discovery to ‘intermediate’ the relationship between cultural syndromes and final product conformance outcomes. The findings from this study indicate that intermediation by knowledge building and knowledge discovery has been proven to exist, with a high degree of statistical confidence. Furthermore, the functions of societal syndromes on knowledge building were found to be statistically significant and historically cogent. Gradations of product-process conformance outcomes, moreover, were shown to be a result of knowledge building. In consequence, a new understanding of the essential connection between societal syndromes and knowledge building is newly made accessible to modelling theorists and practising product-process developers.

Furthermore, the thesis statistically authenticated the moderation effects of Anglo-Western society and Han Chinese society on the intermediation primary path model. Society was established as a generalised moderator, and, specifically, the effects of Anglo-Western society and Han-Chinese society were verified to differ in magnitude, with regards to the impression made. Likewise, low, intermediate and high levels of product transformation required, for the first time, were affirmed as convincing moderators on the intermediation primary path model. This new insight into the effects of both sets of moderators on the intermediation primary path model enhances the guidance available to international product-process portfolio management.

9.2 ADDRESSING RESEARCH PROBLEMS

Four component research dilemmas underlying the key Research Problem were identified at the commencement of the thesis. Each research problem is recalled and *first-pass* findings articulated:

- 1. Major written-form expositions on cultural antecedents have not been operationalised to provide the level of confidence found in an empirically-validated examination.**

The thesis successfully developed original empirical investigations to validate major written-form expositions pertaining to prominent cultural antecedents from the extant qualitative literature. Conclusions made by Harry Triandis (1994), Alan Page Fiske (1990, 1992) and S. Gordon Redding (1990) were unified to embody *the field of study* relating to cultural antecedents, as opposed to a single author. Synthesizing Fiske's (1990, 1992) *elementary forms*, Triandis' (1994) *cultural syndromes*, and Redding's (1990) partitioning of *societal behaviour* and *social behaviour*, laid the groundwork for operationalisation of three new societal syndromes, which have now been empirically confirmed. They include:

(1) Vertical Power Ethos displayed three dimensions; vertical secrecy, vertical control and vertical patrimonialism. High values on these dimensions were associated with superordinate censorship of top-down information, lower ranked people being unable to take independent actions and patrimonial leaders presaging strict *patri familias* style obedience in non-familial circumstances, including commercial and public affairs.

(2) Horizontal Altruism found the horizontal inclusive, horizontal mutualism and horizontal reciprocation dimensions. Low values represent dispositions towards insufficient in-group to

out-groups interaction, an unwillingness to co-operate towards shared aspirations, a disinclination to treat out-groups equally, a perception that out-groups are hazardous and the implicit absence of reciprocal exchange of favours with out-groups.

(3) Conventional Orthodoxy established langsyne attachment, *a priori* validation and in-role conformity dimensions. High values were proven to encourage nostalgia for ancient ways, to amplify deep traditions, to have present ideas explicitly validated by conventional ways and to exhibit high deference towards antediluvian ways to guide bordered innovation.

Contributions: The thesis has newly integrated and operationalised three major qualitative studies to establish a field of cultural antecedents derived from existing written-form expositions. Two classes of innovation were uncovered they included enhancing the known (customary), and supplanting the known (novel). Three original new societal syndromes were extracted from nine dimensions, each of which was proven to a high degree of statistical confidence, as detailed in Chapters Six and Seven.

2. An integrated model demonstrating the relationship between societal syndromes, knowledge building, knowledge discovery and new product-process conformance development is unavailable.

Before the current research was advanced, it was assumed, there was a direct relationship between cultural antecedents and new product-performance outcomes. Cultural traits determined outcomes without any mediation influences.

However, this study was able to construct an authenticated new empirically-based intermediation primary path model, which revealed, for the first time, that knowledge building and knowledge discovery *mediate* the relationship between societal syndromes and

product-process conformance outcomes. Incorporation of societal syndromes, knowledge generation and product-process conformance outcomes, substantially expanded the new avenues of original investigation from this thesis to future research endeavours.

A new societal syndromes archetype was identified and able to determine the level of knowledge building achieved. The thesis found that low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy cultivates high knowledge building. On the other hand, high Vertical Power Ethos, low Horizontal Altruism and high Conventional Orthodoxy were found to frustrate knowledge building. This is a significant finding because knowledge building was proven in the thesis, to be the prime precursor to knowledge discovery and new product-process conformance outcomes.

Furthermore, the thesis found high knowledge building favours *realised and executable* high Horizontal Altruism accompanied by low Vertical Power Ethos and low Conventional Orthodoxy. Horizontal Altruism must be given the latitude to stimulate knowledge building: wherein, key knowledge-keepers determine the course of development.

Contributions: The thesis developed an original archetype consisting of societal syndromes. An original intermediation primary path model was made available, integrating the relationship between societal syndromes, knowledge building and knowledge discovery. The thesis revealed high Horizontal Altruism remains latent and suppressed, when accompanied by high Vertical Power Ethos and high Conventional Orthodoxy.

3. The moderation effects of Anglo-Western society and Han-Chinese society on new product-process development is unknown.

The thesis substantiated the moderation effects of society on the intermediation primary path model, within Anglo-Western vis-à-vis Han-Chinese society's. Here, the thesis found society moderated multiple culturally localised path relationships. In due course, the moderation effects influenced the relationship between cultural syndromes and knowledge building and ultimately the level of product-process development conformance outcomes.

On the other hand, the path between Knowledge Sharing and Creative Synergies was *etic*, exhibiting an endogenous dynamic coupling between the two variables. Knowledge building, within this framework, was guided by the changeable outcomes of societal syndromes schema to *assemble* components in knowledge building, as a precursor to discovery. Metaphorically, knowledge building acts like *ribosome* in decoding moderated cultural syndromes to create knowledge discovery outcomes¹. Earlier research does not find this essential sequence.

Moderation processes were found for all localised discovery paths; with the two² discovery paths statistically significant and the third³ discovery path theoretically significant ($t = 1.880 > 1.645$). The pathways from discovery to final product conformance outcomes showed global embodiments, where, neither, Anglo-Western society nor Han-Chinese society presented moderation effects. It therefore emerged, once culturally induced moderation effects had been exhausted, final product-process outcomes become a *fait accompli*.

¹ In genetics, ribosome (Knowledge Building) decodes nucleotide groups (Creative Synergies) to create an animal (Knowledge Discovery).

² Creative synergies to process discovery and final process conformance outcomes to product discovery.

³ Creative synergies to product discovery.

4. The Moderation Effects of Product-Process Transformation in Anglo-Western society and Han-Sino society is unknown.

The Thesis successfully measured the moderation effects of product-process transformation on the intermediation primary path model. In Chapter Eight, *Propositional* statements were put forward, rather than firm hypotheses, owing to the small sample sizes available for high transformational product-processes⁴, after segmentation by transformation category. Nevertheless, these groundwork results remain highly persuasive and should not be dismissed, because findings are in accord with the established socio-cultural literature⁵.

Furthermore, the thesis independently tested the moderation effects of low, intermediate and high increments of product-process transformation from Anglo-Western and Han-Chinese populations on the intermediation primary path model. Independent assessment of all three levels of category product-process transformation, were made known, for the first time .

Contributions: The moderation effects of low, intermediate and high product-process transformation effects in Anglo-Western and Han-Chinese society are now known with *provisional* statistical conviction, while, remaining highly consistent with socio-cultural indicators. As a consequence, comparative advantages can be measured, based on the ability or inability to proficiently deliver increments of product-process transformation. However, a further substantial study, using a large sample size, even at the segment level, is needed, to ratify preliminary indications. Given the conformity of the small sample findings to qualitative expectations, the thesis forecasts, results from large sample testing⁶ shall ratify the findings presented in Investigation Three.

⁴ Anglo-Western society (n=45); Han Chinese society (n=14), for high product-process transformation.

⁵ The statistical findings that are based small samples size, do not stand alone.

⁶ Say, two hundred respondents from each transformation strata (low, intermediate, high) from both societies (Anglo-West and Han-China) ($\sum n=1,200$). For two-tier measurement (society-at-large and workplace),

9.3 DISCUSSION DRAWN FROM RESEARCH ISSUES

Before further discussing contributions and implications in detail, it is important to demonstrate how all six Research Issues were resolved.

9.3.1 Can societal syndromes be derived from collected research data?

Research Issue One was resolved: Three new societal syndromes, Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy and attendant dimensions were constructed, from data collected in Anglo-Western society and Han-Chinese society. Furthermore, new societal syndromes were operationalised representing a field of non-empirical contributions (Triandis 1994, Fiske 1992, 1990, Redding 1990).

9.3.2 Can societal syndrome measures be differentiated between Anglo-Western society and Han-Chinese society?

The thesis recognised an idealised, optimal value set for each of the three new societal syndromes, asserting that higher levels of knowledge building, knowledge discovery and product-process conformance outcomes are typically associated with low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy.

Research Issue Two was resolved: When measured, Anglo-Western society vis-à-vis Han-Chinese society typically returned quantities closer to the idealised value set. The measures employed in this thesis verified differentiated results for Anglo-Western society and Han-Chinese society. Further, whether the moderation effects were positive or inverse, Han-Chinese society consistently presented the most robust moderation results on societal

n=Σ2,400 respondents. Finding hundreds of high technology projects, where respondents would be free to answer surveys could prove problematic for future research, even if, well funded.

syndromes, prominently differentiated from Anglo-Western society. Both Anglo-Western society and Han-Chinese society were differentiated. However, high Horizontal Altruism can be present in both societies but with different realisable capacity.

9.3.3 How do posited societal syndromes relate Knowledge Sharing and Creative Synergies in Anglo-Western society and Han-Chinese society?

Research Issue Three was resolved: The thesis found knowledge building was inversely related to Vertical Power Ethos and Conventional Orthodoxy and positively related Horizontal Altruism. In Anglo-Western society; low Vertical Power Ethos, high Horizontal Altruism and low Conventional Orthodoxy was found to encourage high knowledge building. Conversely, realisation of any high Horizontal Altruism was held back by the *pincer effect* of high Vertical Power Ethos and high Conventional Orthodoxy, which is held endogenous to Han-Chinese society. Otherwise beneficial, high Horizontal Altruism was silenced in Han-Chinese development teams, at this juncture, stymieing autonomy and arresting wide communication.

On the other hand, Anglo-Western development teams benefited from open communications, where, there was openness in team Knowledge Sharing and reaching-out to broader networks for solutions. Furthermore, the *non-pincer* effect of low Vertical Power Ethos and low Conventional Orthodoxy, fostered Knowledge Sharing, creativity synergies and two-way communication with out-groups.

9.3.4 How do Knowledge Sharing and Creative Synergies in knowledge building relate to product-process conformance outcomes in Anglo-Western society and Han Chinese society?

Research Issue Four was resolved: The thesis found, first, knowledge building and, thence, knowledge discovery laid the foundation for the level of product-process conformation achieved. Post Creative Synergies path relationships were found variable and confirmed universally positive. Higher knowledge discovery, in this framework, consistently benefited from higher knowledge building: viz. Knowledge Sharing and Creative Synergies.

Provided the level of product-process transformation required original development normative Anglo-Western society repeatedly surpassed normative Han-Chinese society in the ability to achieve higher product-process discovery outcomes *en route* to determining final product-process conformance outcomes; viz. quality, features, efficiency, effectiveness and efficaciousness.

9.3.5 How does the extent of product-process transformation required by management relate to new product conformance in Anglo-Western society and Han-Chinese society?

Research Issue Five was resolved: Empirical findings confirmed higher levels of product-process transformation required pre-existing higher knowledge building and higher knowledge discovery; wherein, higher knowledge building and higher knowledge discovery; for better or for worse; intermediated the relationship between the societal syndromes schema and final product-process conformance outcomes.

While capable of functioning competently at all levels of product-process transformation, Anglo-Western development teams displayed an obvious advantage over Han-Chinese product-process development teams for assignments demanding the assembling know-how of

the kind typically required of intermediate to high product-process transformation. Alternatively, Han-Chinese development teams exhibited minor comparative advantage for bringing low product-process transformation towards welcome realisations.

9.3.6 How can societal syndromes be best applied by international marketers in Anglo-Western society and Han-Chinese society in new product-process development?

Research Issue Six was resolved: Research findings suggest low product-process transformation development (e.g. mass production of known technologies) be assigned to closed and bounded (Redding 1990) Han-Chinese teams, *after* initial intermediate and high transformation product-process development in open pluralistic Anglo-Western teams.

However, assuming progressive product-process transformation remains a universal goal, the above finding proffers a short-time solution. In the longer term, globalisation must act to preserve the capacity to create capital-intensive high transformation product-processes, in an environment, where capital accumulation is rapidly shifting from Anglo-Western society to Han-Chinese society. Owing to its significance, the aforementioned conclusion is recorded, here, for future deliberation.

9.4 CONTRIBUTIONS AND IMPLICATIONS

9.4.1 Contributions to Methodology

The thesis was designed to truly encapsulate genuine latent variables, *before* measuring of the scales tested. Given this priority, purification in sampling was deemed obligatory, because, otherwise, advanced statistics bereft of distilled data are deprived of their full denotation. Herein, the thesis contributed at least three new methodologies to business studies in the investigation of cultural antecedents:

1. 'Society' was used as the key unit of measure. Herein, the thesis abandoned the common culturally-mixed designators, 'country' and 'nation,' as main unit of measure designating international locations. Instead, the thesis developed 'society': wherein, the new societal scales were sanitised of distorting cross-acculturation effects⁷. As a result, coherent socio-cultural traits were captured to accurately measure the true character of latent cultural variables.

2. The thesis produced highly time resilient scales. By articulating historically-anchored and profoundly intrinsic characteristics, the thesis productively developed reliable time-durable scales. 'It feels right for the present moment' replies and highly contemporary procedural contexts were rejected. Herein, societal syndromes are not episodic, but rigid . Therefore, future researchers can regard the new societal syndromes apt for cross-cultural longitudinal studies. Moreover, practitioners can reliably make medium to long term plans based on the new societal syndromes.

3. The thesis demonstrated the necessity to distinctly determine the independent influences of societal behaviour and social behaviour (<150 persons), when measuring or modelling cultural antecedents in the business study discipline⁸. For example, when comparing two-level data, the thesis found, Anglo-Western society (M=4.29) and Han-Chinese society

⁷ Acculturation effects can distort results (Triandis 1994). Hofstede (1980), for example, did not control for Chinese, Malay and Indian cross-acculturation effects, when developing societal indices for Singapore.

⁸ In finding this direction, the thesis borrowed elements of its research design from socio-anthropological studies Dunbar (1996) and the Sino-economic contribution of Redding (1990).

(M=3.95) statistically divergent ($t = -3.45$) in society-at-large (HORSOC); yet, in the workplace (HORWOR), Anglo-Western society (M=4.06) and Han-Chinese society (M=4.09) were statistically undifferentiated (-0.33). Future researchers, adopting the course, can make independent computations of society-at-large and social behaviour to better understand the deep structure of societal characteristics, to disclose previously indiscernible beneficial and harmful associations.

9.4.2 Major Cultural Anthropological Studies Integrated and Operationalised

The thesis successfully operationalised a major *field of qualitative research* to establish a new integrated empirically-validated cultural antecedent model. Against this background, Fiske's (1990, 1992), Triandis' (1994) and Redding's (1990) socio-cultural contributions were *unified* into a new qualitative model, previously unfamiliar to general business studies schools. Afterwards, appropriating the qualitative unified cultural antecedent model, for the first time, the thesis operationalised and rationalised its constructs.

From the unified qualitative contributions, three new cultural syndromes emerged for original quantitative evaluation:

- Vertical Power Ethos⁹
- Horizontal Altruism, and
- Conventional Orthodoxy

Vertical Power Ethos was empirically confirmed, as a new societal syndrome comprised of vertical secrecy, vertical deference and patrimonialism. Vertical Power Ethos was found to have a positive relationship with Conventional Orthodoxy and an inverse relationship with

⁹ All three constructs were found to have underlying dimensions.

Horizontal Altruism. Horizontal altruism was comprised of horizontal inclusiveness and horizontal mutualism and horizontal reciprocation. Horizontal altruism presented an inverse relationship with Vertical Power Ethos and Conventional Orthodoxy. Conventional Orthodoxy was empirically verified to be comprised of; langsyne attachment, *a priori* validation and in-role confirmation. Conventional orthodoxy was found to have an inverse relationship with Horizontal Altruism. Thus, new societal syndrome schema, overall, proffers a wider-foundation (a field of study) and greater socio-historical connection to latent variables than former cultural antecedent archetypes known to business studies.

By embracing the new archetype, future researchers can readily rely on the steadfastness of individual societal syndrome schema constructs and the collective *gestalt*¹⁰. Moreover, the new history-based societal syndrome schema, offers a highly dependable original archetype, which takes a more nuanced and sharper focus regarding its components and overall two-tiered architecture than previous societal archetypes known to business studies.

9.4.3 Operation of Latent High Horizontal Altruism Revealed

The operation of high Horizontal Altruism on knowledge building can be latent or overt. On this point, the thesis measured the level of Horizontal Altruism in Anglo-Western society and Han-Chinese society in relation to other societal constructs. *A pincer effect* was newly revealed in Han Chinese society. There was no *pincer effect* in Anglo-Western society. Endowed with this knowledge, future theorists and practitioners, with a high level of confidence, can now discern that:

¹⁰ The whole is greater than the sum of its parts. The parts interact to produce combination effects.

- Vertical Power Ethos is higher in Han-Chinese society than in Anglo-Western society. (expected)
- High Vertical Power Ethos constrains the expression of high Horizontal Altruism. (expected)
- High Horizontal Altruism must not be constrained, but have the liberty to facilitate higher knowledge building, *viz.* Knowledge Sharing and Creative Synergies. When un-regimented high Horizontal Altruism promotes knowledge building smoothing the progress of new product-process development. (expected)
- High Horizontal Altruism was statistically undifferentiated between Anglo-Western society and Han-Chinese society. (unexpected¹¹).

High Horizontal Altruism fostered knowledge building in the absence of high Vertical Power Ethos and high Conventional Orthodoxy. The more open pluralistic Anglo-Western society was found to be well placed, to generate novel intermediate to high product-process development outcomes. Anglo-Western teams were not normatively highly restrained by top-down imposed solutions, allowing them considerable autonomy, without appeals to higher authorities or archaism (Toynbee 1958). Here, a positive attitude towards team *self-determination* freed high Horizontal Altruism to build knowledge.

In contrast, Han-Chinese development teams were found to be given little relative autonomy by superordinates. As previously revealed, high vertical power sanctioned top-down control over deferential development teams, quashing the beneficial sway of high Horizontal Altruism on knowledge building. Moreover, high Conventional Orthodoxy perpetuated high

¹¹ Before the research findings were known, the *mistaken expectation* was Anglo-Western society would have a significantly higher independent means than Han-Chinese society.

vertical ethos. In this environment, the absence of self-determination muted any potential benefit towards initiating the development knowledge-based products and processes.

Consequently, future theorists and developers of international product-process would profit from knowing not only is high Horizontal Altruism required to stimulate knowledge building, but, freely expressed autonomous self-determination is necessary to give potency and cogency to high Horizontal Altruism, if achieving high knowledge building is the goal. Han-Chinese business leaders in particular, can heed these findings and adjust their managerial styles, perhaps, looking towards the Japanese *ringi* template as a substitute for the Confucian cardinal relationships model. However, high Conventional Orthodoxy could impede efforts towards reform in Han-Chinese society.

In addition, as shall be soon discussed, non-Chinese societies must recognise Han-China's limited capacity to produce novel knowledge-based products, owing to the pincer effect on Horizontal Altruism as described. Responding to this new understanding of Han-China's restricted capabilities has foremost implications for the cross-culture assignment of knowledge-based developmental tasks under globalisation. In the absence of reform, novel knowledge-based advances are less likely to emanate from Han-China than from the Anglo-West.

9.4.4 Knowledge-Based Intermediation Effects Confirmed

An original intermediation primary path model was developed. Knowledge building and knowledge discovery were verified as mediators sitting midway between cultural syndromes and new product-process development conformance outcomes on the model. As revealed, knowledge was a product of societal syndromes and product-process conformance outcomes drew their sustenance from knowledge building and knowledge discovery. Within this

framework, the thesis has ascertained, with a high degree of confidence that cultural antecedents *do not* act directly on outcomes, as previously believed.

The thesis found, for the first time, that a two-step process exists:

1. Societal antecedents influence the level of knowledge building and knowledge discovery achievable, *before*;
2. The level of knowledge building and knowledge discovery determine the level of product-process development outcomes achievable.

This new understanding of the two-step relationship between societal syndromes and product-process conformance outcomes has the implication of authenticating knowledge building and knowledge discovery, as mediators responsive to the authority of societal syndromes. Furthermore, because, the influence of cultural syndromes on knowledge building has become discernible, cross-societal product-process conformance outcomes can now be accurately determined and modelled. It therefore follows that future theorists would be better-placed to develop and test more sophisticated conjectures. Moreover, business practitioners can position development activities to make improved distinctions between old economy factors (land, labour, capital) and new knowledge economy factors.

Better understanding the various compositions of knowledge operation across societies has new-found implications for new development resource allocation by global business practitioners and for revising trade theory and global competency models. For example, discerning the relationships between societal syndromes and in knowledge administration in

product-process development can beneficially guide governments, INGOs¹² and trans-societal corporations to leverage societal-knowledge based measures of comparative advantage across societies.

9.4.5 Anglo-Western and Han-Chinese Societal Moderation Effects on the Intermediation Primary Path Model Established

The thesis established ‘society’ as a moderator of constructs along the intermediation primary path model. Within this context, Anglo-Western society and Han-Chinese society were found to moderate the influence of the societal syndrome schema on knowledge building and knowledge discovery, in different ways. The thesis empirically confirmed the Anglo-Western Dynamic Transformationalism vis-à-vis Sino-Homeostatic Traditionalism archetype was closer to the exemplary archetype for novel knowledge creation. Alternatively, Sino-Homeostatic Traditionalism was found further removed from the exemplary archetype for novel knowledge creation.

Furthermore, the thesis revealed Anglo-Western Dynamic Transformationalism vis-à-vis Sino-Homeostatic Traditionalism shall be better endowed to facilitate knowledge building, *viz.* Knowledge Sharing and knowledge building where no discernment¹³ is required concerning the level of knowledge erudition demanded by the developer. It happened that the Anglo-Western archetype was especially capable, within its pluralist environment in capturing and disseminating knowledge across loose, open domains. The Anglo-Western message domain evidently covers wide and un-regimented knowledge areas, as well as, offering a heightened likelihood of knowledge capture and knowledge transfer throughout

¹² International Non-Government Organisations: e.g., the World Bank.

