Screen Time and Parental Mental Health - Implications on Development in Childhood

by Nghi Hoang Bui

Thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

under the supervision of Professor Jane Maguire, Professor Marilyn Cruickshank & Dr John McAloon

University of Technology Sydney
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2022

“Disconnect from technology and reconnect with each other.”

- Rose Mary Wixom

Certificate of Original Authorship

I, Nghi Hoang Bui, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Graduate School of Health, at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise reference or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

This research is supported by the Australian Government Research Training Program.

Signature:

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Date: 5/05/2022

Acknowledgements

First and foremost, I am sincerely thankful to both Professor Jane Maguire and Professor Marilyn Cruickshank, for their tireless efforts and support in helping me reach this milestone. In particular, thank you both for your enthusiasm in jumping on board this project more than halfway through my doctorate. Your continual words of encouragement, commitment, patience and helpful feedback have allowed me to grow in confidence as a researcher and an individual. A big thank you to Dr Josephine Paparo – while your time on this project was short, I greatly appreciated your ongoing support and pearls of wisdom during this time. I felt very grateful to continue to receive your mentorship even after you left the project. Thank you to Dr John McAloon for your invaluable expertise in this field, as well as your guidance throughout this project. In addition, massive thanks to Kris Rogers, who drew on his tremendous wealth of knowledge of statistics to assist me with my data analyses throughout the project.

To my parents, this achievement would not be possible without you. I am wholeheartedly grateful for the sacrifices you have both made and the opportunities you have given me to grow and thrive in this world. I am in awe of the sheer dedication, warmth and persistence you have both demonstrated, making me the person I am today. I hope that I have made you both proud, and that Mum, you are looking down smiling at how far Dad and I have come.

To my fiancé and best friend, Connor, words simply cannot express how lucky I have been to have you in my corner from day one! You have heard me cry, laugh and complain several times over these past few years, so thanks for motivating me and believing in me at all times even when I did not do so myself. As this chapter ends, I am looking forward to what lies in store for us and I am so grateful I get to do life with you!

To my best friends, Alyssa and Rebecca, thank you for being a constant source of light, particularly during the challenges I experienced throughout this PhD and in life in general. I am very appreciative of all the times you have stuck by me, brought humour and joy to my life, and been a listening ear when I needed it.

To Katie, Avnee and Tharushi, I am so incredibly grateful that our friendship has continued even long after our masters have finished. I have felt so validated during this PhD by all of your words of encouragement, especially when I have felt at my lowest. It has also been incredibly warming to have you all by my side as I celebrated my wins throughout this journey.

Thank you to my PhD crew – Shauna, Andrea, Liam, Theresa and Dean – for answering millions of questions, and providing a space for us to vent and to celebrate our wins. I wish you all the best in your journeys as you, too, conquer this milestone. In particular, a big thanks to Andrea: we have been on a rollercoaster of a journey together, and I would not have been able to get this far without you!

Lastly, a heartfelt thanks to all the families, schools and organisations that have taken the time to either participate in or promote our project. Your efforts do not go unnoticed and we are truly appreciative of your contributions.

Statement of Thesis Format

The present work is in the format of thesis by compilation, including a mix of published and unpublished works, as well as linking text between some chapters. The content of manuscripts of published papers is identical to the published versions.

List of Publications

Study 1 (Chapter 2):

Bui, N. H., Cruickshank, M., McAloon, J. & Maguire, J. (n.d.). The Effects of TV Viewing, Computer and Gaming Console Use on Academic Achievement: A Longitudinal Study.

Submitted February 2022 to Learning and Individual Differences

Study 2 (Chapter 3):

Bui, N. H., Paparo, J., Cruickshank, M., Maguire, J. & McAloon, J. (n.d.). Parental Characteristics, Handheld Screen Time and Developmental Outcomes: A Systematic Review.

Submitted November 2021 to Journal of Family Issues

Study 3 (Chapter 5):

Bui, N. H., Cruickshank, M., McAloon, J. & Maguire, J. (2021). Handheld Devices: The Barrier for Parents with Mental Health Difficulties in Child Outcomes. *Journal of Child & Family Studies*, https://doi.org/10.1007/s10826-021-02126-8.