¹³ At this point, the Chapter makes no distinction between various levels of product-process transformation. Distinctions are drawn elsewhere in the thesis.

free networks. As a result, it is easier to contact the right person, who knows the answer and that knowledgeable person is more likely to reply.

In contrast, the Han-Chinese archetype presents a tight, closed domain existing under a rigid top-down framework under the preserve of conventional work psyches¹⁴.

Theorists and practitioners in this area can now presuppose that knowledge generation and inhibition operate differentially between Anglo-Western society and Han-Chinese society, regarding facilitation or inhibition of knowledge capture and knowledge distribution.

As a consequence of the findings of this study, academic understanding and practitioner decision making capacities now have the potential to be improved. In the immediate term, practitioners can reduce project failure in product-process development by situating their frontier projects, in progressively inclined development environments, which exhibit low Vertical Power Ethos and low Conventional Orthodoxy. Given a longer timeline, low knowledge-generation societies, desiring to create knowledge-based product-processes themselves, might choose to undergo internal transformation towards the lessening of vertical secrecy, vertical defence, patrimonialism, langsyne attachment, a *priori* validation and in-role conformity.

¹⁴ Offsetting this comparative *disadvantage* is the opportunity to copy and absorb existing technologies, from other societies, while leveraging advantage in old factors of production (e.g. low labour cost). While this latter course can be highly profitable, for Han-Chinese entities ultimately, the Han-Chinese societal archetype still limits sincerely self-generated novel innovation.

9.4.6 Effects of Product-Process Transformation on the Intermediation Primary Path Model Established in Anglo-Western Society and Han-Chinese Society

The independent moderation effects of low intermediate and high transformation on new product-process development were newly established for Anglo-Western society and Han-Chinese society. This original categorisation in research design provided discriminating insights into the various effects of product transformation on the intermediation primary path model, when contrasting Anglo-Western society and Han-Chinese society.

Distinct moderation effects on the intermediation primary path model were unmistakably discernible, with Anglo-Western society and Han-Chinese society demonstrating different configuration. The level of product-process transformation was found to moderate the relationship between societal syndromes and knowledge building; wherein, differences between the path coefficients were discernable between low, intermediate and high levels of product-process transformation in Anglo-Western-Society society and Han-Chinese society. Knowledge building, upon segmentation, retained its *etic* characteristics, bridging cultural syndromes to knowledge discovery and new product-process conformance development outcomes.

When measuring the cross-societal magnitude of product-process transformation between Anglo-Western and Han-Chinese evaluation of comparative independent means indicated the Anglo-Western society more capable of developing *knowledge-based* products than Han-Chinese society. In support, this thesis has shown, in the transformational Anglo-Western society, that lateral pluralism and wide loose networks facilitate knowledge transfer; while in homeostatic Han-Chinese society, closed, rank-based, delimited networks demarcate the realm of knowledge transfer.

On the other hand, for low transformation products Han-Chinese society presents higher Horizontal Altruism in the workplace and high product-process conformance outcomes than Anglo-Western society. Apparently, in Han-Chinese society, latent high Horizontal Altruism within an environment of high Vertical Power Ethos and high Conventional Orthodoxy can operate to achieve superior product-process conformance outcome, where known templates and implementation is imposed by high Vertical Power Ethos and endorsed by high Conventional Orthodoxy. Within a restricted transformation domain, the *pincer effect*, still allows Han-Chinese society to copy or make minor incremental changes to products and process with high success. In this isolated Han-Chinese situation, tight teams, under close supervision, surpass free-thinking teams, who are under nominal supervision. The Han-Chinese developers exhibit comparative advantage in non knowledge-generation-based product-process development.

9.5 ADDRESSING THE RESEARCH QUESTION

9.5.1 Framework for Answering the Research Question

Developing the new intermediation primary path model required identifying and testing new societal knowledge generation and product-process constructs, to demonstrate developmental phases from cultural antecedents to final product-process conformance outcomes. For the first time, a three phase progression model was tested and authenticated; showing relationships imperative to understanding how cultural syndromes act upon knowledge creation to stimulate or dampen product-process development, including disentangling intrinsic systems.

The first phase on the intermediation primary path model denoted cultural antecedents as ‘societal syndromes’, herein, as purified scales, which, unlike typical research practice in

business studies, removed confounding acculturation features. Development of the new scales required, for the first time, integrating the qualitative works of three acclaimed researchers (i.e. Triandis 1994, Fiske 1990, 1992, Redding 1990). The aggregated composition, for the first time, framed the *field of study* pertaining to cultural antecedents, providing the foundation, upon which, the original societal archetype offered was constructed.

In this matter, a new societal syndrome scheme was operationalised by the thesis, wherein, content validity and unidimensionality coalesced, as guided by new socio-historically tethered social syndromes; viz. Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy. As shown in Table 6.2, each construct was supported by three independent convergent dimensions.

The second phase of the intermediation primary path model was knowledge building. For the first time, this thesis found that knowledge building ‘mediated’ between the three cultural syndromes and knowledge discovery to achieve product-process conformance outcomes. Knowledge building was established by the thesis, as an *etic* construct responsive to the machinations and stratagems of the various societal syndrome archetypes. The Creative Synergies construct was manifestly a product Knowledge Sharing in Knowledge Building.

On the intermediation primary path model, low Vertical Power Ethos, high Horizontal Altruism and high Conventional Orthodoxy were found to guide high knowledge building. However, of particular concern is that not all societies are held to be equally predisposed to offering a viable social syndrome archetype encouraging realisation of the developer’s knowledge building aspirations. Some societies, it follows, will fail to marshal an apposite societal syndrome archetype, for example, where novel innovation is demanded,

communication is bounded, and specialised knowledge keepers are widely distributed. However, not all product-processes development undertakings are knowledge intensive: wherein, less dynamic social syndrome archetypes would suffice to achieve acceptable results.

The third phase of the intermediation primary path model comprised of product discovery and process discovery, which were confirmed precursory in determining final product-process conformance outcomes. Rationally, low intermediate and high product-process transformation requirements differed regarding their reliance on knowledge discovery. Societies exhibiting cultural homoeostasis, in this contest, plausibly, shall be inadequately equipped to *initiate* novel innovation or advanced research.

However, to fully solve the Research Problem, the Thesis needed to assess the moderation effects of Anglo-Western society vis-à-vis Han-Chinese society on the intermediation primary path model and gauge the comparative moderation effects of product-process transformation on that model.

9.5.2 Answering the Research Question

Societal syndromes certainly affect knowledge discovery in achieving new product-process development conformance outcomes. Variable societal syndromes cluster in assorted ways to construct dynamic archetypes, which are expressed at the level of society-at-large and in the workplace. Each societal syndrome archetype has a different potential to stimulate or dampen knowledge building. Knowledge building is a newly discovered, indispensable mediator between each societal syndrome archetype and product-process discovery. Successful final product-process conformance outcomes rely on adequate knowledge discovery.

Societal syndromes, knowledge building and knowledge discovery *en route* on to final product-process conformance must be responsive to knowledge creation provisions, as determined by the level of product-process transformation required. The analysis conducted in this thesis found that Anglo-Western society vis-à-vis Han-Chinese society is the more adept in producing low and intermediate transformation products, especially, intermediate product-process transformation. Han-Chinese society vis-à-vis Anglo-Western society is especially adroit at imitation and making minor incremental enhancements¹⁵. Both Anglo-Western society and Han-Chinese society were challenged by high product process transformation: wherein, Anglo-Western society was more capable of overcoming developmental difficulties.

9.6 SUMMARY OF MAIN IMPLICATIONS

9.6.1 Implications for Theory

Unification of accepted socio-cultural studies (Triandis 1994, Fiske 1990, 1992, and Redding, 1990) and expert historical accounts (McNeill 1991, Bond 1986, Pye 1984, Hsu 1981, 1983, Needham 1979, Quigley 1979, Silin 1976, Bloch 1967, Toynbee 1958, Wells 1937) laid the framework for capturing the field of study relating to cultural antecedents, providing a more durable and integrated theoretical qualitative discipline-wide model than previously available. Subsequent to operationalisation, a further implication of the unification of the field of cultural antecedents was the development of a dynamic structural design (archetype) comprised of original societal syndromes, which can be used by theorists, to elucidate the relationships of societally moderated syndromes on knowledge building.

¹⁵ Highly complex product-processes might be copied, but to initiated.

The three societal syndromes constituting the archetype are dynamic, owing to the moderation effect of each society. For novel innovation, the ideal relationship between the societal syndrome archetype and knowledge building is low power, high vertical ethos and Conventional Orthodoxy.

When Anglo-Western society was tested, modeling indicated high levels of novel knowledge building permissible, because Anglo-Western society closely approximated the ideal societal syndrome archetype disposition. On the other hand, Han-Chinese society was found to

exhibit high measures on all societal syndromes, with the implication that Han-Chinese society is well-placed to innovate by improving customary templates. This was found to be consistent with Jin, Fan and Liu's (1996) demarcating science, technology and experiment, and that Han-Chinese society is not culturally disposed to piloting those autonomous scientific methodologies necessary of first-generation innovation of an esoteric nature.

Also, of significance, Han-Chinese society exhibited high Vertical Power Ethos and Conventional Orthodoxy to exhibit a *pincer effect* on high Horizontal Altruism. This finding indicates that Redding (1990) and Silin's (1976) earlier work was congruent with the findings in this study in terms of claims that the Chinese environment is limited and bounded, within a vertically ordered society. In this setting, tight control and fixed limits on self-expression to-and-from wider communication domains narrows information search and confines decision making.

Then again, while remaining in the sphere of Sinic heredity, instructively, qualitative research into Japanese management systems by Chen (1995), shows *nemawashi* and *ringi* processes

facilitate superordinate *detachment* from line teams' consensus in relation to decision-making, while retaining its hierarchical structure, in other ways. Here, the underlying implication is that Japanese society presents lower Vertical Power Ethos and offers, *in-part*, a viable template model for Han-Chinese management. It follows, if Han-Chinese teams were not as top-down restrained, as their Japanese and Western counterparts, Han-Chinese teams would be better placed to achieve novel forms of innovation.

9.6.2 Implications for Practice

Operationalisation of the wide field of study relating to cultural antecedents provides global product-process developers with a new and dynamic understanding of the phenomenon that is cultural and historically embedded, and that is sensitive to its sociological roots in its representation of highly purified depictions of the latent variables and the manner in which they determine success or failure in cross-culture product-process development. The purity of the respondent data collection is very high. Consequently, practitioners can have higher confidence in the cultural sampling. Moreover, statistical analyses and modelling was applied to an original archetype for the first time establishing the relationships between societal behaviour and social behaviour in the workplace, in order to explain the complex workings using an original dynamic societal syndromes scheme. The societal syndromes scheme can present practitioners with construct-variable archetypes, comprised of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy.

By knowing the measures of each of the cultural syndromes to each of the societal cohorts, practitioners, with high statistically sanctioned confidence, can foresee the influence of each specific societal archetype on the degree of knowledge building in new product-process development. Likewise, superseding earlier generalised methodologies developed to support decision making in non-marketing situations (Hofstede, 1984), the creation of a new

intermediation primary path was tailored designed to meet the particular needs of cross-cultural marketers interested in matching normative cultural dispositions to global product-process development. Put another way, the intermediation primary path model elucidates the entire Culture to Product-Process Development Life Cycle, while providing a comprehensive understanding of all statistically significant interrelationships. With the new intermediation primary path model associations are integrated and there is no need to cobble together disparate components from disparate studies. The new main effects model is coherent, cohesive and durable.

Thus, the research findings contribute to Applied Marketing by supporting improved decision making based on a new understanding of the relationship between culture and product-process conformance outcomes, which includes the essential mediation of knowledge building to create knowledge discovery. Under contemporary conditions of globalisation, practising cross-cultural marketers now have a new decision support archetype, to assist with resource allocation, based on each¹⁶ society's moderation on original intermediation primary path model. As a result of this research, the enhanced ability to more proficiently situate assigned tasks to new product-process development teams internationally based on the level of product-process could prove to be extremely valuable.

Transnational corporations, therefore, can use the new societal syndrome archetype and attendant model, to better manage their international product-process portfolios, by targeting those specific product-process development teams, which have been qualitatively and statistically validated, to normatively exhibit significant culturally-based predispositions towards selected levels of product-process transformation.

¹⁶ Not only the Anglo-Western society and Han-Chinese society.

Adopting the new findings would ensure ‘the (cultural) tree is not bent when first planted’. The correct situating of product-process teams from the onset, is extremely valuable, because hazards are best managed at the beginning of the product-process development life cycle (Wind, 1982), because any inability of the international product-process developers to foresee or accommodate cultural influencers in their strategic marketing planning has a high potential for costly failure. Some consequences of erroneous allocation of product-process teams are project re-allocation, large financial losses, expensive product redesign and project-task descoping, loss of company reputation, customer dissatisfaction from compromises made, loss of profitability and litigation. Therefore, it is imperative that the tree is not ‘bent’ and that findings from this thesis can be used to ensure this; wherein, foreknowledge of cultural dispositions on knowledge generation is essential now, and, even more critical with the growth of globalisation.

Returning to product-process development in Anglo-Western society and Han-Chinese society, the thesis, from the broad societal syndromes schema, identified Anglo-Western Dynamic Transformationalism and Han-Chinese Homeostatic Traditionalism. As a control, Japanese *nemawashi* and *ringi* were cited (Chen 1995).

Han-Chinese society was found to retain strong links with the past reinforcing high vertical power and high Conventional Orthodoxy which curtail expression of Horizontal Altruism, thus inhibiting knowledge building and knowledge discovery and desirable product-process conformance outcomes for intermediate to high transformation involving *novel* innovation. However, Han-Chinese society showed marginal supremacy over Anglo-Western society in

developing often profitable¹⁷ low product-process transformation products. On the other hand, pluralist Anglo-Western society, with its loose open networks, was competent in producing all levels of product-process transformation, given some latitude for early failures in the development of advanced product-process development.

9.6.3 Implications for achieving Product-Trade Advantage

Thesis findings imply private wealth and sovereign capital accumulation, based on high financial returns from a comparative advantage in low transformation product-process transformation could prompt trade imbalances with advanced societies: thus, depriving funding to societies, having a comparative advantage in intermediate to high product-process transformation, requiring high research and development costs and a long wait on return on investment.

Therefore, China might well undergo rapid sociological change (not merely economic) or, achieve workable bi-society China-West agreements and patent alliances, to allow capital to continue to flow to locations outside of China and to locations with comparative advantage in knowledge-based factors of production. Under twenty-first century globalisation, the new wealth engine sits under the hood of developing Asian societies, while established knowledge generation engine sits under the hood of the Western societies. Capital and knowledge-generation have been demarcated. Herein, possible unwanted circumstances are being primed to develop between the world's two largest economic powers, whereby capital is funnelled towards Han-China, a society with comparative advantage in low product-process transformation, away from the Anglo-West, a society with a comparative advantage in intermediate and high product-process transformation.

¹⁷ Minimal Research and Development and low labour costs.

In the immediate term, it might suffice to apply a similar scheme to the United States Civil Armoury War weapons development model mentioned earlier in the thesis, by having Anglo-Western society innovate novel products and processes, while, Han-China enhances Western initiated technologies. If not, unfortunately, given a decade or two, continuing trade imbalances between China and the United States, could ultimately risk undermining higher levels of product-process transformation, because capital has followed (flowed) disproportionately to buttressing old factors of production rather than funding new knowledge-based product-process development¹⁸.

Unlike Han-Chinese society, Anglo-Western society and Japanese society shared periods of protracted feudalism, which engendered pluralism and grass roots consensus. On the other hand, familial competitiveness and rank-based cardinal relationships confine Han-China to its Sino-Homeostatic classical archetype. For China, adoption of the Japanese *ringi* system, might be more plausible than implementing culturally-removed Anglo-Western approaches. However, should Han-Chinese society adopt the aforementioned course, in the short-term, its economy would likely be less profitable, which would run counter to plans to build a self-sustaining domestic economy, less dependent on the West, especially the United States.

¹⁸ Basic trade theory (Recardo 1817, in Daniels and Radebaugh 1998) would have the United States (and other major advanced economies) having high advantage in all manner of production, exploit its advantage in the creation of high-end novel innovation and have developing countries produce more basic products. However, return on investment for research and development is high. Offshore production, say, in China, without offshore ownership by innovators, might prove hazardous. Alternatively, imitator-manufacturers need to ensure investment into innovators' enterprises, while allowing innovators scope to leverage their capacity to produce novel innovations. In twenty-first century commerce, global mutualism and cross-societal equity present as good candidates for continuing innovation and lower costs of production. Such a transformation would require a shift towards interlaced cross-ownership of international product-process transformation activities, away from national sovereignty in some aspects of commerce. Efficacious management of wealth generating product-process transformation development activities would be well served in the longer term, by international private ownership of all levels product-process transformation.

9.6.4 New Form of Patent Equity Joint Ventures

The constitution of future joint ventures between the United States and China needs urgent review. Capital for novel innovation needs to remain in the West and managed by the West, for now: Perhaps requiring new dual-equity patent laws. China must widen opportunities for Foreign Direct Investment, involving foreign ownership of past major State assets, so that cross-societal equity and return is spread across all levels of product-process transformation. Thus, the West, the United States in particular, needs to work with Chinese entrepreneurs to develop new cross-societal patent-equity arrangements.

9.7 LIMITATIONS

Theorists and practitioners, when applying this *particular* research execution, can be assured, there is a high degree of conformity, between new quantitative results and accepted qualitative knowledge. Nonetheless, there are several limitations to this exploratory thesis:

This thesis represents the first operationalisation of unified cultural antecedents as a means to cultivate multiple original societal syndromes, plus accompanying new product-process development constructs. The ‘conceptual complexity’ of the modelling is extensive, and, therefore, exceedingly difficult to articulate and operationalise. This ‘first attempt’ must, therefore, be considered as, ‘seminal’ in terms of its ‘research focus and measurement’ (Nelson 2012¹⁹).

The thesis endeavoured to collect data from Anglo-Western and Han-Chinese respondents, restricted to the adult population. Across adult Anglo-Western samples, all adult age-ranges were well represented. Contrariwise, older Han-Chinese persons would not agree to complete

¹⁹ Thesis Examiner: Professor James Nelson

the thesis-related surveys. The latter's lack of willingness is consistent with the vertical secrecy dimension of the vertical power ethos construct developed by the thesis. On the other hand, the lack of older Han-Chinese respondents mitigates affirmation of the results derived from quantitative approaches. This limiting situation is approximately comparable to taste-testing pork and needing input from members of the orthodox Jewish faith, to statistically ensure all faiths are captured. Thus, for research, a limitation and a conundrum exist.

Data collection was cross-sectional, because the surveys were completed close in time. Cross-sectional data collection is a limitation. Here, while the constructs appear consistent with qualitative theory, regarding centuries-long embedded behaviours; longitudinal studies would be required, to confirm or reject (Popper 1972) statistical inferences advocated by this exploratory thesis.

Owing to data segmentation, the propositional investigations into the moderating effects of product-process transformation (low, intermediate, high) on the Intermediation Path Model employed a sample size too small to support definitive recognition of quantitative results. Albeit, propositional results achieved were entirely rational and consistent with qualitative theory. Furthermore, for the three product-process transformation groups, the lack of stratified sampling methodology, is not best practice, and, therefore, is a limitation.

9.8 FUTURE RESEARCH STUDIES

9.8.1 Introduction to Future Research Studies

Results from the thesis provide a foundation for future studies. Accordingly future research recommendations are presented below, accompanied by a brief discussion on the rationale for their presence. Some recommendations are generic in nature, and herein suggest that general changes of practice in business studies research design approaches are needed. Other future research recommendations are more specific.

9.8.2 Future Research Design Approaches

The thesis implemented the sociologically purer measure of ‘society’ in preference to the existing research standards of ‘nation’ or ‘country’ to avoid cross-acculturation distortions. Future researchers, wishing to quantify unadulterated sociological phenomenon, should consider ‘society’ as their preferred unit of measure, because the ‘society’ measure is less cross-culturally corrupted than the existing alternatives.

Possibly unique for business studies research, this thesis embraced an anthropological approach, wherein, societal measures were assessed at *both* a large group level (society-at-large) and a small group level (workplace) (Dunbar 1996). Statistical results, in multiple instances, confirmed the differential effects of society-at-large and workplace environments. It follows that past research studies employing the traditional nation *only*, country *only* or workplace *only* approach need to be revisited by future researchers using the two-level approach, which has been shown to be highly functional throughout this thesis. Likewise, original research in future should benefit from the two-tier measurements when developing culturally related constructs.

The thesis offers a new Societal Syndrome Schema (Archetype), which was used to successfully contrast Anglo-Western society (n=1,329) and Han-Chinese society (n=166). This Archetype was tested on a large sample (n=1,495), to yield original and highly meaningful results, as reported in the thesis. Said results were based on rigorous testing employing advanced contemporary techniques. While in this instance the new Societal Syndrome Schema was employed to compare Anglo-Western society with Han-Chinese society; its design template permits its use in many future research scenarios, within business studies and other disciplines. In this way, the *dynamic* Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy composite structure is both qualitatively and quantitatively self-contained; and therefore its framework can readily be concatenated on to other structural equation models, allowing many further investigations. For instance, future researchers could build a global model of all major societies based on the new Societal Syndrome Schema template.

A completed global model could complement and contemporise Geert Hofstede's (1967-1973, 1980) cultural dimensions approach by offering a more rigorous quantitative research design than does Hofstede's very mature IBM (HERMES) study. Hofstede's (1967-1973, 1980) contribution helps researchers to construct *co-ordinate* based diagrams based on cultural dimensions (e.g. Individualism and Power Distance), from which useful basic inferences may be drawn. Additionally, from this thesis future researchers could use the results of a global model of all major societies to address dynamical research questions beyond the scope of Hofstede's (1967-1973, 1980) approach.

9.8.3 Specific Future Research Recommendations

The new Societal Syndrome Schema template is more vibrant than the HERMES model. Herein, the thesis demonstrated how high Vertical Power Ethos and high Conventional Orthodoxy act together as a *pincer* on the expression of high Horizontal Altruism, as identified and empirically confirmed in Han-China vis-à-vis the Anglo-West. Likewise, future researchers across many disciplines could exploit and profit from the dynamical nature of the new Societal Syndrome Schema template, herein gaining greater insights into cultural antecedents, beyond those accessible with earlier approaches. For example, a future researcher might compare the aforementioned *pincer* effect in China PRC vis-à-vis Japan vis-à-vis Taiwan ROC.

Dr Yiming Tang²⁰, Associate Professor, at Macquarie University in Sydney, recommends in future studies that the thesis approach be also tested in regional China in order to investigate ‘distinct local cultures’. The thesis author agrees that further studies into regional areas in China and elsewhere could help identify *emic* structures.

The thesis endeavoured to capture data in all adult age-ranges in the Anglo-West and Han-China. However, a limitation and related conundrum of the thesis was that older Chinese would not complete the surveys because of societal predispositions. Here, the thesis suggested the high vertical secrecy dimension of Vertical Power Ethos to be the culprit facilitating restraint. Yet, further new attempts should be made to capture data from the older Chinese age groups, even in face of the present culturally-entrenched predispositions.

Especially since 1978, China has emerged to regain its economic superpower status, yet in a very different global environment. In dynastic China and through most of the twenty-century,

²⁰ Thesis Examiner

Han-Chinese society has emphasised the importance of powerful bureaucratic high vertical power structures and agrarian economies; while marginalising *The Shang*; i.e., the artisan, merchant and entrepreneurial classes. Hitherto, in the twenty-first century, we find many successful Han-Chinese entrepreneurs, thriving in Communist China and sourcing resources internationally. Future research should investigate this phenomenon and focus on the psyche, managerial practices and motivations of entrepreneurs, from a societal locus. New research into understanding the importance of Confucianism and classic orthodoxies to the Han-Chinese entrepreneurs should prove insightful. Equally significant is learning how Han-Chinese leverage Confucianism and classic orthodoxies at the workplace.

The thesis conducted propositional product-process transformation studies, which provided obliging orientating outcomes. Yet, larger sample populations would have increased statistical confidence in the encouraging results. It follows that future research into societies vis-à-vis product-process transformation could adopt better practice, by embracing stratified sampling and statistically adequate populations at each level of product-process transformation (i.e., low, intermediate and high).

Furthermore, future research should categorise specific products under the aforementioned product-process transformation categories to guide the global allocation of new product-process development resources by transnational companies, based on the modelling offered by the thesis. Also, an enhanced understanding of the effects of societal syndromes on new knowledge discovery in new product-process development, when *enjoined* with a comprehensive knowledge of how products best fit product-process categories, should lead to new legal forms and organisational structures, especially concerning global joint ventures and

cross-societal equity in enterprise. Future studies are required to guide the evolution of the aforementioned matching.

9.9 REGARDING APPENDICES

The appendices that complement the thesis are on later pages, after the Bibliography. Appendix 'A' provides discussion on the Behavioural Approach to Comparative Management and explains the broader background, from which, the comparative management studies and socio-anthropological framework from the thesis gains its commencement orientation. Appendix 'B' outlines the thesis' survey structure, accompanied by comprehensive annotation. Appendices 'C' & 'D' show principal axis factoring results and item-level within single societal construct correlation matrices, for Anglo-Western society and Han-Chinese society, respectively.

BIBLIOGRAPHY

- Adler, N.J. 2002, *International dimensions of organizational behavior*, 4th edn, South-Western, Cincinnati, Ohio.
- Ahmadi, R. & Wang R.H. 1999, 'Managing risk in product design processes', *Operations Research*, vol. 47, no. 2, pp. 235-246.
- Akgün, A.E., Lynn, G.S. & Yilmaz, C. 2006, 'Learning process in new product development teams and effects on product success: A socio-cognitive perspective', *Industrial Marketing Management*, vol. 35, no. 2, pp. 210-224.
- Allen, T. H. 1998, 'What is ecology?', in S.I. Dodson (ed.), *Ecology*, Oxford University Press, New York.
- Alon, I. 2003, *Chinese culture, organizational behavior, and international business management*, Praeger, Westport.
- Anastasi, A. 1976, *Psychological Testing*, MacMillan, New York.
- Anderson, L.W. 2005, 'Objectives, evaluation, and the improvement of education', *Studies in Educational Evaluation*, Vol 31, nos. 2-3, pp. 102-113.
- Anderson, J.C. & Gerbing, D.W. 1988, 'Structural equation modelling in practice: A review and recommended two-step approach', *Psychological Bulletin*, vol. 103, no.3, pp. 411-413.
- Armistead, C. 1999, 'Knowledge management and process performance', *Journal of Knowledge Management*, vol. 3, no. 2, pp. 143-157.
- Atuahene-Gima, K. 2003, 'The effects of centrifugal and centripetal forces on product development speed and quality: How does problem solving matter?', *Academy of Management Journal*, vol. 46, no. 3, pp. 359-73.
- Ayers, D., Dahlstrom & Skinner, S.J. 1997, 'An exploratory investigation of Organizational antecedents to new product success', *Journal of Marketing Research*, vol. 34, vol. 1, pp. 107-116.
- Bagozzi, R.P. 1994, *Measurement in marketing research: Basic principles of questionnaire design*, Basil Blackwell Ltd., Oxford.
- Bagozzi, R. P. & Foxal, G.R. 1996, 'Construct validation of a measure of adaptive-innovative cognitive styles', *International Journal of Research in Marketing*, vol. 13, no.3, pp. 201-213.
- Bagozzi, R.P., Yi. Y. & Nassen K.D. 1998, 'Representation of measurement error in marketing variables: Review of approaches and extension to three-facet designs', *Journal of Econometrics*, vol. 89, no. 1-2, pp. 399-421.

- Baker, H.D.R. 1979, *Chinese Family and Kinship*, Columbia University Press, New York
- Beard, R.M. 1972, *An outline of Piaget's developmental psychology*, Rutledge Kegan, London.
- Blalock, H.M. 1964, *Casual inferences in non-experimental research*, University of North Carolina Press, Chapel Hill.
- Bloch, M. 1967, trans. Manyon, L.A., *Feudal Society, (1) The Growth of Ties of Dependence*, Routledge, London.
- Bloch, M. 1967, trans. Manyon, L.A., *Feudal Society, (2) Social Classes and Political Organization*, Routledge, London.
- Block, Z. & MacMillan I. C. 1985, 'Growing concern: Milestones for successful venture planning', *Harvard Business Review*, vol. 63, no. 1, pp. 177-192.
- Bloom, B.S. 1956, *Taxonomy of educational objectives: The classification of educational goals*, 1st edn, Longmans, Green, New York.
- Bol, P.K. 1992, *'This culture of ours': Intellectual transitions in T'ang and Sung China*, Stanford University Press, Stanford.
- Bollen, K.A. 1989, *Structural equations with latent variables*, John Wiley & Sons, New York.
- Bollen, K. & Lennox R. 1991, 'Conventional wisdom and measurement: A structural equation perspective', *Psychological Bulletin*, vol. 100, no. 2, pp. 305-314.
- Bond, M.H. 1987, 'Chinese cultural connection - Returning to the middle kingdom: Chinese values and the search for psychological universals', *Cross-Cultural Psychology*, vol. 18, no. 2, pp. 143-164.
- Bond, M.H. & Smith, P.B. 1996, 'Cross-cultural social and organisational psychology', *Annual Review of Psychology*, vol. 47, no. 1, pp. 205-35.
- Bond, M.H., Cheung, F. M.C., Ho, D.Y.F., Hoosain R., Hwang, K., Liu, I., Redding S.G., Wong, G.Y.Y. & Yang, K. 1986, *The Psychology of the Chinese people*, Hong Kong Oxford University Press, New York.
- Borsboom, D., Mellenbergh G.J. & Heerden J.V. 2003, 'Theoretical status of latent variables', *Psychological Review*, Vol. 110, No. 2, pp. 203-219.
- Borsboom, D., Mellenbergh G.J. & Heerden J.V. 2004, 'The concept of validity', *Psychological Review*, Vol. 111, No. 4, pp. 1061-1071.
- Briggs, S.R. & Cheek, J.M. 1988, 'The role of factor analysis in the evaluation of personality scales', *Journal of Personality*, vol. 54, no. 1, pp. 106-148.

- Brislin, R.W. 1970, 'Back-translation for cross-cultural research', *Journal of Cross-cultural Research*, vol. 1, no. 3, pp. 185-216.
- Bronowski, J. 1974, *The ascent of man*, 1st American edn, Little, Boston.
- Brown, S.L. & Eisenhardt, K.M. 1995, 'Product development, past research, present findings and future directions', *Academy of Management Review*, vol. 20, no. 2, pp. 343-378.
- Browne, M.K. & Cudeck, C.R. 1993, 'Alternative ways of assessing model fit', in Bollen K.A, Long, J.S. (eds), *Testing Structural Equation Modelling*, Sage, Newbury Park.
- Byrne, B.M. 2010, *Structrual Equation Modelling in AMOS: Basic Concepts*, 2nd edn, Routledge, New York.
- Calantone, R.J., Schmidt, J.B., Song, J.B. & Song, X. M. 1996, 'Controllable factors of new product success: A cross nation comparison', *Marketing Science*, vol. 15, no. 4, pp. 341-358.
- Campbell, D.T. & Fiske, D.W. 1959, 'Convergent and discriminant validation of the multitrait-multimethod matrix', *Psychological Bulletin*, vol. 56, no. 2, pp. 81-105.
- Campbell, J.P. 1982 (Ed.), 'Some remarks from the outgoing editor', *Journal of Applied Psychology*, Editorial, vol 67, no. 6, pp. 691-700.
- Carneiro, A. 2000, 'How does knowledge management influence innovation and competitiveness?', *Journal of Knowledge Management*, vol. 4, no. 2, pp. 87-98.
- Chen, M. 1995, *Asian management systems: Chinese, Japanese, and Korean styles of business*, Routledge, New York.
- Gerwin, D. 2004, 'Coordinating new product development in strategic alliances', *Academy of Management Review*, vol.29, issue 2, pp. 241-247.
- Cheng, Y-T & Van de Ven 1996 A.H, 'Learning the innovation journey: Order out of chaos? ', *Organization Science*, vol. 7, no. 6, pp. 593-614.
- Cronbach, L.J. 1947, 'test "reliability": Its meaning and determination', vol. 12, no. 1, pp. 1-16.
- Churchill, G.A.J. 1979, 'A paradigm for developing better measures of marketing constructs', *Journal of Marketing Research*, vol. 26, no. 1, pp. 63-73.
- Clark, K.B. & Fujimoto T. 1989, 'Overlapping problem solving in new product development', K. Fersows (ed.) North Holland, Amsterdam, pp. 127-152.
- Cortina, J.M. 1993, 'What is coefficient alpha? An examination of theory and practice', *Journal of Applied Psychology*, vol. 78, no. 1, pp. 98-104.

- Crombie, A.C. 1961, 'Quantification of medieval physics', paper presented to *The Conference on Quantification: The History of Quantification in the Sciences of The History of Science Society, Inc.*, pp.13-30, Madras.
- Crombie, A.C. & Richard, J. 2004, 'My current thoughts on coefficient alpha and successor procedures', *Educational and Psychological Measurement*, vol. 64, no. 3, pp. 391-418.
- Cronbach, L.J. 1947, 'Test reliability', *Psychometrika*, vol. 12, no. 1, pp. 1-16.
- Cronbach, L.J. & Meehl, P.E. 1955, 'Learning the innovation journey: Order out of chaos?', *Psychological Bulletin*, vol. 52, no. 4, pp. 281-302.
- Cronbach, L.J. 1988, 'Five perspectives on validity argument', in H. Wainer & H.I. Braun (eds), *Test Validity*, Lawrence Erlbaum Associates, Hillsdale.
- Cua, A.S. 2002, 'The ethical and religious dimensions of Li', *The Review Journal of Metaphysics*, vol. 55, no. 3, pp. 471-516.
- Cultman T., Divinney T.M., Midgley D.F. & Venaik S. 2008, 'Formative versus reflective models: Two applications of formative measurement', *Journal of Business Research*, vol. 61, no. 12, pp. 1250-1262.
- Curtis, G.L. 1988, *The Japanese way of politics*, Columbia University Press, New York.
- Daniels J.D. & Radebaugh 1998, *International Business*, 9th Edn., Prentice Hall, Upper Saddle River.
- Davenport, T.H. & Prusak, L. 1998, *Working knowledge: how organizations manage what they now*, Harvard Business School Press, Boston.
- Davies H., Leung T.K.P., Luk, S. T-k. & Wong Y.H. 2003, 'Guanxi and business practices in the Peoples Republic of China', in Alon, I. (ed.), *Chinese culture, organizational behavior, and international business management*, Praeger, Westport.
- Davis, S.M. 1971, *Comparative management: organizational and cultural perspectives*, Prentice-Hall, Englewood Cliffs.
- Deng, K.G. 2003, 'Development and its deadlock in imperial China', *Economic Development and Cultural Change*, vol. 51, no. 2, pp. 479-522.
- Desouza, K.C. & Evaristo, R. 2003, 'Global knowledge management', *European Management Journal*, vol. 21, no. 1, pp. 62-67.
- DeVellis, R.F. 1991, *Scale development: theory and applications*, Sage, Newbury Park.
- Drucker, P.P. 1993, *Post-capitalist society* Butterworth Heinemann, Oxford.
- Dunbar, R. 1996, *The trouble with science*, Harvard University Press, Cambridge, Mass.

- Embretson, S.E and Reise, S.P. 2000, *Item response theory for psychologists*, Lawrence Erlbaum Associates, Mahmah.
- Ettlie, J.E. 1995, 'Integrated design and new product success', *Journal of Operations Management*, vol, 15. no. 1, pp. 33-55.
- Feng, Y. & Hughes, E.R. 1947, *The spirit of Chinese philosophy*, K. Paul, Trench, London
- Field, A.P. 2009, *Discovering statistics using SPSS: (and sex, drugs and rock 'n' roll)*, 3rd edn, SAGE Publications, Los Angeles.
- Fisher, R.A. 1926, 'The arrangement of field experiments', *Journal of the Ministry of Agriculture of Great Britain*, vol. 33, pp. 505-13.
- Fiske, A. P. 1993, *Structures of social life: the four elementary forms of human relations: communal sharing, authority ranking, equality matching, market pricing*, 1st Free Press pbk. edn, Free Press, Maxwell Macmillan International, New York
- Fiske, R.P. 1992, 'The four elementary forms of sociality: Framework for a unified theory of social realtions', *Psychological Review*, vol. 99, no. 4, pp.689-723.
- Fong, T. 2001, 'Culture as a driving force for interfirm adaptation', *Industrial Marketing Management*, vol. 30, no. 1, pp. 51-63.
- Fornell, C. & Lacker D.F. 1981, 'Evaluating structural equation models with unobserved variables and measurement error', *Journal of Marketing Research*, vol. 28, no. 1, pp. 39-50.
- Fukuda, K.J. 1988, *Japanese-style management transferred: the experience of East Asia*, Routledge, London; New York.
- Garvin, D.A. 1988, *Managing quality: the strategic and competitive edge*, Free Press, Collier Macmillan, New York.
- Garvin, D.A. 1993, 'Building the learning organization', *Harvard Business Review*, vol. 71, no. 4, pp. 78-79.
- Gerwin, D. 2004, 'Coordinating new product development in strategic alliances', *Academy of Management Review*, vol. 29, no. 2, pp. 241-247.
- Ghoshal, S. & Bartlett, C.A. 1990, 'The Multinational corporation as an interorganizational network', *Academy of Management Review*, vol. 15, no. 4, pp. 603-625.
- Gieskes, J.F. B. & Langenberg, I. 2001, 'Learning and improvement in product innovation processes: Enabling behaviours', *Systems Engineering*, vol. 4, no. 2, pp. 134-144.
- Gladwell, M. 2002, *The tipping point: how little things can make a big difference*, 1st Back Bay pbk. edn, Back Bay Books, Boston.

- Goldstone, J.A. 2003, 'Feed the people, starving the state', paper presented, *The global economic history network and the Leverhulme foundation*, London.
- Green, S.B., Lissitz, R.W. & Mulaik, S.A. 1977, 'Limitations of coefficient alpha as an index of unidimensionality', *Educational and Psychological Measurement*, vol. 37, pp. 827-838.
- Greenfield, S. 2000, *The private life of the brain*, Penguin, London.
- Greenfield, S. 2004, *Tomorrow's people: How 21st century technology is changing the way we think*, Penguin, London.
- Gribbin, J. 2003, *Science: A history*, Penguin, London.
- Guilford, J.P. 1959, *Personality*, McGraw-Hill, New York.
- Gupta, B., Iyer, L. S. and Aronson, J. E. 2000. 'Knowledge management: Practices and challenges', *Industrial Management and Data Systems*, vol. 10. no. 1, pp. 17-21.
- Hair, J.F., Anderson, R. E. & Tatham, R. L. 1992, *Multivariate data analysis*, McMillian, New York.
- Haley, G.T., & Tan, C-T 1996, 'The black hole of South-East Asia: Decision making in an informational void', *Management Decision*, vol. 34, no. 9, pp. 37-48.
- Hamilton, G.G. 1984, 'Patriarchism in imperial China and Western Europe: A revision of Weber's sociology of domination', *Theory and Society*, vol. 13, 393-425.
- Harman, H.H. 1967, *Modern Factor Analysis*, 2nd Edn., University of Chicago Press, Chicago
- Hattie, J. 1985, 'Methodology review: Assessing undimensionality of tests and items', *Applied Psychological Measurement*, vol. 9, no. 2, 139-164.
- Hensler, J. Ringle C.M. & Sinkovics R.R. 2009, 'The use of partial least squares in international Marketing', *Advances in International Marketing*, vol. 20, pp. 277-310, Online, <http://php.portals.mbs.ac.uk/Portals/49/docs/rsinkovics/pubs/2009-AIM-Henseler-Ringle-Sinkovics-PLS.pdf>
- Herbig, P.A. 1994, *The innovation matrix: culture and structure prerequisites to innovation*, Quorum Books, Westport
- Herskovits, M.J. 1955, *Cultural anthropology*, Knopf, New York.
- Hitchinson, G., Sofroniou, N., 1999, *The multivariate social scientist*, Sage, London.
- Ho, P.Y. 1985, *Li, qi, and shu: an introduction to science and civilization in China*, Hong Kong University Press, Hong Kong.
- Hofstede, G.H. 1984, *Culture's consequences - international differences in work-related values*, Abridged edn, vol. 5, Sage Publications Inc., Newbury Park.

- Hofstede, G.H. 2001, *Culture's consequences: comparing values, behaviors, institutions, and organizations across nations*, 2nd edn, Sage Publications, Thousand Oaks.
- Holtgraves, T. & Yang J. 1992, 'The interpersonal underpinnings of request strategies: General principles and differences due to culture and gender', *Journal of Personality and Social Psychology*, vol. 62, no. 2, pp. 246-256.
- Hsu, F.L.K. 1981, *Americans and Chinese: passage to differences*, 3rd edn, University Press of Hawaii, Honolulu.
- Hu, L-t & Bentler, P.M. 1999, 'Cutoff criteria for fit indexes in covariance analysis: conventional criteria', *Structural Equation Modelling*, vol. 56, no. 2, pp.81-105.
- Hulland, J. 1999, 'The use of partial least squares method (PLS) in strategic management research: A review of four recent studies', *Strategic Management Journal*, vol. 20, no 2, pp. 195-204.
- Huntington, S.P. 1996, *The clash of civilizations and the remaking of the world order*, Simon & Schuster, New York.
- Huq, M. & Toyama, M. 2006, 'An analysis of factors influencing the development of new products in the Thai food industry', *International Journal of Technology Management & Sustainable Development*, vol. 5, no. 2, pp. 159-172.
- Iacobucci, D. 2001, 'Methodological and statistical concerns of the experimental behavioral researcher: Summed scales and what is a "reflective" or "formative" indicator', *Journal of Consumer Psychology* (Special Issue), vol. 10. No 1, pp. 75-76.
- Ipe, M. 2003, 'Knowledge sharing in organizations: A conceptual Framework', *Human Resource Development Review*, vol. 2, no. 4, pp. 353-364.
- Jacobs, L.G., Guopei G. & Herbig, P. 1996, 'The past 2,000 years of business in Europe and China: Why Europe is Europe and China is China', *European Business Review*, vol. 96, no. 1, pp. 26-30.
- Javis, C.B., MacKenzie S.B & Podsakoff P.M. 2003, 'A critical review of construct indicators and measurement model misspecification in marketing and consumer Research', *Journal of Consumer Research*, vol. 30, no. 2, pp. 199-218.
- Jassawalla, A.R., Sashittal, H.C. 2000, 'Cross-functional dynamics in new product development', *Research -Technology Management*, vol. 43, no. 11, pp.46-49.
- Jin, G., Fan, H., Liu, Q. 1996, 'The structure of science and technology in history: On the factors delaying the development of science in China in comparison with the West since 17th century (part one)', in D.C. Fan & Robert S. Cohen (ed.), *Chinese studies in the history and philosophy of science and technology*, Kluwer Academic Publishers, Netherlands, pp. 137-164.
- Jin, G., Fan, H., Liu, Q. 1996, 'Historical changes in the structure of science and technology (part two, commentary)', in D.C. Fan & R.S. Fan (ed.) and Robert S. Cohen, *Chinese Studies in the History and Philosophy of Science and Technology*, Kluwer Academic Publishers, Netherlands, pp. 165-183.

- Jin, G., Fan H., Fan D. & Lui, Q. 1986, 'Time, science and society in China and the West', in J.T. Fraser and F.C. Haber 1986, *The Evolution of Chinese, Science and Technology*, University of Massachusetts Press, Amherst, pp. 170-181.
- Johne, F.A. & Snelson, P.A, 1988, 'Success factors in product innovation: A selective review of the literature', *Journal Product Innovation Management*, vol. 5, no. 2, June, pp. 114-28.
- Jöreskog, K.G. 1966, 'Statistical analysis of sets of congenic tests', *Psychometrika*, vol. 32, no. 1, 101-133.
- Jöreskog, K.G. 1969, 'A general approach to confirmatory maximum likelihood analysis', *Psychometrika*, vol. 34, no. 2, 183-202.
- Joyce, H. 2001, online, 'Adam Smith and the invisible hand', *Plus magazine - living with mathematics*, Online, <http://plus.maths.org/content/adam-smith-and-invisible-hand>
- Kaizuka, S. 2002, *Confucius: his life and thought*, Dover Publications, Mineola .
- Kaiser, H.F. 1960, 'The application of electronic computers to factor analysis', *Educational and Psychological Measurement*, vol. 20, October, pp. 141-151.
- Kaplan, R.M. & Saccuzzo, D.P. 1982, *Psychological, testing pinciples, applications and Issues*, Brooks/Cole Pub. Co., Monterey.
- Kline, R.B. 1998, *Principles and Practice of Structural Equation Modeling*, The Guilford Press, New York.
- Kaufmann, W.J. 1979, *The Cosmic Fontiers of General Relativity*, Penguin, Harmondsworth.
- Kim, B.S.K., Atkinson, D.R. & Yang, P.H. 1999, 'The asian values scale: Development, factor analysis', validation and reliability, vol. 46, no. 3, 342-352.
- Kline, R.B. 1998, *Principles and Practice of Structural Equation Modelling*, Guildford Press, New York.
- Kotler, P., Chandler P.C., Brown, L., Adam, S. 1994, *Marketing: Australia & New Zealand*, 3rd edn, Prentice Hall.
- Koulopoloulos, T.M. & Frappaolo, C. 2000, 'Smart things to know about knowledge Management', Capstone, Oxford.
- Kreis, S. 2006, 'European agrarian society: manorialism, Lectures on ancient and medieval History', *The history guide*, Online, <http://www.historyguide.org/ancientlecture22b.html>.
- Kroeber, A.L. & Kluckhohn, C. 1952, *Culture; a critical review of concepts and definitions*, The Museum, Cambridge, Mass.

- Leung, K., Bond M.H., de Carrasquel, S.H., Mañoz, Hernández, M., Murakami, F., Bierbrauer, G., Singelis & Yamaguchi, S. 2002, 'Social Axioms – The search for universal dimensions of general beliefs about how the world works', *Journal of Cross-Cultural Psychology*, pp. 282-302.
- Levitt, T. 1960, 'Marketing myopia', *Harvard Business Review*, vol. 38, no. 4, pp. 45-56.
- Lewis, J. 1969, *Anthropology*, W. H. Allen, London.
- Li, H., Atuahene-Gima, K. 1999, 'Marketing's influence on new product performance in Chinese firms', *Journal of International Marketing*, vol. 7, no. 1, pp.34-56.
- Linda, G.D. 2005, 'Cooperative networks and the rural urban divide', in R. Latham & S. Sassen (eds), *Digital formations: IT and new architectures in the global realm*, Princeton University Press, Princeton, pp. 117-145.
- Little, D. 1989, *Understanding peasant China: Case studies in the philosophy of social science*, Yale University Press, New Haven.
- Long, J.S. 1983, *Quantitative Applications in the Social Sciences: Confirmatory Factor Analysis*, vol. 33, Sage, Beverley Hills.
- Lucas, B.A., Hult., T.M. & Ferrell, O.C. 1996, 'A theoretical perspective of the antecedents and consequences of organisational learning in marketing channels', *Journal of Business Research*, vol. 36, no. 3, pp. 233-244.
- Lundvall, B.Å. 1993, 'User-producer relationships, national systems of innovation and internationalisation', in D. Foray & C. Freeman (eds), *Technology and the wealth of nations: the dynamics of constructed advantage*, St. Martin's Press, New York.
- Madhavan, R. & Grover, R. 1998, 'From embedded knowledge to embodied knowledge: New product development as knowledge management', *Journal of Marketing*, vol. 62, no. 4, pp. 1-12.
- Malhotra, N.K. 1999, *Marketing Research, An Applied Orientation*, Prentice Hall, Saddle River, N.J.
- Mansfield, E. 1999, *Managerial economics: theory, applications, and cases*, 4th edn, W.W. Norton, New York.
- Marinova, D. 2004, 'Actualizing innovation effort: The impact of market knowledge diffusion in a dynamic system of competition', *Journal of Marketing*, vol. 68, no. 3, pp. 1-20.
- Markus, H.R. & Kitayama S. 1991, 'Culture and the self: Implications for cognition, emotion and motivation', *Psychological Review*, vol.98 no, 2, pp. 224–253.
- Masko, B., Leydens, J.J. & Pavelich 2002, 'Validity, reliability and the assessment of engineering education', *Journal of Engineering Education*, vol. 9, no 3, pp.351-354.

- Marks, J. 1983, *Science and the making of the modern world*, Heinemann, London ; Exeter, N.H. Masko, B., Leydens, J.J. & Pavelich, M. 2002, 'Validity, iability and the Assessment of Engineering Education', *Journal of Engineering Education*, vol. 91, no. 3, p. 351.
- Matheson, L.R. & Tarjan, R.E. 1998, 'Culturally-induced information impactedness: A prescription for failure in software ventures', *Journal of Management Information Systems*, vol. 15, no. 2, pp. 23-30.
- McCallum, R.C., Browne, M.W. & Sugawara, H.M. 1996, 'Power analysis and determination of sample for covariance structure models', *Psychological Methods*, vol. 1, pp. 130-149.
- McColl-Kennedy, M., Kiel, G., Lusch, R. & Lusch V. 1994, *Marketing concepts and strategies*, 2nd edn, Nelson Thomson Learning, Melbourne.
- McNeill, W.H. 1963, *The rise of the West; a history of the human community*, University of Chicago Press, Chicago.
- Meade, A.W., Watson A.W. & Kroustalis 2007, 'Assessing common methods bias in Organizational Research', Paper presented at the 22nd Annual Meeting for the Society for Industrial and Organisational Psychology, New York, Online, http://www4.ncsu.edu/~awmeade/Links/Papers/Methods_Bias%28SIOP07%29.pdf
- Meyer, A.D. 1982, 'Adapting to environmental jolts', *Administrative Science Quarterly*, vol. 27, no. 4, pp. 515-37.
- Morelli, M.D. & Eppinger, S.D. 1995, 'Predicting technical communication in product development organizations', *IEEE Transactions on Engineering Management*, vol. 42, no. 3, p. 215.
- Mulder, M. 1977, *The daily power game*, Martinus Nijhoff Social Sciences Division, Leiden.
- Muller, A., *The morality of the market*, in Library of Economics, Book Synopsis,online, King A. (ed.), Online, http://econlog.econlib.org/archives/2004/01/the_morality_of.html
- Nakata, C. & Sivakumar, K. 1996, 'National culture and new product development: An integrative review', *Journal of Marketing*, vol. 60, no. 1, pp. 61-72.
- Nath, R. 1986, 'The role of culture in cross-cultural and organizational research', in S. Malick (ed.), *Advances in International Comparative Management*, Achor Press Doubleday, New York, pp. 392-416.
- Needham, J. 1969, *The grand titration; science and society in East and West*, University of Toronto Press, Toronto.
- Needham, J. 1981, *Science in traditional China : a comparative perspective*, Harvard University Press, Cambridge, Mass.
- Needham, J., Wang, L., Lu, G.-D. & Ho, P.-Y. 1970, *Clerks and craftsmen in China and the West: lectures and addresses on the history of science and technology*, University Press, Cambridge, U.K.

- Nelson, K.M. & Coopridner, J.G. 1996, 'The contribution of shared knowledge to IS group performance', *MIS Quarterly*, vol. 20, no. 4, pp. 409-32.
- Nonaka, I. & Takeuchi, H. 1995, *The knowledge-creating company: How Japanese companies create the dynamics of innovation*, Oxford University Press, New York.
- Nunnally, J.C. 1967, *Psychometric Theory*, 1st edn, McGraw-Hill, New York.
- Nunnally, J.C. 1978, *Psychometric Theory*, 2nd edn, McGraw-Hill, New York.
- Ong, S.C. 2005, *China condensed: 5000 years of history and culture*, Times Edn, Marshall Cavendish, Singapore.
- Pan, L. 1990, *Sons of the yellow emperor: a history of the Chinese diaspora*, 1st U.S. edn, Little Brown, Boston.
- Parasuraman, A. 1991, *Marketing research*, 2nd edn, Addison-Wesley Publishing Co., Reading.
- Pea, R.D. 1993, 'Practices of distributed intelligence and designs for education', in G. Salomon(ed.), *Distributed cognition: Psychological and educational considerations*, Cambridge University Press, New York.
- Penrose, R. 2010, *Cycles of time: an extraordinary new view of the universe*, Bodley Head, London.
- Peter, J.P. 1979, 'Reliability: A review of psychometric basics and recent marketing Practices', *Journal of Marketing Research*, vol. 16, February, pp. 6-17.
- Peterson, R.A. 1994, 'A meta-analysis of Cronbach's alpha', *Journal of Consumer Research*, vol. 21, September, pp. 381-91.
- Pike, K.L. 1954, *Language in relationship to the untied theory of the structure of human behavior*, vol. 1, Summer Institute of Linguistics, Glendale.
- Pimapunsi, K., Butdee S. & Tichkiewitch, S. 2008, 'Industrial knowledge management using collaborative knowledge acquisition in a consultancy project', *Journal of achievements in materials*, vol. 31, no. 2, pp. 803-809.
- Pisano, G.P. & Teece, D. 1989, 'Collabotative arrangements and global technology strategy: Some evidence from the telecommunications equipment industry', in R.S Rosenbloom (ed.), *Research on tehcnological innovation,management and policy*,vol. 4, JAI Press, Inc., Greenwich.
- Podakoff, P.M. & MacKenzie 1994, 'An examination of the psychometric properties and nomological validity of some revised and reduced substitutes for leadership scales', *Journal of Applied Psychology*, vol. 79, no. 5, pp. 702-713.
- Podsakoff, P.M., MacKenzie S.B., Lee J-Y & Podsakoff, N.P. 2003, 'Common Method Biases in Behavioural Resesearch: A critical review of the literature and recommended remedies', *Journal of Applied Psychology*, vol 88, no. 4, pp. 879-903
- Polanyi, M. 1946, *Science, faith and society*, Oxford University Press, London.

- Polanyi, M. 1966, *The tacit dimension*, 1st edn, Doubleday, Garden City.
- Polanyi, M. 1974, *Personal knowledge; towards a post-critical philosophy*, University of Chicago Press, Chicago.
- Polanyi, M. & Prosch, H. 1975, *Meaning*, University of Chicago Press, Chicago.
- Pomeranz, K. 2000, *The great divergence: China, Europe, and the making of the modern world economy*, Princeton University Press, Princeton .
- Popkin, S.L. 1979, *The rational peasant: the political economy of rural society in Vietnam*, University of California Press, Berkeley.
- Popper, K.R. 1972, *Conjectures and refutations: the growth of scientific knowledge*, 4th edn, Routledge & Kegan Paul, London.
- Pye, L.W. & Pye, M.W. 1985, *Asian power and politics: the cultural dimensions of authority*, Belknap Press, Cambridge, Mass.
- Pye, L.W. & Pye, M.W. 1984, *China: an introduction*, 3rd edn, Little, Brown and Company , Boston.
- Quigley, C. 1961, *The evolution of civilizations; an introduction to historical analysis*, Macmillan, New York.
- Ralston, D.A., Holt, D.H., Terpstra, R.H. & Yu, K.-C. 1997, 'The impact of national culture and economic ideology on managerial work values: A study of the United States, Russia, Japan and China', *Journal of International Business Studies*, vol. 28, no. 1, pp. 177-207.
- Ramesh, B. & Tiwana A. 1999, 'Supporting collaborative process knowledge Management in new product development teams', *Decision Support Systems*, vol. 27, no.1-2, pp. 213-35.
- Redding, S.G. 1990, *The spirit of Chinese capitalism*, W. de Gruyter, Berlin ; New York.
- Rigdon, E.E. 1996, 'CFI verses RMSEA: A comparison of two indices for structural equation modelling', *Structural Equation Modelling*, vol. 3, no. 4, pp. 269-370.
- Rix, P. & Stanton W.J. 1998, 'Marketing – A practical approach', McGraw-Hill Australia, Roseville
- Rohner, R.P. 1986, *The warmth dimension : foundations of parental acceptance-rejection theory*, Sage Publications, Beverly Hill
- Rokeach, M. 1979, *Understanding human values: individual and societal*, Free Press, New York.
- Romney, A.K., Boyd, K., Moore J. & Batchelder, B. 1996, 'Culture as shared cognitive Representations', *Proceedings of the National Academy of Sciences*, vol. 93 (10), The School of Social Sciences, University of California, Irvine, pp. 4699-4705.

- Rotter, J.B. 1996, 'Generalised expectancies of internal versus external control reinforcements', *Psychological Monographs*, vol, 80, (whole), no. 609.
- Russell, B. 1922, *The problem of China*, G. Allen & Unwin ltd., London.
- Rutherford, F.J. & Ahlgren, A. 1990, *Science for all Americans*, Oxford University Press, New York
- Schollhamer, H. 1982, 'Internal corporate entrepreneurship', in C.A.S. Kent, D.L., & Vesper, K.H. (ed.), *Encyclopedia of Entrepreneurship*, Prentice Hall, Englewood Cliffs.
- Schwartz, S.H. 1992, 'Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries.', *Advances in Experimental Social Psychology*, vol. 25, pp. 1-65.
- Sethi, R. 2000, 'New product quality and new product development teams', *Journal of Marketing*, vol. 64, no. 2, pp. 1-14.
- Seufert, A., von Krogh, G. & Bach, A. 1999, Towards knowledge networking', *Journal of Knowledge Management*, vol. 3, no. 3, pp. 180-90.
- Shariq, S.Z. 1999, 'How does knowledge transform as it is transferred? Speculations on the possibility of a cognitive theory of knowledgescapes', *Journal of Knowledge Management*, vol. 3, no. 4, pp. 243-51.
- Sharma, P. 2010, 'Measuring personal and culture orientations: Scale development and validation', *Journal of the Academy of Marketing Science*, vol. 38, no. 6, pp. 677-806.
- Sheremata, W.A. 2000, 'Centrifugal and centripetal forces in radical new product development under time pressure', *Academy of Management Review*, vol. 25, no. 2, pp. 389-408.
- Sheridan, G. 1999, *Asian values, western dreams: understanding the new Asia*, Allen & Unwin, St Leonards
- Shun, K-L. 1993, 'Jen and Li in the Analects', *Philosophy East and West*, vol. 43, no. 3, pp. 457-79.
- Silin, R.H. 1976, *Leadership and values : the organization of large-scale taiwanese enterprises*, East Asian Research Center, Harvard University : Distributed by Harvard University Press, Cambridge, Mass.
- Sinclair, P.J. 1999, 'A comparative historical sociology of business practice - Asian and Western perspectives', *Regional Business Focus*, Ngee Ann Polytechnic Press, Singapore.
- Sinclair, P.J. 1999, 'Editorial', *Regional Business Focus*, Ngee Polytechnic Press, Singapore.

- Sinclair, P.J. 2004, 'International and cross cultural historical perspectives on innovation and implications for product management in China', paper presented to the ANZMAC 2004, *Marketing Accountabilities and Responsibilities*, School of Marketing and International Business, Victoria University of Wellington
- Skinner, B.F. 1981, 'Selection by Consequences', *Science (New Series)*, vol. 213, no. 4507, pp. 501-504.
- Smith, P.B., Trompenaars, F., Dugan, S. 1996, 'The rotter locus of control scale in 43 Countries: A test of cultural relativity', *International Journal of Psychology*, vol. 30, no. 3, pp. 377-400. Spearman 1910, 'Correlation calculated from faulty data', *British Journal of Psychology*, vol. 3, no. October, pp. 271-95.
- Smith, E.S. and Winterhalder B. 1992, *Evolutionary ecology and human behavior*, Aldine de Gruyter, New York.
- Spector, P.E. 2006, 'Methods variance in organizational research: Truth or urban legend?', *Organisational Research Methods*, vol. 88, no. 5, pp. 879-903.
- Spithoven, A., Clarysse, B. & Knockaert, M. 2010, 'Building absorptive capacity to organize in bound open innovation in traditional industries', *Technovation*, vol. 30, pp. 130-141.
- Steenkamp, J.-B. E.M & van Trijp, C.M. 1991, 'The use of LISREL in validating marketing constructs', *International Journal of Research in Marketing*, vol. 8, pp. 283-299.
- Steenkamp, J.-B. E.M. 2001, 'The role of national culture in international marketing research', *International Marketing Review*, vol. 18, no. 1, p. 3044.
- Storey, J.B., Elizabeth 2000, 'Knowledge management initiatives: Learning from Failure', *Journal of Knowledge Management*, vol. 4, no. 2, pp. 145-156.
- Suh, E.M. 2002, 'Culture, identity consistency, and subjective well-being', *Journal of Personality and Social Psychology*, vol. 83, no. 6, pp. 1378-1391.
- Srinivasan R., Lilien, G. L. and Rangasway, A. 2002, 'Technological opportunism and radical technology adoption: An application to e-business', *Journal of Marketing*, vol. 66, no 3, pp. 47-60.
- Storey J. and Barnett E. 2000, 'Knowledge management initiatives: Learning from failure', vol. 4. pp. 145-156.
- Sussaman, S.W. & Siegal, W.S. 2003, 'Informational influence on organizations: An Integrated approach to knowledge adoption', *Information Systems Research*, vol. 14, no. 1, pp. 47-60.
- Swan, J., Newell, S., Scarbrough, H. & Hislop, D., 1999, 'Knowledge management and innovation: Networks and networking', *Journal of Knowledge Management*, vol. 3, no. 4, pp. 262-75.
- Triandis, H.C. 1994, *Culture and social behavior*, edn, McGraw-Hill, Inc, Sydney.

- Triandis, H.C., McCusker C. & Hui 1990, 'Multimethod probes of individualism and Collectivism', *Journal of Personality and Social Psychology*, vol.59, pp. 1006-1020.
- Trivers, R.L. 1971, 'The evolution of reciprocal altruism', *The Quarterly Journal of Biology*, vol. 46, no. 1, pp. 35-57.
- Trompenaars, A. & Hampden-Turner, C. 1998, *Riding the waves of culture: understanding cultural diversity in global business*, 2nd edn, McGraw Hill, New York.
- Tucker, L.R. & Lewis C. 1973, 'A reliability coefficient for maximum likelihood Factor Analysis', *Psychometrika*, vol. 38, no. 1, pp. 1-10.
- Tung, R. & L. Miller E. 1990, 'Managing the twenty-first century: The need for global orientation ', 30, vol. 1, pp. 5-18.
- Tuten, T.L. & Ashley C. 2011, 'Promotional strategies for small businesses: Group buying deals', *Small Business Institute Journal*, vol. 7. no.2, pp. 15-29.
- uit Beijerse, R.P. 1999, 'Questions in knowledge management: Defining and conceptualizing a phenomenon', *Journal of Knowledge Management*, vol. 3, no. 2, pp. 94-100.
- uit Beijerse, R.P. 2000, 'Knowledge management in small and medium-sized companies: Knowledge management for entrepreneurs', *Journal of Knowledge Management*, vol. 4, no. 2, pp. 162-179.
- Ungson, G.R. & Brainstein, D.N. 2004, 'Book review of the geography of thought: How Asians and Westerners think differently ... and why? by Nisbett, Richard', *Journal of Marketing*, vol. 68, no. 3, pp. 130-132.
- Weber, M. 1905, *The Protestant Ethic and The "Spirit" of Capitalism and Other Writings*, trans. Baehr P. and Wells G.C. 2002, Ringwood.
- Weber, M. 1951, *The Religion of China*, The Free Press, Glenoe.
- Wells, H.G. 1937, *The outline of history being a plain history of life and humankind*, Eighth edn, Cassell and Company United.
- Wheaton, B., Muthen, B., Alwin, D.F. & Summers G.F. 1977, 'Assessing reliability and stability in panel models', in D.R. Heise (ed), *Sociological Methodology*, Jossey-Boss.
- Wheelwright, S. C. and Clark, K. B., 1992, *Revolutionizing Product Development*, The Free Press, New York.
- White, D. 2010, 'Born in the USA: A brave new world of war', *History Today*, vol. 60, no. 6.
- Wilhelm, R. 1931, *Confucius and Confucianism*, trans. G.D. Danton, Annina P., Harcourt Brace Jovanovich, New York.

- Wilks, S.S. 1961, 'Some Aspects of Quantification in Science', *The Conference on Quantification: The History of Quantification in the Sciences of the The History of Science Society*, In The History Of Science Society, Indianapolis, pp. 5-12.
- Wilson, E.O. 1978, *On human nature*, Harvard University Press, Cambridge.
- Wind, Y. 1982, *Product policy: concepts, methods, and strategy*, Addison-Wesley Pub. Co., Reading.
- Wolf, A. 1950, *A history of science, technology, and philosophy in the 16th & 17th centuries*, New (i.e. 2nd) edn, Allen & Unwin, London.
- Yang, K.S. 1986, 'Chinese personality and its change', in M.H. Bond (ed.), *The psychology of the Chinese people*, Oxford Unniversity Press, Hong Kong.
- Yaprak, A. 2008, 'Culture study in international marketing: A critical review and Suggestions for future research', *International Marketing Review*, vol. 25, no. 2, 215-229.
- Zeithmal, V.A. 1988, 'Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence', *Journal of Marketing*, vol. 52, no. 3, pp. 2-22.
- Zhu, X. & Bruce, J.P. 1922, *The philosophy of human nature*, Probsthain, London.
- Zikmund, W.G. 1997, *Business research methods*, 5th edn, Dryden, Fort Worth.
- Zirger, B.J. & Maidique 1990, M.A. 'A Model of New Product Development: An Empirical Test', *Management Science*, vol. 36, no. 7, pp. 867-883

~

APPENDIX 'A'

BEHAVOURAL APPROACH TO COMPARATIVE MANAGEMENT

BEHAVOURAL APPROACH TO COMPARATIVE MANAGEMENT

Before embarking on any research, it is proper the researcher briefly explain their approach, contra to alternative approaches, rather than leaving the reader no idea the broad setting and the port from which the Research was launched, to give, the body of the research context. With this necessity in mind, the Thesis adopts a behavioural comparative approach, as a framework of investigation, after the following considerations:

Broadly defined, Comparative Management ‘analyses the similarities and differences between various management and business systems from one country or different countries’ (Chen 1995, p.1). While Chen’s (1995) definition provides a good introduction to Comparative Management studies, greater local focus is required for research aimed at the level of the organisation. In reply, the more relevant and specific definition, ‘comparisons of organisations and general aspects of management from different countries and cultures’ applies to operationalised culture at the level of the organisation (Nath 1988, p.1). By examining operationalised culture, we identify ‘managerial philosophies, values, and practices’ (Chen 1995, p.5), having essentially universal application locally. This last qualification provides focus and circumscribes a field of study.

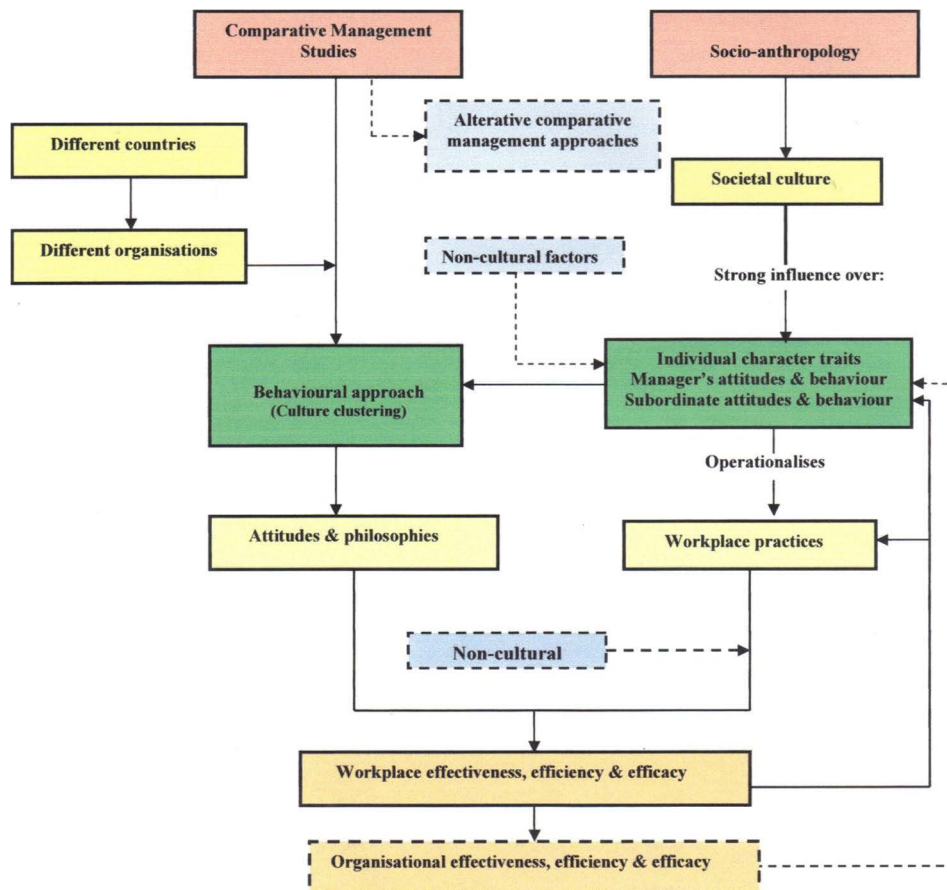
The literature provides clear evidence Comparative Management studies enable scholars and business managers to better explain differences in management practices (Chen 1995, Redding 1990)¹; whereby, Comparative Management studies act to link business practices and outcomes to selected dimensions to be incorporated into macro and micro models, including cross-cultural models. This thesis is an example, whereby, researchers:

¹ Redding (1990) does not use the term Comparative Management.

‘... can learn much about how a company functions, by understanding not only how culture operates in the broad context but also how individuals respond to cultural influences.’ (Sinclair 1998, in Sinclair 1999, p. 9)

Comparative cultural clustering shows; ‘how attitudinal and behavioural differences among cultures affects management tasks’ (Chen 1995, p.2): Wherein, we are able to explore the research issue of what conditions affect culturally defined management tasks and roles in relation to international new product development and ‘how attitudinal and behavioural differences among cultures affects management tasks’ (Chen 1995, p.2): e.g. in Anglo-West and Han-Chinese societies. Given this chosen perspective, we can learn how dissimilar cultural inputs facilitate disparate practical ends in business studies.

Figure A.1: Melding Comparative Management Studies and Socio-anthropology



The Behavioural approach to Comparative Management studies was adopted, because this method appositely recommends the contrasting of cultural clusters. Figure A.1, developed for the introducing the thesis, demonstrates the decisive effects of the relationship between Comparative Management systems, which includes cultural clustering in behavioural studies and cultural practices in socio-anthropology. When overlaid, these two approaches provide a means to compare attitudes, traits, philosophies and relationships across countries and societies, as well, as comparative outcomes in the workplace in terms of their effectiveness, efficiency and efficacy.

With the Behavioural approach to Comparative Management, as purely background; the thesis proper, in pronounced detail, explores the comparative effects of newly posited and tested on knowledge discovery in in new product process development; wherein, Anglo-Western society and Han-Chinese society are contrasted. Readers expectations, regarding the Thesis, should be on the latter more focused new exploratory research, having Figure A.1 is a backdrop.

APPENDIX 'B'

SURVEY STRUCTURE WITH ANNONATION

Group ‘A’ Items

Societal Syndromes in Society-at-Large

Group ‘A’ items captured *first tier (level)* of two tiers of data relating to the three proposed Societal Syndromes. Questions were put to a New Product Developer population and a Non New Product Developer population. Respondents were instructed to consider social behaviour, within the context of Society-at-Large, where the respondent was physically located. When answering questions, respondents were asked to think about their society, in relation to other societies, and to answer all questions. In this frame, respondents were advised to complete a Likert Survey, with six valid radio points and one opt-out. Respondents were advised that all Likert values were equally distributed and instructed to answer 36 *broad-spectrum*.

In relation to each Likert-styled question, respondents were asked to choose between the following categories of measure:

Strongly Disagree	Clearly Disagree	Somewhat Disagree	Somewhat Agree	Clearly Agree	Strongly Agree	Unable To Answer
-------------------	------------------	-------------------	----------------	---------------	----------------	------------------

On analysis, the three new Societal Syndromes were confirmed at the *first tier* of two tiers for each syndrome, as presented in the Measurement Model (Chapter Six). The dimensions underlying Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy in

Society-at-Large were identified. In this frame, the items and associated dimensions at the *first tier (level)* are shown.

Measuring Vertical Power Ethos in Society-At-Large

The Vertical Power Ethos in Society-At-Large Societal Syndrome was confirmed by the Measurement Model (Chapter Six) analyses to be comprised of Vertical Secrecy, Vertical Deference and Patrimonialism dimensions. Survey items were used to ascertain each of the three dimensions of the *first tier (level)* of two tiers (*levels*) for the Vertical Power Societal Syndrome in Society-at-Large.

Vertical Secrecy in Society-at-Large

Vertical Secrecy in Society-at-Large measurement applied questions pertaining to top-down concealment of personal information known to the leaders as superordinates. Respondents were asked to estimate the degree to which their leaders were typically secretive, censors of facts and willing to impart their knowledge to lower ranked others.

Table B.1 details the item indicators of the Vertical Secrecy in Society-at-Large dimension presented to Anglo Western society and Han Chinese society.

-Please turn page-

Table B.1: Item Indicators of Vertical Secrecy in Society-at-Large

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

AW¹.A1	AW.A2	AW.A3	AW.A4.
Our leaders typically censor top-down communications to lower ranks in public and commercial affairs ²	Our leaders are <u>not</u> secretive with lower ranks in public and commercial affairs (R)	Our leaders are <u>typically</u> secretive	Leaders freely impart what they know to people in lower ranks (R)
HC-A1	HC-A2	HC-A3	HC-A4.
在公共和商业事务上领导通常会 ² 对下级进行由上到下的言论审查。	领导 ² 不对下级保守公共和商业事务上的秘密。 (R)	我们的领导 ² 通常作风神秘。	领导把所知的信息直率地告诉下属。 (R)

Vertical Deference in Society-at-Large

Vertical Deference in Society-at-Large examined the degree to which subordinates referred to a higher authority when making decisions and interpreting events. This scale measured the scope of subordinates to take actions and make interpretations independent to superordinate direction.

Table B.2 details the item indicators of the Vertical Deference in Society-at-Large dimension presented to Anglo Western society and Han Chinese society.

¹ AW is an Anglo Western society designator and HC is a Han Chinese society designator.

² **PUBLIC AND COMMERCIAL AFFAIRS;** ‘Public and commercial affairs’ refers to broad transactional behaviour adopted, within typical broad societal populations, *as distinct from* more personally honed behaviour, pertaining to close relationships. Relationships, including rank relationships, evident across very large (millions of persons) populations are exemplar of public and commercial affairs. In this framework, the rules for transacting business and impersonal affairs are known and normatively performed in society at large. Alternatively, relationships with close workplace colleagues are not societal.

Table B.2: Item Indicators of Vertical Deference in Society-at-Large

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

<p>AW.A5</p> <p>Subordinates are disposed to submit to their leaders' interpretation of events, without questioning directives</p>	<p>AW.A6</p> <p>Lower ranked people are permitted scope to take action independent of the their leaders' close involvement</p> <p>(R)</p>	<p>AW.A7</p> <p>People feel compelled to follow officially sanctioned guidelines, <u>without question</u></p>	<p>AW.A8</p> <p>Our leaders are consultative and <u>do not</u> lead by their authority <u>alone</u></p> <p>(R)</p>
<p>HC.A5</p> <p>下级轻易服从领导对某一事件做出的解释, 而不对其命令提出质疑。</p>	<p>HC.A6</p> <p>下级允许有一定的不受领导干预的行动权。</p> <p>(R)</p>	<p>HC.A7</p> <p>毫无疑问, 人们要强迫遵守公认的方针。</p>	<p>HC.A8</p> <p>我们的领导愿意让下属咨询, 其领导方式<u>不会只靠</u>职权。</p> <p>(R)</p>

Patrimonialism in Society-at-Large

Patrimonialism was investigated to ascertain the extent by which leaders were perceived to exhibit father-like authoritative behaviours and control towards followers and subordinates.

Table B.3 details the item indicators of the Patrimonialism in Society-at-Large dimension presented to Anglo Western society and Han Chinese society.

Table B.3: Item Indicators of Patrimonialism in Society-at-Large

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

AW.A9	AW.A10	AW.A11	AW.A12
Typically our society is modelled on principles of a father-led family	Father-like figures typically present a dominant patrimonial control influence over people in lower ranks	Patrimonial leaders control others like family fathers	There is <u>no</u> special emphasis on <u>father-like</u> authority figures in commercial and public affairs
			(R)
HC.A9	HC.A10	HC.A11	HC.A12
我们的社会是典型的仿效父权家庭的社会。	<u>家长作风的领导</u> 对下级施行一种家长式的专制管理。	家长作风的领导控制其他人的方式像父亲一样。	人们更愿意支持与自己同一种族的人。
			(R)

The items for the Horizontal Altruism in Society-At-Large Societal Syndrome and underlying dimensions are now presented:

Measuring Horizontal Altruism in Society-at-Large

The Horizontal Altruism in Society-at-Large Societal Syndrome was confirmed by the Measurement Model (Chapter Six) analyses to be comprised of Horizontal Inclusiveness, Horizontal Mutualism and Horizontal Reciprocation dimensions. Survey items were used to ascertain each dimension of the *first tier (level)* of two tiers (*levels*) for the Horizontal Altruism societal syndrome in Society-at-Large. Respondents were asked to what extent they agreed or disagreed with offered statements.

Horizontal Inclusiveness in Society-at-Large

Horizontal Inclusiveness questions concerned in-group versus out-group affiliation. Questions posed in the surveys focused on obligation bi-lateral relationships, including ethnic associations. Questions posed relate to ethnicity, as a marker of pluralistic and non pluralistic societies, not biological predisposition. The nurturing of populations in specific societies was seen to be a product of sociological and historical motivators.

Table B.3 details the item indicators of the Vertical Deference dimension in Society-at-Large presented to Anglo Western society and Han Chinese society.

Table B.3: Item Indicators of Horizontal Inclusiveness in Society-at-Large

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

<p style="text-align: center;">AW.A13</p> <p>There exists a greater concern for people of one's own ethnic group over other ethnic groups</p>	<p style="text-align: center;">AW.A14</p> <p>Favouring one's own family members over better qualified others is <u>not</u> acceptable in public and commercial affairs</p> <p style="text-align: center;">(R)</p>	<p style="text-align: center;">AW.A15</p> <p>Helping one's own ethnic group ahead of other ethnic groups <u>is</u> societally endorsed behaviour</p>	<p style="text-align: center;">AW.A16</p> <p>It is deemed that all ethnic groups be treated equally. We <u>do not</u> treat other ethnic groups different to ourselves.</p> <p style="text-align: center;">(R)</p>
<p style="text-align: center;">HC.A13</p> <p>人们更愿意支持与自己同一种族的人。</p>	<p style="text-align: center;">HC.A14</p> <p>在公共和商业事务中优待自己的家人而非更合乎资格的人是<u>不被</u>接受的。</p> <p style="text-align: center;">(R)</p>	<p style="text-align: center;">HC.A15</p> <p>对自己种族成员给予帮助多于其他种族成员, 这种行为是<u>被</u>社会所认可的</p>	<p style="text-align: center;">HC.A16</p> <p>所有种族成员都一视同仁, 对其他种族成员, 我们<u>不会</u>给予不平等的待遇。</p> <p style="text-align: center;">(R)</p>

Horizontal Mutualism in Society-at-Large

Horizontal Mutualism related the level of the inclination to collaborate with others to achieve a *shared* beneficial result. Respondents were asked about how quickly coalitions are formed with other societies for mutual gain and how willing their society was to cooperate toward shared goals, rather than concentrating on their own separate goals.

Table B.4 details the item indicators of the Horizontal Mutualism in Society-at-Large dimension presented to Anglo Western society and Han Chinese society.

Table B.4: Item Indicators of Horizontal Mutualism in Society-at-Large

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

<p>AW.A17</p> <p>We are quick to form coalitions with other societies for <u>mutual</u> benefits</p>	<p>AW.A18</p> <p>Cooperation with outside societies for <u>mutual</u> reward is <u>not</u> favoured</p> <p>(R)</p>	<p>AW.A19</p> <p>We feel relationships with other societies are best, when we all collaborate towards <u>shared goals</u>, rather than having each society concentrate on its own separate goals.</p>	<p>AW.A20</p> <p>We feel open <u>cooperation</u> with outside societies is <u>hazardous</u></p> <p>(R)</p>
<p>HC.A17</p> <p>为了<u>相互</u>的利益我们会很快与其他社会结为联盟。</p>	<p>HC.A18</p> <p>与其他社会<u>互利</u>合作<u>不</u>受欢迎。</p> <p>(R)</p>	<p>HC.A19</p> <p>我们认为最好是与其他社会团体建立协作关系为共同的目标努力, 而不是让每个社团只专注各自的目标</p>	<p>HC.A20</p> <p>我们觉得和外部社会团体开放合作是冒险的。</p> <p>(R)</p>

Horizontal Reciprocation in Society-at-Large

Horizontal Reciprocation examined partiality towards *lateral reciprocity* between (a) in-groups (e.g. teams or organisations) and out-groups (e.g. other teams or other organisations), and (b) towards trust at the beginning of new relationships, and (c) the give-and-take exchange of favours. Respondents were asked would they proffer a favour in the immediate term in the knowledge that reciprocation might be delayed and whether co-operation with outside societies is hazardous and how trustworthy outsiders are in new relationships.

Table B.5 details the item indicators of the Horizontal Reciprocation dimension in Society-at-Large presented to Anglo Western society and Han Chinese society.

Table B.5: Item Indicators of Horizontal Reciprocation Society-at-Large

In your society, more so than in other societies: 在此社会中，而非其他社会中：

<p>AW.A21</p> <p>We will sacrifice our <u>own</u> society's resources <u>today</u> to receive <u>future</u> benefits from other societies. That is, reciprocation can be delayed.</p>	<p>AW.A22</p> <p>Favours are willingly accepted, <u>without</u> a duty of reciprocation. Sometimes people will help others, without establishing an obligation to return the favour (R)</p>	<p>AW.A23</p> <p>Trustworthiness is typically ascribed to newcomers at the <u>beginning of new relationships</u>.</p>	<p>AW.A24</p> <p>In the first instance, <u>outsiders</u> new to our societal groups, are <u>not</u> readily accepted as trustworthy by our societal groups (R)</p>
<p>HC.A21</p> <p>我们会牺牲<u>当今</u>我们社会<u>自身</u>的资源来获取<u>将来</u>从其他社会中可得到的利益。这就是说回报可以被延缓</p>	<p>HC.A22</p> <p>人们乐于接受<u>不计</u>回报的帮助。有时别人只是单纯的帮助我们，而未想要从中获得回报。 (R)</p>	<p>HC.A23</p> <p>新关系的建立通常可以归功于对新人的信赖</p>	<p>HC.A24</p> <p>在初次接触时，我们的团体不会以信赖的态度接受<u>团体外的</u>新人。 (R)</p>

The items for Conventional Orthodoxy in Society-At-Large and underlying dimensions are now presented.

Measuring Conventional Orthodoxy in Society at Large

The Conventional Orthodoxy in Society-At-Large Societal Syndrome was confirmed by Measurement Model (Chapter Six) analyses to be comprised of Langsyne Attachment, *A priori* Validation and In-Role Conformity dimensions.. Survey items were used to ascertain each of the three dimensions of the *first tier (level)* of two tiers (*levels*) for the Vertical Power Societal Syndrome in Society-at-Large. Respondents were asked to classify the extent to which they agreed or disagreed with offered statements.

Langsyne Attachment in Society-at-Large

Langsyne Attachment refers to the inclination to take the past into serious consideration prior to advancing with new innovations and whether tethers to the past largely determine future avenues of development. Respondents were rated on their attachment to the ancient past in decision making and the degree to which nostalgia asserted a contemporary influence. Table B.6 details the item indicators of dimension in Society-at-Large presented to Anglo Western society and Han Chinese society.

Table B.6: Item Indicators of Langsyne Attachment in Society-at-Large

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

<p>AW.A25</p> <p>Entrenched <u>attachment</u> to the ancient past influences today's decision making</p>	<p>AW.A26</p> <p>Treasured ancient values are more likely to <u>retain an influence</u> directing the general affairs of today</p>	<p>AW.A27</p> <p>Original practices are <u>not</u> restrained by nostalgia for ancient ways. Other societies are more nostalgic towards ancient ideas than us</p> <p>(R)</p>
<p>HC.A25</p> <p>根深蒂固的传统观念会影响到现今的决策。</p>	<p>HC.A26</p> <p>现今的行事规则受到传统价值观的<u>约束</u>。</p>	<p>HC.A27</p> <p>传统价值观更有可能在一般日常事务上保持有其影响力。</p> <p>(R)</p>

***A priori* Validation in Society-at-Large**

Whereas Langsyne Attachment attends to nostalgic tethers, *A priori* Validation addresses longitudinal chronological legitimisation and confirmation. *A priori* Validation addresses the inclination to confirm the authenticity of the present in terms of the past. Respondents were asked if innovative ideas were suppressed, when conflicting with ancient ideas and the extent to which new solutions need to be legitimised by justification connected to ancient ways. In this respect, *A priori* Validation was developed as a measure of culture-epoch. Table B.7 details the item indicators of *A priori* Validation in Society-at-Large dimension presented to Anglo Western society and Han Chinese society.

Table B.7: Item Indicators of *A priori* in Society-at-Large

In your society, more so than in other societies/ 在此社会中，而非其他社会中：

AW.A28	AW.A29	AW.A30	AW.A31
Present resources of action must be <u>validated</u> by ancient values	In commercial and public affairs, threats to ancient values are sidelined to ensure changes for the better	Innovative new ideas are <u>not</u> suppressed, when <u>conflicting</u> with ancient ideas	New solutions are <u>not</u> legitimised, because of their attachment to ancient ways
		(R)	(R)
HC.A28	HC.A29	HC.A30	HC.A31
创新的想法就算和旧有想法不相容， <u>也不会</u> 遭受压抑。其他社会会对旧有想法更加恋恋不舍	创新的想法就算和旧有想法不相容， <u>也不会</u> 遭受压抑。其他社会会对旧有想法更加恋恋不舍	人们可以 <u>不</u> 被家族和社会行为规范所约束。	创新的想法就算和旧有想法不相容， <u>也不会</u> 遭受压抑。
		(R)	(R)

In-Role Conformity in Society-at-Large

In-Role Conformity in Society-at-Large applied the Asian Values Scale (Kim, Atkinson and Yang 1999): where, respondents rated the level of conformity to familial norms and social norms and obligations towards family and society obligations. Small modifications to wording were made to address potential acquiescence bias in the original.

Table B.8 details the item indicators of In-Role Conformity dimension in Society-at-Large presented to Anglo Western society and Han Chinese society.

Table B.8: In-Role Conformity in Society-at-Large

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

<p>AW.A32</p> <p>One is <u>not</u> restrained from deviating from familial and social norms</p> <p>(R)</p>	<p>AW.A33</p> <p>Conforming to familial and social norms is necessary</p>	<p>AW.A34</p> <p>One is <u>not</u> obligated to conform to family and society's expectations</p> <p>(R)</p>	<p>AW.A35</p> <p>One's <u>primary</u> societal model is the family</p>	<p>AW.A36</p> <p>A family's expectations are <u>not</u> one's main concern in adulthood</p> <p>(R)</p>
<p>HC.A32</p> <p>人们不必遵循家族和 社会的期望。人们不 必遵循家族和社会的 期望。</p> <p>(R)</p>	<p>HC.A33</p> <p>遵循家族和社会行为 规范是必须的。</p>	<p>HC.A34</p> <p>人们不必遵循家族和 社会的期望。</p> <p>(R)</p>	<p>HC.A35</p> <p>家庭是一个人的主要 社会典范。</p>	<p>HC.A36</p> <p>家庭是一个人的主要 社会典范。</p> <p>(R)</p>

Having outlined the *first tier (level)* survey items pertaining to Vertical Power Ethos, Horizontal

Altruism and Conventional Orthodoxy constructs and underpinning dimensions in Society-Large, we next review the survey items relating to constructs and keystone dimensions at the workplace in society.

Group 'B' Items

Societal Syndromes in the Workplace

Group 'B' captured the *second tier (level)* of two tiers (*levels*) data relevant to the three proposed Societal Syndromes. Questions were put to a New Product Developer population.

Respondents were asked to contemplate social behaviour, within the context of society in the workplace, where the respondent was physically located. When answering questions, respondents were asked to think about their society in relation to other societies and to answer all questions. To capture this information, respondents were directed to complete a Likert survey, having six radio points and one opt-out. Respondents were advised that all Likert values were equally distributed and asked to answer 37 *workplace delimited* questions, which were posed at the level of the workplace in society-at-large. Anglo Western (AW) respondents were located in Australia and the United States and Han China (HC) respondents were situated in China PRC.

In relation to each Likert-styled question, respondents were asked to choose between the following categories of measure:

Strongly Disagree	Clearly Disagree	Somewhat Disagree	Somewhat Agree	Clearly Agree	Strongly Agree	Unable To Answer
-------------------	------------------	-------------------	----------------	---------------	----------------	------------------

On analysis, the three Societal Syndromes were confirmed at the *second tier(level)* of each construct measured in response to the items presented for respondent comment. Further, statistical analyses, as presented in the Measurement Model chapter (Chapter Six) underpinned dimensions of Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy in Society in the Workplace. In this frame, the items and associated dimensions for Vertical Power Ethos in the Workplace will now be briefly discussed.

Measuring Vertical Power Ethos in the Workplace

As previously noted, the Vertical Power Ethos in Society-at-Large culture was confirmed by the Measurement Model (Chapter Six) analyses, which was comprised of Vertical Secrecy, Horizontal Altruism and Conventional Altruism dimensions. Equally, analysis of survey items established the existence of a second *tier (level)* of the Conventional Orthodoxy Societal Syndrome.

Vertical Secrecy at the Workplace

Respondents were asked to estimate the degree to which their workplace leaders were typically secretive, censors of facts and willing to impart their knowledge to workplace subordinates. Questions probed whether workplace superordinates were either open or retentive regarding the contributing of key information required by new product-process development teams.

Table B.9 details the item indicators of the Vertical Secrecy in Society-at-Large dimension presented to Anglo Western society and Han Chinese society.

-Please turn page-

Table B.9: Item Indicators of Vertical Secrecy at the Workplace

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

<p style="text-align: center;">AW.B1</p> <p>Self-censorship by our leaders was typical in vertical knowledge transfer involving the new product development team</p>	<p style="text-align: center;">AW.B2</p> <p>Bosses <u>did not</u> withhold essential knowledge from the new product development team</p> <p style="text-align: center;">(R)</p>	<p style="text-align: center;">AW.B3</p> <p>Our higher management characteristically withheld <u>key information</u> from workplace teams</p>	<p style="text-align: center;">AW.B4</p> <p>Our higher management <u>did not</u> typically act in a secretive manner towards workplace teams</p> <p style="text-align: center;">(R)</p>
<p style="text-align: center;">HC.B1</p> <p>在对下级新产品开发团队进行纵向的知识转移时我们领导通常会进行自我审查。</p>	<p style="text-align: center;">HC.BC2</p> <p>老板不会对产品开发团队隐瞒核心知识。</p> <p style="text-align: center;">(R)</p>	<p style="text-align: center;">HC.B3</p> <p>我们的高级管理层常将关键信息<u>隐匿起来不告诉</u>工作团队。</p>	<p style="text-align: center;">HC.B4</p> <p>我们的高级管理层通常<u>不</u>对工作团队保守秘密。</p> <p style="text-align: center;">(R)</p>

Vertical Deference at the Workplace

Restricting vertical deference to superordinate-subordinate behaviour on matters pertaining to judgement, pronouncement and direction, team members were asked to comment on the extent to which subordinates accepted superordinates' understandings of matters ahead of conclusive professional standards. Team members were also asked to comment on the extent to which management consulted with subordinates before setting objectives.

Table B.10 details the item indicators of the Vertical Deference in the Workplace dimension presented to Anglo Western society and Han Chinese society.

Table B.10: Item Indicators of Vertical Deference at the Workplace

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

<p>AW.B5</p> <p>Team member deference to superiors took precedence over maintaining professional standards</p>	<p>AW.B6</p> <p>Team professionalism was <u>not</u> diminished by compliance to less informed instructions from higher management (R)</p>	<p>AW.B7</p> <p>Teams obeyed managerial directives, <u>without question</u></p>	<p>AW.B8</p> <p>Management readily consulted with subordinates before setting objectives in a <u>non-authoritarian</u> manner (R)</p>
<p>HC.B5</p> <p>团队成员对上级的遵从要高于对职业操守的遵守。</p>	<p>HC.B6</p> <p>在服从上级主管偏颇的指示时, 团队依然保持着应有的专业精神。 (R)</p>	<p>HC.B7</p> <p>团队成员没有异议地奉行主管的指示</p>	<p>HC.B8</p> <p>主管设定工作目标前, 很乐意和下属交换意见不是采取独裁式作风。 (R)</p>

Patrimonialism at the Workplace

In terms of restricting the incidence of Patrimonialism in the workplace, respondents were invited to estimate father-like authoritarian sovereignty over workplace operations, as well as the degree to which managers reigned over the operations of subordinates, while treating subordinates in the vein of junior members.

Table B.11 details the item indicators of Patrimonialism in the Workplace dimension.

Table B.11: Item Indicators of Patrimonialism at the Workplace

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

AW.B9	AW.B10	AW.B11	AW.B12
A <u>father-like</u> higher manager(s) oversaw all most operations. We were treated as if junior family members.	Father-figures were typically absent (R)	Team members were controlled by father-like figures	Leaders <u>did not</u> act the same as would father-like figures (R)
HC.B9	HC.B10	HC.B11	HC.B12
<u>家长作风的</u> 上级经理监管运作。我们被看待成家里的晚辈一样。	在我们的工作场合里 <u>没有</u> 家长作派的经理。 (R)	团队成员被像父亲一样的人物所控制。	领导的行事风格 <u>不是</u> 家长作风式的。 (R)

Next, we outline items investigating Horizontal Altruism at the Workplace.

Measuring Horizontal Altruism at the Workplace

The Horizontal Altruism in the Workplace construct was established by Measurement Model (Chapter Six) analyses to encompass Horizontal Inclusiveness, Horizontal Mutualism and Horizontal Reciprocation. Survey items revealed each dimension, as follows:

Horizontal Inclusiveness at the Workplace

Questions concerning in-group versus out-group co-operation probed the extent that members were closed tor open working with outside groups and how nuclear teams treated outside teams.

Table B.12 details the item indicators of the Horizontal Inclusiveness in the Workplace dimension.

Table B.12: Item Indicators of Horizontal Inclusiveness at the Workplace

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

<p style="text-align: center;">AW.B13</p> <p>On development teams, people preferred to share secrets with people of the same ethnicity</p> <p style="text-align: center;">(R)</p>	<p style="text-align: center;">AW.B14</p> <p>There was <u>no</u> evidence of racial clustering when making decisions</p>	<p style="text-align: center;">AW.B15</p> <p>Sub-team composition was influenced by ethnicity</p> <p style="text-align: center;">(R)</p>	<p style="text-align: center;">AW.B16</p> <p>Ethnicity <u>did not</u> influence with whom one <u>preferred</u> to work</p>
<p style="text-align: center;">HC.B13</p> <p>在开发小组里, 人们更愿意向自己同一种族的人透露秘密。</p> <p style="text-align: center;">(R)</p>	<p style="text-align: center;">HC.B14</p> <p>在做决策时未显现出有种族抱团的现象。</p>	<p style="text-align: center;">HC.B15</p> <p>划分小团体时自然而然受种族背景所影响。</p> <p style="text-align: center;">(R)</p>	<p style="text-align: center;">HC.B16</p> <p>在团队中种族背景不会影响一个人最佳工作伙伴的选择。</p>

Horizontal Mutualism in the Workplace

The proclivity to support partnerships and form alliances to mutual benefits was measured. Respondents were asked to indicate the capacity to co-operate towards transverse group shared goals and mutual benefit across workplaces, and their willingness to share information with business partners.

Table B.13 details the item indicators of the Horizontal Mutualism in the Workplace dimension.

Table B.13: Item Indicators of Horizontal Mutualism at the Workplace

In your society, more so than in other societies/ 在此社会中，而非其他社会中：

<p style="text-align: center;">AW.B17</p> <p>Open cooperation with outsider groups from other workplaces was welcome to achieve <u>common</u> goals</p>	<p style="text-align: center;">AW.B18</p> <p>Team members were <u>closed</u> to working with outside groups. Team members excluded outside groups. (R)</p>	<p style="text-align: center;">AW.B19</p> <p>Relevant corporate information was shared with other groups to achieve collective goals</p>	<p style="text-align: center;">AW.B20</p> <p>We readily withheld information from our business partner(s) to our advantage and their disadvantage (R)</p>
<p style="text-align: center;">HC.B17</p> <p>我们欢迎同来自其他工作场所的外部团队进行公开的合作以达成<u>共同</u>目标。</p>	<p style="text-align: center;">HC.B18</p> <p>团队成员<u>不与外部团队一起工作</u>。团队成员有意排斥外部团队。 (R)</p>	<p style="text-align: center;">HC.B19</p> <p>为了达成共同的目标大家分享相关的企业信息。</p>	<p style="text-align: center;">HC.B20</p> <p>我们常保留有用的信息，不告诉生意伙伴，以让我们拥有优势，而让他们处于劣势。 (R)</p>

Horizontal Reciprocation in the Workplace

Horizontal Reciprocation contained in the workplace measured the degree of ‘give-and-take’ in collective endeavours and the capacity to accept delays in having exchanged-benefit returned. Respondents were asked if they would give and not take in proprietary knowledge exchanges and if their organisation sought an unequal share of benefits from business and affiliated partnerships.

Table B.14 details the item indicators of the Horizontal Mutualism in the Workplace dimension.

Table B.14: Item Indicators of Horizontal Reciprocation at the Workplace

In your society, more so than in other societies/ 在此社会中，而非其他社会中：

<p>AW.B21</p> <p>Our company would willingly incur a LOW cost ourselves to offer a business partner or business affiliate a GREAT benefit</p>	<p>AW.B22</p> <p>We sought an UNEQUAL share of benefits from our business and affiliate partnerships</p> <p>(R)</p>	<p>AW.B23</p> <p>We shared our proprietary information in the FIRST instance to receive a FUTURE benefit. We assumed trustworthiness, more so than in other societies.</p>	<p>AW.B24</p> <p>We would TAKE but <u>not</u> GIVE in proprietary knowledge exchange arenas</p> <p>(R)</p>
<p>HC.B21</p> <p>我们公司愿意损失自己的小部分利益来给予商业伙伴或分公司丰厚的利益。</p>	<p>HC.B22</p> <p>我们寻求从交易中以及合伙人中攫取不公平利益。</p> <p>(R)</p>	<p>HC.B23</p> <p>我们在第一时间和别人公开分享我们独有的知识，以获得将来的利益。我们信赖别人，而且这种态度胜过其他社会团体。</p>	<p>HC.B24</p> <p>在知识交流的场所，我们只求索取，<u>不愿</u>给予。</p> <p>(R)</p>

Measuring Conventional Orthodoxy in Society at Large

The Conventional Orthodoxy in the Workplace was confirmed by the Measurement Model (Chapter Six) analyses to be comprised of Langsyne Attachment, *A priori* Validation and In-Role Conformity dimensions. The following survey items were found to marshal each dimension of the *second tier (level)* of Conventional Orthodoxy.

Langsyne Attachment at the Workplace

In order to estimate the Langsyne Attachment in the Workplace dimension, respondents were asked to report on their attachment to ancient themes when determining present-day progress.

Table B.15 details the item indicators of the Langsyne Attachment in the Workplace dimension.

Table B.15: Item Indicators of Langsyne Attachment at the Workplace

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

AW.B25 New beliefs were readily accepted over ancient practices (R)	AW.B26 There was a fondness held towards ancient customs	AW.B27 <u>Attachment</u> to ancient traditions aided our contemporary progress	AW.B28 Sentiment towards the ancient past <u>did not</u> present itself in our decision-making (R)
HC.B25 对于传统惯例的新见解很容易被接受。 (R)	HC.B26 传统惯例依然受青睐	HC.B27 保持旧有传统帮助我们取得当前的进步。	HC.B28 作决策时我们 <u>不受</u> 怀旧情绪的影响。 (R)

***A priori* Validation at the Workplace**

Regarding *A priori* Validation at the Workplace respondents were asked how contemporary judgements clashed with ancient values, and how this was administered in the context of jobsite practices and procedures, and whether work practices evolved independent of ancient ways.

Table B.16 details the item indicators of *A priori* Attachment in Workplace dimension.

Table B.16: Item Indicators of *A priori* at the Workplace

In your society, more so than in other societies/ 在此社会中, 而非其他社会中:

AW.B29 Judgements clashing with ancient values were disregarded	AW.B30 Work practices evolved because new ways stood independent to ancient ways (R)	AW.B31 <i>Ancient values did not</i> predispose our approach to innovation	AW.B32 Ancient ways carried <u>no</u> special influence (R)
HC.B29 在传统价值观上产生的分歧会被忽视。	HC.B30 新方式与传统方式的不同促使职场惯例得到逐步发展。 (R)	HC.B31 旧有传统没有影响我们创新的路子。	HC.B32 旧有作法 <u>没有任何</u> 特别的影响力。 (R)

In-Role Conformity in the Workplace

In-Role Conformity in the workplace modified and tapered the contribution of Kim, Atkinson and Yang (1999) to fit the work site. Respondents appraised the level of conformity to workplace norms and traditional role expectations in the workplace.

Table B.17 details the item indicators of *A priori* Attachment in Workplace dimension.

Table B.17: Item Indicators of In-Role at the Workplace

In your society, more so than in other societies/ 在此社会中, 而非其他社会中 :

AW.B33	AW.B34	AW.B35	AW.B36	AW.B37
Traditional role expectations must follow workplace norms	Changes in procedures were restrained by workplace norms (R)	One should <u>regularly</u> challenge workplace norms	Following workplace norms <u>is a must</u>	One should <u>not</u> be leveraged by workplace norms (R)
HC.B33	HC.B34	HC.B35	HC.B36	HC.B37
对传统角色的期待仍然保留着。	办事惯例的更改会受到传统习俗的约束。 (R)	一个人应该定期质疑工作场所的常规。	<u>一定得服从工作场所的常规。</u>	人不应该被工作场所的常规所影响 (R)

Having outlined the second *tier (level)* survey items pertaining to Vertical Power Ethos, Horizontal Altruism and Conventional Orthodoxy constructs and underpinning dimensions in Society-Large, and, noting surveyed groups ‘A’ and ‘B’ and ‘H’ (n=1,495) estimate the general broad population, additionally groups ‘C’ through to ‘G’ (n=306) measure new

product-process practitioners only. We next review the survey items relating to Knowledge Building: viz. Knowledge Sharing and Creative Synergies among product-process practitioners.

Group ‘C’ items

Knowledge Building in New Product-Process Development Teams

For Group ‘C’ items, respondents were instructed to report the level of Knowledge Sharing and Creative Synergies achieved from Personal Knowledge Contribution within their product-process team. Knowledge Sharing and Creative Synergies were extracted by dimension analysis within Knowledge Building.

Respondents were asked to contemplate social behaviour within the context of society in the workplace, where the respondent was physically located. Respondents were asked to think about their society in relation to other societies when answering all questions. Respondents were directed to complete a Likert survey, where all values were equally distributed and asked to respond to the questions posed in context with Knowledge Building (Knowledge Sharing and Creative Synergies) in new product-process development. Please refer Tables A.18, A19 and A.20.

In relation to each Likert-styled question, respondents were asked to choose between the following categories of measure:

Strongly Disagree	Clearly Disagree	Somewhat Disagree	Somewhat Agree	Clearly Agree	Strongly Agree	Unable To Answer
-------------------	------------------	-------------------	----------------	---------------	----------------	------------------

Knowledge Sharing referred to the amount of individual personal knowledge made available to the new product-process development teams. Respondents reported on the capacity of personal knowledge available for decision making and the discussion of alternative approaches. Likewise, respondents commented on the willingness of team members to be active contributors. The tendency to conceal and hide personal knowledge was measured. Also, the affinity to keep honest open channels of communications was considered.

-Please turn page-

Table B.18 : Item Indicators of Knowledge Sharing in Knowledge Building in Anglo Western society

In the new product development team in the workplace, where the team was primarily located/ 在新产品开发团队所在地的工作场所 :

<p>AW.C1</p> <p>A large amount of individual personal knowledge was offered for consideration during the discussion of alternatives.</p>	<p>AW.C2</p> <p>Team members were unreserved in sharing individual personal knowledge</p>	<p>AW.C3</p> <p>Some individual personal knowledge appeared concealed</p> <p>(R)</p>	<p>AW.C4</p> <p>The project team members <u>did not</u> hide issues from each other</p>
<p>AW.C5</p> <p>Channels of communication among team members were open</p>	<p>AW.C6</p> <p>Team members were <u>unwilling</u> to keep each other informed</p> <p>(R)</p>	<p>AW.C7</p> <p>A large amount of individual personal knowledge was offered as a reference for decision-making</p>	<p>AW.C8</p> <p>Individual personal knowledge contributions supported team determinations</p>
<p>AW.C9</p> <p>There was equitable involvement relating to individual personal knowledge contribution</p>	<p>AW.C10</p> <p>There was a strong desire to share individual personal knowledge</p>	<p>AW.C11</p> <p>Some individual team members were <u>reluctant</u> to impart personal knowledge to the team</p> <p>(R)</p>	<p>AW.C12</p> <p>Project team members engaged in open, honest communications</p>
<p>AW.C13</p> <p>Team members willingly kept each other informed at all times</p>		<p>AW.C14</p> <p>Team members <u>did not</u> keep each other informed a all times</p> <p>(R)</p>	

Table B.19: Item Indicators of Knowledge Sharing in Knowledge Building in Han Chinese society

In the new product development team at the workplace, where the team was primarily located/ 在新产品开发团队所在地的工作场所：

<p>HC.C1</p> <p>在对各种方案进行讨论时会用到大量的个人知识。</p>	<p>HC.C2</p> <p>团队成员会毫无保留的分享其个人知识。</p>	<p>HC.C3</p> <p>某些成员似乎对个人知识有所隐藏。</p> <p>(R)</p>	<p>HC.C4</p> <p>项目团队成员互相不对问题进行隐瞒</p>
<p>HC.C5</p> <p>团队成员之间的交流渠道是畅通的。</p>	<p>HC.C6</p> <p>团队成员之间不愿互通消息。</p> <p>(R)</p>	<p>HC.C7</p> <p>在做决策时会用到大量的个人知识。</p>	<p>HC.C8</p> <p>成员的个人知识的贡献会支持团队的决定</p>
<p>HC.C9</p> <p>团队成员之间个人知识的共享被汇聚成创造性的协同优势。</p>	<p>HC.C10</p> <p>项目团队成员互相不对问题进行隐瞒</p>	<p>HC.C11</p> <p>某些成员会对其个人知识有所保留。</p> <p>(R)</p>	<p>HC.C12</p> <p>项目成员处于一个公开并且坦诚沟通境中</p>
<p>HC.C13</p> <p>团队成员之间愿意共享消息。</p>		<p>HC.C14</p> <p>团队成员之间不愿互通消息</p> <p>(R)</p>	

Table B.20. Item Indicators of Creative Synergies in Knowledge Building

<p>AW.C15</p> <p>Personalised knowledge contribution shared between individuals fused to permit Creative Synergies</p>	<p>AW.C16</p> <p>New Creative Synergies were derived from individuals sharing personal knowledge</p>	<p>AW.C17</p> <p>Creative Synergies <u>did not</u> achieve potentials because some team members <u>did not</u> contribute their full know-how</p> <p>(R)</p>	<p>AW.C18</p> <p>Creative strategies were derived from sharing experiences</p>	<p>AW.C19</p> <p>We met, but creative strategies were <u>not</u> achieved</p> <p>(R)</p>
<p>HC.C15</p> <p>团队成员之间个人知识的共享被汇聚成创造性的协同优势。</p>	<p>HC.C16</p> <p>新的创造性的协同优势来源于团队成员之间共享相关的个人知识。</p>	<p>HC.C17</p> <p>由于某些团队成员<u>没有全部</u>贡献出自己的知识技能，创造性的协同优势<u>并未</u>发挥出其潜能</p> <p>(R)</p>	<p>HC.C18</p> <p>新的创造性的协同优势来源于团队成员之间共享相关的个人知识。</p>	<p>HC.C19</p> <p>由于某些团队成员<u>没有全部</u>贡献出自己的知识技能，创造性的协同优势<u>并未</u>发挥出其潜能</p> <p>(R)</p>

The original Knowledge Building items were found to be composed of Knowledge Sharing and Creative Synergies scales (Chapter Six). Knowledge Management measures were a product of Vertical Power Ethos in Society-at-Large, Horizontal Altruism in Society-at-Large, and, Conventional Orthodoxy in Society-at-Large, Vertical Power Ethos in the Workplace, Horizontal Altruism in the Workplace and Conventional Orthodoxy in the Workplace.

Group ‘D’ items

Knowledge Discovery in New Product-Process Development Teams

For Group ‘D’ items, respondents were instructed to report the level of innovative idea creation, problem solving and new enterprise knowledge captured in new product-process teams. Knowledge Discovery in New Product-Process Development is deemed by the Thesis to be a corollary of Knowledge Building: viz. Knowledge Sharing and Creative Synergies. The higher the Knowledge Sharing or the higher the Creative Synergies, the higher the Knowledge Discovery would be.

In relation to each Likert-styled question, respondents were asked to choose between the following categories of measure. In context with Knowledge Discovery, respondents were instructed to indicate the extent to which Personal Knowledge Contribution led to:

The degree of Knowledge Discovery consummated on the primary path model was found to be a function of the level of Knowledge Building achieved. Product transformation was found to be especially reliant on high Knowledge Discovery (Chapter Six).

Table B23 details the item indicators of Product and Process dimensions. Respondents were asked the extent to which they agreed or disagreed with the following statements:

Strongly Disagree	Clearly Disagree	Somewhat Disagree	Somewhat Agree	Clearly Agree	Strongly Agree	Unable To Answer
-------------------	------------------	-------------------	----------------	---------------	----------------	------------------

Table B.23: Item Indicators of Product Knowledge Discovery Outcomes

Personal Knowledge Contribution led to/团队成员的个人知识贡献导致：

AW.D1 Innovative ideas in new PRODUCT development	AW.D2 Problem solving in new PRODUCT development	AW.D3 New Enterprise Knowledge captured in new PRODUCT development
HC.D1 孵化出针对新产品开发的创新想法	HC.D2 解决新产品开发中的问题	HC.D3 获得新产品开发的新企业知识

Table B.24: Item Indicators of Process Knowledge Discovery Outcomes

Personal Knowledge Contribution led to/团队成员的个人知识贡献导致：

AW.D4 Innovative ideas in new PROCESS development	AW.D5 Problem solving in new PROCESS development	AW.D6 New Enterprise Knowledge captured in new PROCESS development
HC.D4 孵化出针对新过程开发的创新想法	HC.D5 新过程开发中的解决问题能力增强	HC.D6 获得新过程开发的新企业知识

New Product development items and Process development items were separately measured. They were designed to find out how personal knowledge contribution in teams led to innovative ideas creation, problem solving and new enterprise knowledge captured during product development and process development.

Next, we outline items relating to Product-Process Conformance Outcomes, which are decided by the extent of Knowledge Discovery achieved.

Group ‘E’ items

Final Product-Process Development Conformance Outcomes in Development Teams

For Group ‘E’ items, respondents were directed to give an account of Final Product-Process Conformance Outcomes attained within their product-process team.

Final Product Conformance Outcomes tested measures of the ultimate dependent variables, wherein, Final Process Conformance Outcomes *necessarily precede* Final Product Outcomes, because Research and Development issues must be resolved *before* final tangible goods and intangible services are achieved.

Product measures and Processing measures recognise the Marketing and Research & Development interface.

Marketing specialists and Research & Development specialists were qualified in the selection process and their status confirmed in the questionnaire. Logically, in the structural modelling Final *Process* Conformance Outcomes was confirmed as a precursor to Final *Product* Conformance Outcomes.

Respondents were directed to complete a Likert survey, with five radio points and one opt-out, where all the values were equally distributed, and to respond to 10³ questions in the context of conformance outcomes in new product-process development.

Table B.25 details the item indicators of the Final Product Conformance Outcomes dimension. Respondents were asked the extent to which they agreed or disagreed with the following statements:

Table B.25: Item Indicators of Final Product Conformance Outcomes⁴

When actual product related results are compared with previously planned pre-launch expectations/实际上市产品结果与产品上市前预期相比较:

AW.E1	AW.E2	AW.E3	AW.E4	AW.E5
<i>All Planned Quality Requirements</i> were achieved for new product development	<i>All Planned Product Features</i> were incorporated as required for new product development	<i>All Product Effectiveness Requirements</i> were achieved.	<i>All Product Efficiency Requirements</i> were achieved.	<i>All Product Efficacy Requirements</i> were achieved
HC.E1	HC.E2	HC.E3	HC.E4	HC.E5
达到了新产品开发的所有质量要求	完成了所有计划的产品特色开发	达到了所有的产品效能要求 [效能是指完成预期活动和状态的程度]	达到了所有的产品效率要求 [[效率是指相对于一定投入所产生的总的有效产出]	达到了所有的产品功效要求 [功效要求是指达成预期结果的能力，即团队可以获取和拥有达到预期结果的能力]

³ Five items on Product and five items on Process.

⁴ Final Product Conformance Outcomes was the last construct on the Structural Equation Model for the Intermediation Primary Path Model, though not presented last in the survey instruments.

Table B.26 details the item indicators of the Final Product Conformance Outcomes dimension. Herein, respondents were asked the extent to which they agreed or disagreed with the following statements:

Table B26: Item Indicators of Final Process Conformance Outcomes

<p>AW.E6</p> <p><i>All Planned Process Quality Requirements</i> were achieved for new Process development</p>	<p>HC.E6</p> <p><i>All Planned Process Features</i> were incorporated as required for new Process development</p>	<p>AW.E8</p> <p><i>All Process Effectiveness Requirements</i> were achieved.</p>	<p>AW.E9</p> <p><i>All Process Efficiency Requirements</i> were achieved.</p>	<p>AW.E10</p> <p><i>All Process Efficacy Requirements</i> were achieved.</p>
<p>HC.E6</p> <p>达到了新过程开发的所有质量要求</p>	<p>HC.E7</p> <p>完成了新过程开发需要的产品特色开发</p>	<p>HC.E8</p> <p>达到了所有的过程效能要求</p> <p>[效能是指完成预期活动和状态的程度]</p>	<p>HC.E9</p> <p>达到了所有的过程效率要求</p> <p>[效率是指相对于一定投入所产生的总的有效产出]</p>	<p>AW.E10</p> <p>达到了所有的过程功效要求</p> <p>[功效要求是指达成预期结果的能力，即团队可以获取和拥有达到预期结果的能力]</p>

Group ‘F’ items

Final Product-Process Development Conformance Outcomes in Development Teams

Group ‘F’ items were designed to have respondents evaluate Product and Process separately in the context of transformation requisites, as moderating variables. Product-Process transformation is held to act as a moderator of the primary path intermediating between Knowledge Discovery and Final Product-Process Discovery Outcomes. The thesis holds the higher Product-Process transformation required, then, the higher the dependency of Knowledge Building and Knowledge Discovery necessary.

Meade *et al.* (2007, online), Podakoff *et al* (2003) and Campbell (1982) raise the issue of ‘Common Variance Error, in relation in organisational and international business research, wherein, if a common methods approach is applied to surveys during data collection, biased trait correlations *might* result from self-reporting (Spector 2006), if the questions are addressed in the same format to the same sources. As means to thwart Common Variance Error (and Acquiescence Error), AW-F1 -F2 and HC.F1-2, adopted a different format for testing the effects of Product-Process Transformation Required.

Type and extent of change designated the degree of product-process transformation observed by respondents involved in new development. Respondents were asked to comment on the level of product or process transformation that the team was expected to accomplish, as indicated in Tables B.27 and B.28, as shown on the next page.

Table B.27: Item Indicators of Product-Process Transformation in Anglo-Western Society

AW.F1	AW.F2
<p>[Important: Please consider all options, before making your selection.]</p> <p>The new product team primarily <u>aimed</u> to generate for new <u>product</u> development:</p> <ul style="list-style-type: none"> • Advances Research in New Product Development: Significantly extended scope of industry Product development • New Core Product: Fundamental break with all previous Product generations at our Organisation • Next Generation Product: Significant modifications requiring some <u>untried</u> Product augmentation • Minor Incremental Product Enhancement: Minor modifications using known <u>existing</u> Product competencies • Copied Product: Existing Product copied to a new environment 	<p>[Important: Please consider all options, before making your selection.]</p> <p>The new product team primarily <u>aimed</u> to for <u>process</u> development:</p> <ul style="list-style-type: none"> • Advances Research in New Process Development: Significantly extended scope of industry Process development • New Core Process: Fundamental break with all previous Process generations at our Organisation • Next Generation Process: Significant modifications requiring some <u>untried</u> Process augmentation • Minor Incremental Process Enhancement: Minor modifications using known <u>existing</u> Process competencies • Copied Process: Existing Process copied to a new environment

Table B.28: Item Indicators of Product-Process Transformation in Han-Chinese Society

HC.F1	HC.F2
<p>新产品团队的首要目标是生产:</p> <p>注意: 在做决定之前, 请考虑所有选项</p> <ul style="list-style-type: none"> • 新产品开发高级研究: 极大地扩大行业产品开发范围 • 新核心产品: 是对你们公司所有先前各代产品根本性的突破 • 下一代产品: 重大的改进, 要求使用一些<u>未曾尝试过</u>的产品拓展组织 • 次要递增产品扩展: 对已有产品的性能作出较小的改进 • 复制产品: 把已有的产品移植到新的环境中 	<p><u>过程变更</u>是指<u>过程改变的程度</u>。</p> <p>在做决定之前,请考虑所有选项</p> <ul style="list-style-type: none"> • 新过程开发高级研究: 极大地扩大行业过程开发范围 • 新核心过程: 是对你们公司所有先前过程根本性的突破 • 下一代过程: 重大的改进, 要求使用一些<u>未曾尝试过</u>的产品拓展组织 • 次要递进流程:对已有流程作出较小的改进 • 复制流程:把已有的流程复制到新的环境中

Next, the items used to further verify respondent selection and ensure appropriate data will be discussed.

Group ‘G’ items

Audit Qualification Of Respondents

For Group ‘G’, the following five items were used to qualify survey respondents and acted to audit the accuracy of respondent recruitment. The goals of the audit were: (a) to ensure unadulterated identification of each cultural sample, and (b) to classify and facilitate the necessary balance between respondents from Product teams and Process teams.

Acculturation aspects of cross-cultural life experiences were addressed during the recruitment process to eliminate contamination of the samples. However, as a further safeguard, respondents not strictly qualified as being both genetically and psychologically connected to both their race and disposition, within each cultural category, were eliminated during data cleaning. Only respondents identified to be absolutely homogeneous were retained for the Measurement Model and Structural Equation Modelling.

Items AW.G1 and HC.G1 questioned respondents on their generic race and their biological ethnicity. Items AW.G2 and HC.G2 queried respondents on their societal identification, psychologically.

To have been selected for final analysis during data cleaning, respondents needed to be both ethnically and psychologically identified with either one of Anglo Western society or Han Chinese society, as indicated in Tables B.29 through to B.36.

Table B.29: Item Indicators of Biological Ethnicity in Anglo-Western Society

<p>AW.G1</p> <p>(Optional)</p> <p>Please agree to indicate your BIOLOGICAL ethnicity (i.e., your genetic race)? If you are EQUALLY mixed ethnically, please select the race with which you most strongly identify and are a BIOLOGICAL member.</p> <p>This question is not mandatory, but the <u>answer is important</u>.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Anglo-Western <u>race</u> <input type="checkbox"/> Other Western <input type="checkbox"/> Chinese (Han) <input type="checkbox"/> Eurasian Chinese </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Other Chinese, not above <input type="checkbox"/> Another race, not specified above <input type="checkbox"/> Prefer not to answer/Unable to answer </td> </tr> </table>		<input type="checkbox"/> Anglo-Western <u>race</u> <input type="checkbox"/> Other Western <input type="checkbox"/> Chinese (Han) <input type="checkbox"/> Eurasian Chinese	<input type="checkbox"/> Other Chinese, not above <input type="checkbox"/> Another race, not specified above <input type="checkbox"/> Prefer not to answer/Unable to answer
<input type="checkbox"/> Anglo-Western <u>race</u> <input type="checkbox"/> Other Western <input type="checkbox"/> Chinese (Han) <input type="checkbox"/> Eurasian Chinese	<input type="checkbox"/> Other Chinese, not above <input type="checkbox"/> Another race, not specified above <input type="checkbox"/> Prefer not to answer/Unable to answer		

Table B.30: Item Indicators of Biological Ethnicity in Han-Chinese Society

<p>HC.G1</p> <p>(随意的)</p> <p>请说明你的主要生物种族. 也就是说你的基因种族。如果你是混血，请指出你最为认同的生物种族。</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> 华人 (汉族) <input type="checkbox"/> 欧亚混血华人 <input type="checkbox"/> 其他华人(如海外华人等) <input type="checkbox"/> 盎格鲁人 <input type="checkbox"/> 以上未具体说明的其他种族 <input type="checkbox"/> 选择不予作答 </td> </tr> </table>	<input type="checkbox"/> 华人 (汉族) <input type="checkbox"/> 欧亚混血华人 <input type="checkbox"/> 其他华人(如海外华人等) <input type="checkbox"/> 盎格鲁人 <input type="checkbox"/> 以上未具体说明的其他种族 <input type="checkbox"/> 选择不予作答
<input type="checkbox"/> 华人 (汉族) <input type="checkbox"/> 欧亚混血华人 <input type="checkbox"/> 其他华人(如海外华人等) <input type="checkbox"/> 盎格鲁人 <input type="checkbox"/> 以上未具体说明的其他种族 <input type="checkbox"/> 选择不予作答	

Table B.31: Item Indicators of Primary Societal Identification in Han-Chinese Society

AW.G2

(Optional)

With which society do you PRIMARILY identify?

Please note, the key reference is to **society**, not country. You *could* be ethnically one race, but identify with a society mainly established by another race.

<input type="checkbox"/> Anglo-Western <u>society</u>	<input type="checkbox"/> Other Chinese, not above
<input type="checkbox"/> Other Western	<input type="checkbox"/> Another race, not specified above
<input type="checkbox"/> Chinese (Han)	<input type="checkbox"/> Prefer not to answer
<input type="checkbox"/> Eurasian Chinese	

Table B.33: Item Indicators of Primary Societal Identification in Han-Chinese Society

HC.G2

(随意的)

你认为你属于那个社会？

- 华人 (汉族)
- 欧亚混血华人
- 其他华人(如海外华人等)
- 盎格鲁人
- 以上未具体说明的其他种族
- 选择不予作答

Items AW.G3 and AW.G4 tested for persistent longitudinal genealogical ethnicity in the Anglo West and Items AW.G3 and AW.G4 tested for persistent longitudinal genealogical ethnicity in Han China. Respondents not providing homogeneous ancestry were removed

from further analysis during data cleaning. To ascertain accuracy, the two questions posed with expectation of contra valid responses.

Table: A.32: Item Indicators of Ethnic Lineage - Ethnically Anglo-Western?

AW.G3	
(Optional)	
How many of <u>your</u> grandparents are ethnically Anglo-Western?	
<input type="checkbox"/> One Anglo-Western grandparents	<input type="checkbox"/> Four Anglo-Western grandparents
<input type="checkbox"/> Two Anglo-Western grandparents	<input type="checkbox"/> None, other grandparents
<input type="checkbox"/> Three Anglo-Western grandparents	<input type="checkbox"/> Prefer not to answer/Unable to answer

Table B.34: Item Indicators of Ethnic Lineage - Ethnically Anglo-Western?

HC.G3	
(随意的)	
你的祖父母有几位是盎格鲁族人？	
<input type="checkbox"/> 祖父母中有一位是盎格鲁族人	
<input type="checkbox"/> 祖父母中有两位是盎格鲁族人	
<input type="checkbox"/> 祖父母中有三位是盎格鲁族人	
<input type="checkbox"/> 祖父母中有四位是盎格鲁族人	
<input type="checkbox"/> 以上皆否/,还有更多的祖父母是盎格鲁族人	
(Contra for Chinese Groups)	

Table B.35: Item Indicators of Ethnic Lineage - Ethnically Han-Chinese?

AW.G4	
How many of <u>your</u> grandparents are ethnically Chinese?	
<input type="checkbox"/> One Chinese grandparents	<input type="checkbox"/> Four Chinese grandparents
<input type="checkbox"/> Two Chinese grandparents	<input type="checkbox"/> None, other grandparents
<input type="checkbox"/> Three Chinese grandparents	<input type="checkbox"/> Prefer not to answer/Unable to answer
(Contra for Anglo-Western Groups)	

Table B.36: Item Indicators of Ethnic Lineage - Ethnically Han-Chinese?

HC.G4	
(随意的)	
你有几位祖父母是华人？	
<input type="checkbox"/> 祖父母中有一位是华人	
<input type="checkbox"/> 祖父母中有两位是华人	
<input type="checkbox"/> 祖父母中有三位是华人	
<input type="checkbox"/> 祖父母四位是华人	
<input type="checkbox"/> 还有更多的祖父母是华人	

Group ‘H’ Items

For Group ‘H’, Tables B.37 and B.38, only Marketing and Research & Development active participants were selected for further analysis. Respondents have purely administrative or recording functions or unrelated were removed from analysis. Other categories were captured, to re-direct potential misclassification, to clean and purify data captured.

Table B.37: Work Function (English Language)

<p>AW.H1</p> <p>(Optional)</p> <p>Which work <u>function</u> best describes your role in the new product development process?</p> <p><input type="checkbox"/> Marketing</p> <p><input type="checkbox"/> Research & Development or Computing or Engineering or Design</p> <p><input type="checkbox"/> Program Office or Planning Office</p> <p><input type="checkbox"/> Another contribution not listed</p> <p><input type="checkbox"/> Prefer not to answer</p>
--

Table B.38: Work Function (Chinese Language)

<p>HC.H1</p> <p>以下哪一项能最好表明你在新产品开发中所发挥的作用？</p> <p><input type="checkbox"/> 营销</p> <p><input type="checkbox"/> 研究开发</p> <p><input type="checkbox"/> 规划员</p> <p><input type="checkbox"/> 其他贡献</p> <p><input type="checkbox"/> 无法回答/不予作答</p>

APPENDIX 'C'

PRINCIPAL AXIS FACTORING

&

CORRELATION MATRICES

for

ANGLO-WESTERN SOCIETY

VERTICAL POWER ETHOS (ANGLO-WESTERN)

VPESOC.AW¹: Vertical Secrecy in Anglo-Western Society

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.04	76.05	76.05	2.72	68.18	68.18
2	.38	9.58	85.64			
3	.29	7.48	93.12			
4	.27	6.87	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)	socsec1	socsec2	socsec3	socsec4
Correlation socsec1	1.00	.63	.66	.64
socsec2	.63	1.00	.71	.70
socsec3	.66	.71	1.00	.78
socsec4	.64	.70	.71	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ²		
			1	2	3
socsec3	.86	socsec3	.85	.02	-.04
socsec4	.83	socsec4	.84	-.13	.09
socsec2	.83	socsec2	.83	-.03	-.11
socsec1	.77	socsec1	.77	.14	.06

¹ AW = Anglo-Western

² Supplemental test to confirm definitive existence of a single primary factor

VPESOC.AW: Vertical Deference (Control) in Anglo-Western Society

Total Variance Explained (n=1,329)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.89	72.39	72.39	2.52	63.23	63.23
2	.41	.41	82.83			
3	.36	.36	91.95			
4	.32	.32	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		socon1	socon2	socon3	socon4
Correlation	socon1	1.00	.59	.64	.62
	socon2	.59	1.00	.60	.64
	socon3	.64	.60	1.00	.66
	socon4	.62	.64	.66	1.00

Principal Axis Factor Matrices) (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ³		
			1	2	3
socon4	.82	socon4	.82	.09	-0.07
socon3	.81	socon3	.81	-.09	-0.07
socon1	.77	socon1	.78	-13.8	0.08
socon2	.76	socon2	.77	.14	0.07

³ Supplemental test to confirm definitive existence of a single primary factor

VPESOC.AW: Vertical Patrimonialism in Anglo-Western Society

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.98	74.57	74.57	2.64	66.17	66.17
2	.37	9.38	83.95			
3	.35	8.92	92.88			
4	.28	7.11	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		socpat1	socpat2	socpat3	socpat4
Correlation	socpat1	1.00	.62	.66	.63
	socpat2	.63	1.00	.69	.64
	socpat3	.66	.69	1.00	.70
	socpat4	.63	.64	.70	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ⁴		
			1	2	3
socpat3	.85	socpat3	.85	-.05	-.02
socpat4	.81	socpat4	.81	-.02	-.13
socpat2	.79	socpat2	.80	-.08	.12
socpat1	.78	socpat1	.79	.17	.03

⁴ Supplemental test to confirm definitive existence of a single primary factor

VPEWOR.AW: Vertical Secrecy in the Anglo-Western Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.88	72.09	72.09	2.52	63.12	63.12
2	.47	11.75	83.85			
3	.40	10.10	93.95			
4	.24	6.05	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		worsec1	worsec2	worsec3	worsec4
Correlation	worsec1	1.00	.71	.60	.59
	worsec2	.71	1.00	.57	.70
	worsec3	.60	.57	1.00	.56
	worsec4	.59	.70	.56	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ⁵		
			1	2	3
worsec2	.87	worsec2	.88	-.16	-.15
worsec1	.81	worsec1	.82	.19	-.15
worsec4	.78	worsec4	.79	-.18	.16
worsec3	.70	worsec3	.72	.18	.18

⁵ Supplemental test to confirm definitive existence of a single primary factor

VPEWOR.AW: Vertical Deference (Control) in the Anglo-Western Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.93	73.33	73.3	2.587	64.67	64.67
2	.42	10.56	83.89			
3	.37	9.31	93.21			
4	.27	6.78	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		worcon1	worcon2	worcon3	worcon4
Correlation	worcon1	1.00	.58	.65	.60
	worcon2	.58	1.00	.69	.62
	worcon3	.65	.69	1.00	.70
	worcon4	.60	.62	.70	1.00

Principal Axis Factor Matrices –VPEWOR.AW (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ⁶		
			1	2	3
worcon3	.87	worcon3	.86	-.03	-.01
worcon4	.80	worcon4	.81	.03	-.15
worcon2	.78	worcon2	.79	-.1	.07
worcon1	.74	worcon1	.75	.1	.09

⁶ Supplemental test to confirm definitive existence of a single primary factor

VPEWOR.AW: Vertical Patrimonialism in the Anglo-Western Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.02	75.70	75.70	2.70	67.61	67.61
2	.34	8.71	84.42			
3	.32	8.10	92.52			
4	.29	7.47	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		worpat1	worpat2	worpat3	worpat4
Correlation	worpat1	1.00	.69	.67	.66
	worpat2	.69	1.00	.68	.66
	worpat3	.67	.68	1.00	.65
	worpat4	.66	.66	.65	1.00

Principal Axis Factor Matrices –VPEWOR.AW (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ⁷		
			1	2	3
worpat2	.84	worpat2	.83	-.03	-0.04
worpat1	.82	worpat1	.83	-.02	-.11
worpat3	.82	worpat3	.82	-.11	.10
worpat4	.20	worpat4	.81	.16	.05

⁷ Supplemental test to confirm definitive existence of a single primary factor

HORIZONTAL ALTRUISM (ANGLO-WESTERN)

HORSOC.AW: Inclusiveness in Anglo-Western Society

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.90	72.53	72.53	2.53	63.46	63.46
2	.45	11.31	83.84			
3	.32	8.16	92.01			
4	.31	7.98	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		socinc1	socinc2	socinc3	socinc4
Correlation	socinc1	1.00	.56	.63	.67
	socinc2	.56	1.00	.66	.60
	socinc3	.63	.66	1.00	.66
	socinc4	.67	.60	.66	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ⁸		
			1	2	3
socinc3	.83	socinc3	.83	.15	-.05
socinc4	.81	socinc4	.82	-.16	.05
socinc1	.77	socinc1	.78	-.16	-.05
socinc2	.75	socinc2	.76	.17	-.04

⁸ Supplemental test to confirm definitive existence of a single primary factor

HORSOC.AW: Mutualism in Anglo-Western Society

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.86	71.65	71.65	2.49	62.43	62.43
2	.46	11.52	83.18			
3	.36	9.20	92.38			
4	.30	7.61	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		socmut1	socmut2	socmut3	socmut4
Correlation	socmut1	1.00	.67	.62	.59
	socmut2	.67	1.00	.67	.61
	socmut3	.62	.67	1.00	.54
	socmut4	.59	.61	.54	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ⁹		
			1	2	3
	.85	socmut2	.84	-.07	.03
	.80	socmut1	.81	.10	-.14
	.77	socmut3	.78	-.15	.00
	.72	socmut4	.73	.14	.11

⁹ Supplemental test to confirm definitive existence of a single primary factor

HORSOC.AW: Reciprocal Exchange in Anglo-Western Society

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.79	69.90	69.90	2.40	60.07	60.07
2	.49	12.46	82.37			
3	.37	9.45	91.83			
4	.32	8.16	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		socrecl	socrecl2	socwec3	socrecl4
Correlation	socrecl	1.00	.51	.65	.64
	socrecl2	.51	1.00	.58	.57
	socrecl3	.65	.58	1.00	.62
	socrecl4	.64	.57	.62	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹⁰		
			1	2	3
socrecl3	.81	socrecl1	.82	.03	-.19
socrecl4	.79	socrecl2	.80	-.02	.20
socrecl2	.78	socrecl4	.79	-.20	-.02
socrecl1	.69	socrecl3	.70	.22	.02

¹⁰ Supplemental test to confirm definitive existence of a single primary factor

HORWOR.AW: Inclusiveness in the Anglo-Western Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.87	71.75	71.75	2.49	62.44	62.44
2	.45	11.31	11.31			
3	.35	8.83	8.83			
4	.32	8.10	8.10			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		worinc1	worinc2	worinc3	worinc4
Correlation	worinc1	1.00	.55	.63	.62
	worinc2	.55	1.00	.61	.65
	worinc3	.63	.61	1.00	.65
	worinc4	.62	.65	.65	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹¹		
			1	2	3
worinc4	.83	worinc4	.83	-.12	-.09
worinc3	.80	worinc3	.81	.13	.10
worinc2	.76	worinc2	.77	-.15	.07
worinc1	.75	worinc1	.75	.15	-.08

¹¹ Supplemental test to confirm definitive existence of a single primary factor

HORWOR.AW: Mutualism in the Anglo-Western Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.84	71.18	71.18	2.46	61.64	61.64
2	.517	12.92	84.10			
3	.37	9.33	93.43			
4	.26	6.56	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)	wormut1	wormut2	wormut3	wormut4
Correlation wormut1	1.00	.71	.58	.59
wormut2	.71	1.00	.61	.53
wormut3	.58	.61	1.00	.64
wormut4	.59	.53	.64	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹²		
			1	2	3
wormut1	.81	wormut1	.83	-.22	.15
wormut2	.80	wormut2	.82	-.24	-.13
wormut3	.77	wormut3	.79	.23	-.15
wormut4	.74	wormut4	.76	.26	.13

¹² Supplemental test to confirm definitive existence of a single primary factor

HORWOR.AW: Reciprocal Exchange in the Anglo-Western Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.75	68.96	68.96	2.35	58.80	58.80
2	.47	11.83	80.79			
3	.41	10.79	91.58			
4	.33	8.41	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		worrec1	worrec2	worrec3	worrec4
Correlation	worrec1	1.00	.64	.57	.63
	worrec2	.64	1.00	.54	.56
	worrec3	.57	.54	1.00	.54
	worrec4	.63	.56	.54	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹³		
			1	2	3
sorec1	.83	sorec1	.82	-.07	-.04
sorec2	.76	sorec2	.77	.03	-.15
sorec4	.75	sorec4	.76	-.11	.11
sorec3	.70	sorec3	.72	.17	.09

¹³ Supplemental test to confirm definitive existence of a single primary factor

CONVENTIONAL ORTHODOXY (ANGLO-WESTERN)

CONSOC.AW: Langsyne Attachment in Anglo-Western Society

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.46	61.49	61.49	1.957	48.91	48.91
2	.59	14.92	76.41			
3	.54	13.53	89.95			
4	.40	10.05	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		soclan1	soclan2	soclan3	soclan4
Correlation	soclan1	1.00	.58	.45	.44
	soclan2	.58	1.00	.45	.50
	soclan3	.45	.45	1.00	.46
	soclan4	.44	.50	.46	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹⁴		
			1	2	3
soclan2	.76	soclan2	.77	-.16	-.11
soclan1	.72	soclan1	.72	-.18	.11
soclan4	.66	soclan4	.67	.19	-.12
soclan3	.63	soclan3	.65	.20	.13

¹⁴ Supplemental test to confirm definitive existence of a single primary factor

CONSOC.AW: *A priori* Validation in Anglo-Western Society

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.68	67.10	67.10	2.25	56.40	56.40
2	.52	13.01	80.18			
3	.42	10.66	90.85			
4	.26	9.14	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		socapr1	socapr2	socapr3	socapr4
Correlation	Socapr1	1.00	.48	.54	.60
	Socapr2	.48	1.00	.55	.57
	Socapr3	.54	.55	1.00	.60
	Socapr4	.60	.57	.60	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹⁵		
			1	2	3
socapr4	.81	socapr4	.81	-.03	.14
socapr3	.75	socapr3	.77	.32	-0.22
socapr1	.71	socapr1	.72	.58	.15
socapr2	.70	socapr2	.71	.21	.48

¹⁵ Supplemental test to confirm definitive existence of a single primary factor

CONSOC.AW: In-Role Conformity in Anglo-Western Society

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.78	69.70	69.70	2.40	60.02	60.02
2	.50	12.64	12.64			
3	.41	10.40	10.40			
4	.29	7.24	7.24			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		soccof1	soccof2	soccof3	soccof4
Correlation	soccof1	1.00	.68	.59	.52
	soccof2	.68	1.00	.61	.63
	soccof3	.59	.61	1.00	.51
	soccof4	.52	.63	.51	1.00

Principal Axis Factor Matrices – (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹⁶		
			1	2	3
soccof2	.86	soccof2	.86	-.11	-.10
soccof1	.78	soccof1	.79	.15	-.10
soccof3	.72	soccof3	.73	.15	.14
soccof4	.70	soccof4	.71	-.19	.09

¹⁶ Supplemental test to confirm definitive existence of a single primary factor

WOR.AW: Langsyne Attachment in the Anglo-Western Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.76	69.09	69.09	2.35	58.97	58.97
2	.48	11.9	11.9			
3	.45	11.2	11.2			
4	.30	7.6	7.6			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		worlan1	worlan2	worlan3	worlan4
Correlation	worlan1	1.00	.68	.57	.54
	worlan2	.68	1.00	.55	.60
	worlan3	.57	.55	1.00	.56
	worlan4	.54	.60	.56	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹⁷		
			1	2	3
worlan2	.82	worlan2	.83	.62	.76
worlan1	.79	worlan1	.82	.67	.62
worlan4	.73	worlan4	.63	.74	.63
worlan3	.71	worlan3	.63	.65	.75

¹⁷ Supplemental test to confirm definitive existence of a single primary factor

CONWOR.AW: *A priori* Validation at the Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.03	75.77	75.77	2.71	67.82	67.82
2	.40	9.99				
3	.31	7.85				
4	.25	6.39				

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		worapr1	worapr2	worapr3	worapr4
Correlation	worapr1	1.00	.60	.66	.71
	worapr2	.60	1.00	.66	.68
	worapr3	.66	.66	1.00	.72
	worapr4	.71	.68	.72	1.00

Principal Axis Factor Matrices – (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹⁸		
			1	2	3
worapr4	.88	worapr4	.88	-0.90	.070
worapr3	.83	worapr3	.84	.11	-.11
worapr1	.79	worapr1	.79	-.14	-.05
worapr2	.78	worapr2	.78	.12	.09

¹⁸ Supplemental test to confirm definitive existence of a single primary factor

CONWOR.AW: In-Role Conformity in the Anglo-Western Workplace

Total Variance Explained (n=1,329)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.02	75.57	75.57	2.74	68.61	68.61
2	.45	11.28	86.6			
3	.30	7.65	94.51			
4	.21	5.48	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=1,329)

Item (.aw)		Worcof1	Worcof2	Worcof3	Worcof4
Correlation	worcof1	1.00	.78	.71	.61
	worcof2	.78	1.00	.70	.59
	worcof3	.71	.70	1.00	.62
	worcof4	.61	.59	.62	1.00

Principal Axis Factor Matrices (n=1,329)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ¹⁹		
			1	2	3
worcof1	.87	worcof1	.87	-.14	.01
worcof2	.86	worcof2	.86	-.14	-.00
worcof3	.83	worcof3	.84	.15	-.06
worcof4	.71	worcof4	.72	.16	.06

¹⁹ Supplemental test to confirm definitive existence of a single primary factor

APPENDIX 'D'

PRINCIPAL AXIS FACTORING

&

CORRELATION MATRICES

for

HAN-CHINESE SOCIETY

VERTICAL POWER ETHOS (HAN-CHINESE)

VPESOC.HC¹: Vertical Secrecy in Han-Chinese Society

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.93	73.37	73.37	2.587	64.67	64.67
2	.43	10.89	84.26			
3	.33	8.25	92.52			
4	.29	7.47	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		socsec1	socsec2	socsec3	socsec4
Correlation	socsec1	1.00	.69	.63	.68
	socsec2	.69	1.00	.61	.66
	socsec3	.63	.61	1.00	.57
	socsec4	.68	.66	.57	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ²		
			1	2	3
socsec1	.85	socsec1	.84	.03	-.07
socsec2	.83	socsec2	.83	-.09	.12
socsec4	.79	socsec4	.79	-.08	-.09
socsec3	.73	socsec3	.74	.15	.04

¹ HC = Han-Chinese

² Supplemental test to confirm definitive existence of a single primary factor

VPESOC.HC: Vertical Deference (Control) in Han-Chinese Society

Total Variance Explained (n=166)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.99	74.93	74.93	2.67	66.79	66.79
2	.43	10.86	85.79			
3	.30	7.63	93.42			
4	.26	6.57	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		soecon1	soecon2	soecon3	soecon4
Correlation	soecon1	1.00	.72	.69	-.75
	soecon2	.72	1.00	.63	.68
	soecon3	.69	.63	1.00	.57
	soecon4	.68	.68	.57	1.00

Principal Axis Factor Matrices) (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ³		
			1	2	3
soecon1	.87	soecon1	.88	.12	-0.07
soecon2	.84	soecon2	.84	-.14	.09
soecon4	.78	soecon4	.78	-.15	-.07
soecon3	.76	soecon3	.76	.17	.06

³ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - IV

VPESOC.HC: Vertical Patrimonialism in Han-Chinese Society

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.72	68.46	68.46	2.32	58.13	58.13
2	.48	12.09				
3	.43	10.07				
4	.34	8.65				

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		socpat1	socpat2	socpat3	socpat4
Correlation	socpat1	1.00	.63	.56	.55
	socpat2	.63	1.00	.57	.61
	socpat3	.56	.57	1.00	.52
	socpat4	.55	.61	.52	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ⁴		
			1	2	3
socpat2	.82	socpat3	.81	-.08	-.04
socpat1	.77	socpat4	.77	.08	-.12
socpat4	.73	socpat2	.74	-.15	.07
socpat3	.71	socpat1	.72	.15	.11

⁴ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - V

VPEWOR.HC: Vertical Secrecy in the Han-Chinese Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.20	79.99	79.99	2.93	73.36	73.36
2	.31	7.77	7.77			
3	.24	6.39	6.39			
4	.23	5.83	5.83			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		worsec1	worsec2	worsec3	worsec4
Correlation	worsec1	1.00	-.98	-.72	-.76
	worsec2	-.98	1.00	.72	.73
	worsec3	.72	.72	1.00	.69
	worsec4	.76	.73	-.69	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ⁵		
			1	2	3
worsec1	.87	worsec1	.87	-.09	.02
worsec2	.86	worsec2	.87	.09	-.09
worsec4	.85	worsec4	.85	-.10	-.01
worsec3	.82	worsec3	.83	.10	.09

⁵ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - VI

VPEWOR.HC: Vertical Deference (Control) in the Han-Chinese Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.15	78.87	78.87	2.877	71.92	71.92
2	.35	8.91	87.79			
3	.27	6.96	94.75			
4	.21	5.24	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		worcon1	worcon2	worcon3	worcon4
Correlation	worcon1	1.00	.67	.73	.67
	worcon2	.67	1.00	.71	.75
	worcon3	.73	.71	1.00	.77
	worcon4	.67	.75	.77	1.00

Principal Axis Factor Matrices –VPEWOR.HC (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ⁶		
			1	2	3
worcon3	.88	worcon3	.88	.14	-.11
worcon4	.87	worcon4	.87	-.15	-.10
worcon2	.83	worcon2	.84	-.15	.11
worcon1	.80	worcon1	.80	.16	.11

⁶ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - VII

VPEWOR.HC: Vertical Patrimonialism in the Han-Chinese Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.28	75.70	75.70	2.70	67.61	67.61
2	.34	8.71	84.42			
3	.32	8.10	92.52			
4	.29	7.47	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.aw)		worpat1	worpat2	worpat3	worpat4
Correlation	worpat1	1.00	.69	.67	.66
	worpat2	.69	1.00	.68	.66
	worpat3	.67	.68	1.00	.65
	worpat4	.66	.66	.65	1.00

Principal Axis Factor Matrices –VPEWOR.hc (n=166)

Item (.aw)	Single Factor	Item (.aw)	Three Factors ⁷		
			1	2	3
worpat2	.84	worpat2	.83	-.03	-.04
worpat1	.82	worpat1	.83	-.02	-.11
worpat3	.82	worpat3	.82	-.11	.10
worpat4	.80	worpat4	.81	.16	.05

⁷ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - VIII

HORIZONTAL ALTRUISM (HAN-CHINESE)

HORSOC.HC: Inclusiveness in Han-Chinese Society

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.06	76.66	76.66	2.76	69.11	69.11
2	.42	10.65	87.31			
3	.28	7.13	94.45			
4	.22	5.54	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		socinc1	socinc2	socinc3	socinc4
Correlation	socinc1	1.00	.59	.65	.69
	socinc2	.59	1.00	.75	.67
	socinc3	.65	.75	1.00	.75
	socinc4	.69	.67	.75	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ⁸		
			1	2	3
socinc3	.88	socinc3	.89	-.14	-.03
socinc4	.86	socinc4	.86	.15	-.04
socinc2	.80	socinc2	.81	-.18	.03
socinc1	.76	socinc1	.77	.19	.04

⁸ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - X

HORSOC.HC: Mutualism in Han-Chinese Society

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.16	79.08	79.08	2.89	72.24	72.24
2	.36	9.20	88.29			
3	.25	6.33	94.62			
4	.21	5.38	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)	socmut1	socmut2	socmut3	socmut4
Correlation socmut1	1.00	.75	.75	.73
socmut2	.75	1.00	.73	.71
socmut3	.75	.73	1.00	.63
socmut4	.73	.71	.63	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ⁹		
			1	2	3
socmut1	.89	socmut1	.90	.02	-.18
socmut2	.87	socmut2	.87	-.02	.19
socmut3	.82	socmut3	.83	-.20	-.21
socmut4	.80	socmut4	.81	.21	0.10

⁹ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XI

HORSOC.HC: Reciprocal Exchange in Han-Chinese Society

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.00	75.16	75.16	2.689	67.23	67.23
2	.39	9.98				
3	.35	8.78				
4	.24	6.11				

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		sorec1	sorec2	socwec3	sorec4
Correlation	sorec1	1.00	.56	.73	.70
	sorec2	.56	1.00	.64	.62
	sorec3	.73	.64	1.00	.73
	sorec4	.70	.62	.73	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹⁰		
			1	2	3
sorec3	.88	sorec3	.88	-.07	.13
sorec4	.85	sorec4	.85	.08	-.15
sorec1	.81	sorec1	.81	-.16	-.05
sorec2	.72	sorec2	.72	.17	.07

¹⁰ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XII

HORWOR.HC: Inclusiveness in the Han-Chinese Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.13	78.31	78.31	2.84	71.20	71.20
2	.37	9.38	87.70			
3	.26	6.57	94.27			
4	.22	5.72	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		worinc1	worinc2	worinc3	worinc4
Correlation	worinc1	1.000	.63	.72	.71
	worinc2	.63	1.00	.70	.75
	worinc3	.72	.70	1.00	.74
	worinc4	.71	.75	.74	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹¹		
			1	2	3
worinc4	.89	worinc4	.89	-.13	-.10
worinc3	.86	worinc3	.86	.14	.10
worinc2	.81	worinc2	.82	-.16	.08
worinc1	.80	worinc1	.81	.16	-.09

¹¹ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XIII

HORWOR.HC: Mutualism in the Han-Chinese Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.09	77.24	77.24	2.79	69.75	69.75
2	.46	11.58	11.58			
3	.27	6.90	6.90			
4	.17	4.26	4.26			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)	wormut1	wormut2	wormut3	wormut4
Correlation wormut1	1.00	.81	.66	.68
wormut2	.81	1.00	.66	.61
wormut3	.66	.66	1.00	.73
wormut4	.68	.61	.73	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹²		
			1	2	3
wormut1	.88	wormut1	.89	-.23	-.13
wormut2	.84	wormut2	.86	-.26	.12
wormu3	.81	wormu3	.83	.25	.13
wormut4	.79	wormut4	.81	.27	-.11

¹² Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XIV

HORWOR.HC: Reciprocal Exchange in the Han-Chinese Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.00	75.11	75.11	2.68	67.03	67.03
2	.39	9.98	85.09			
3	.35	8.78	93.88			
4	.24	6.11	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		worrec1	worrec2	worrec3	worrec4
Correlation	worrec1	1.00	.73	.65	.72
	worrec2	.73	1.00	.62	.64
	worrec3	.65	.62	1.00	.61
	worrec4	.72	.64	.61	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹³		
			1	2	3
worrec1	.88	worrec1	.88	-.06	-.07
worrec2	.81	worrec2	.82	.09	-.11
worrec4	.80	worrec4	.81	-.13	.07
worrrec3	.76	worrrec3	.76	.12	.13

¹³ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XV

CONVENTIONAL ORTHODOXY (HAN-CHINESE)

CONSOC.HC: Langsyne Attachment in Han-Chinese Society

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.98	74.50	74.50	2.26	66.54	66.54
2	.54	13.58	88.08			
3	.27	6.96	95.04			
4	.19	4.95	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		soclan1	soclan2	soclan3	soclan4
Correlation	soclan1	1.00	.56	.68	.70
	soclan2	.56	1.00	.60	.61
	soclan3	.68	.60	1.00	.67
	soclan4	.70	.61	.67	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹⁴		
			1	2	3
soclan2	.91	soclan2	.91	.19	-.09
soclan1	.84	soclan1	.85	-.24	-.08
soclan3	.79	soclan3	.80	-.23	.12
soclan4	.70	soclan4	.73	.30	.08

¹⁴ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XVII

CONSOC.HC: *A priori* Validation in Han-Chinese Society

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.06	76.61	76.61	2.76	69.02	69.02
2	.39	9.73	86.35			
3	.31	7.9	94.26			
4	.22	5.7	10.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		socapr1	socapr2	socapr3	socapr4
Correlation	socapr1	1.00	.74	.74	.54
	socapr2	.74	1.00	.67	.72
	socapr3	.74	.67	1.00	.52
	socapr4	.54	.72	.52	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹⁵		
			1	2	3
socapr3	.91	socapr3	.89	-.08	.017
socapr4	.88	socapr4	.84	.10	-.11
socapr1	.85	socapr1	.81	-.15	.00
socapr2	.80	socapr2	.78	.13	.15

¹⁵ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XVIII

CONSOC.HC: In-Role Conformity in Han-Chinese Society

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.93	73.32	73.32	2.58	65.67	64.67
2	.45	11.42	84.74			
3	.32	8.12	92.87			
4	.28	7.12	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)	soccof1	soccof2	soccof3	soccof4
Correlation				
soccof1	1.00	.56	.68	.70
soccof2	.56	1.00	.60	.61
soccof3	.68	.60	1.00	.67
soccof4	.70	.61	.67	1.00

Principal Axis Factor Matrices – (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹⁶		
			1	2	3
soccof4	.84	soccof2	.84	-.08	.13
soccof3	.82	soccof1	.83	.08	-.14
soccof1	.82	soccof3	.83	-.14	-.06
soccof2	.71	soccof4	.72	.16	.08

¹⁶ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XIX

CONWOR.HC: Langsyne Attachment in the Han-Chinese Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.05	76.48	76.48	2.757	68.91	68.91
2	.40	10.21	86.69			
3	.31	7.83	94.53			
4	.21	5.47	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		worlan1	worlan2	worlan3	worlan4
Correlation	worlan1	1.00	.74	.66	.66
	worlan2	.74	1.00	.75	.68
	worlan3	.66	.75	1.00	.60
	worlan4	.66	.68	.60	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹⁷		
			1	2	3
worlan2	.90	worlan2	.90	-.09	.03
worlan1	.83	worlan1	.84	.13	-.10
worlan3	.80	worlan3	.81	-.16	.02
worlan4	.86	worlan4	.76	.14	.08

¹⁷ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XX

CONWOR.HC: *A priori* Validation at the Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.15	78.89	78.89	2.878	71.94	71.94
2	.42	10.54	89.44			
3	.26	6.53	95.97			
4	.16	4.02	100.00			

Extraction Method Principal:

Correlation Matrix^a (n=166)

Item (.hc)		worapr1	worapr2	worapr3	worapr4
Correlation	worapr1	1.00	.65	.66	.78
	worapr2	.65	1.00	.77	.66
	worapr3	.66	.77	1.00	.76
	worapr4	.78	.66	.76	1.00

Principal Axis Factor Matrices – (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹⁸		
			1	2	3
worapr4	.88	worapr4	.89	-.23	-.14
worapr3	.87	worapr3	.88	.23	-.14
worapr1	.82	worapr1	.83	-.24	.15
worapr2	.81	worapr2	.83	.25	.14

¹⁸ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XXI

CONWOR.HC: In-Role Conformity in the Han-Chinese Workplace

Total Variance Explained (n=166)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.01	75.47	75.47	2.69	67.42	67.42
2	.39	9.98	85.45			
3	.33	8.36	93.82			
4	.24	6.17	100.00			

Extraction Method: Principal Axis Factoring.

Correlation Matrix^a (n=166)

Item (.hc)		Worcof1	Worcof2	Worcof3	Worcof4
Correlation	worcof1	1.00	.60	.72	.67
	worcof2	.60	1.00	.70	.64
	worcof3	.72	.70	1.00	.68
	worcof4	.67	.64	.68	1.00

Principal Axis Factor Matrices (n=166)

Item (.hc)	Single Factor	Item (.hc)	Three Factors ¹⁹		
			1	2	3
worcof3	.88	worcof3	.88	-.09	-.15
worcof1	.81	worcof1	.82	.17	-.09
worcof4	.80	worcof4	.81	.10	.17
worcof2	.78	worcof2	.79	-.18	.08

¹⁹ Supplemental test to confirm definitive existence of a single primary factor
Appendix D - XXII