Study 4 (Chapter 6):

Bui, N. H., Cruickshank, M., McAloon, J. & Maguire, J. (n.d.). A Longitudinal Study of the Effects of Parental Factors and Handheld Devices on Child Outcomes.

Submitted May 2022 to Humanities and Social Sciences

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Impact of COVID-19 on Research

This project was conducted in part during the COVID-19 pandemic, in particular during the years 2020 and 2021. Because of this, there were some unforeseen challenges that occurred and affected the progress of this project.

The first data collection time point was completed a month earlier than projected due to public health lockdown restrictions imposed during March 2020. During this time, schools were closed and parents might have been limited in their ability to participate in a study. In addition, the second data collection time point was during the latter half of 2020 and earlier part of 2021. During this time, parts of Australia experienced a number of snap lockdowns due to outbreaks. During the pandemic, parents and children were engaging in more device use, for both work and educational purposes, which may have affected the data on screen time. Moreover, parents may have experienced increased stress in response to greater work and parenting responsibilities, and this may have influenced the data on parental mental health. The increased burden and stress of parents may have affected data collection and follow-up rates of the study. Therefore, the results of the thesis have been influenced by this context, and reframed to reflect this during the write-up stage.

Table of Contents

Certificate of Original Authorship ..... **ii**
Acknowledgements ..... **iii**
Statement of Thesis Format ..... **v**
List of Publications ..... **vi**
Contribution of Authors ..... **vii**
Impact of COVID-19 on Research ..... **x**
Table of Contents ..... **xi**
List of Figures ..... **xv**
List of Tables ..... **xvi**
Glossary of Key Terms ..... **xvii**
Abstract ..... **xix**

CHAPTER 1: Introduction **1**
Thesis Background 1
Thesis Outline 3
Child Screen Use: An Overview 4
Guidelines for Screen Time 8
Factors related to Screen Time 12
The Family System in Children's Screen Time 15
Bioecological Theory 15
Attachment Theory 17
Social Learning Theory 21
Operant Conditioning 23
Coercive Family Processes 26
Child Screen Time and Developmental Outcomes 28
The Present Research 36
Prelude to Chapter Two **37**

CHAPTER 2: The Effects of TV Viewing, Computer and Gaming Console Use on Academic Achievement: A Longitudinal Study **38**
Abstract **39**
Introduction **40**
Study Aims 44

Method **44**
Transparency and Openness 45
Participants 45
Measures 47
Demographic Variables 47
Screen Time 47
Academic Achievement 47
Analysis Plan 48
Results **49**
Discussion **54**
Prelude to Chapter Three **58**

CHAPTER 3: Parental Characteristics, Handheld Screen Time and Developmental Outcomes: A Systematic Review **59**
Abstract **60**
Introduction **61**
Parental Characteristics and Screen Time 62
Screen Time and Developmental Outcomes 64
Aims of Review 66
Method **66**
Inclusion and Exclusion Criteria 66
Search Strategy 67
Study Selection 67
Assessment of Methodological Quality 68
Results **69**
Overview of Main Findings 69
Parental Characteristics 69
Developmental Outcomes 71
Discussion **77**
Parental Characteristics 77
Developmental Outcomes 79
Limitations and Future Directions 80
Conclusions 81

CHAPTER 4: Directions for Upcoming Studies **82**
Findings from the Systematic Review 82

Directions for Upcoming Studies 83

CHAPTER 5: Handheld Devices: The Barrier for Parents with Mental Health Difficulties in Child Outcomes 85

Abstract 86

Introduction 87

Parental Mental Health, Screen Time and Child Outcomes 89

Aim of Present Study 92

Method 92

Participants 92

Measures 94

Symptoms of Anxiety 94

Symptoms of Depression 94

Symptoms of Stress 94

Screen Time 94

Internalising and Externalising Problems 95

Procedure 95

Analysis Plan 96

Results 97

Bivariate Correlational Analyses 98

Mediation Analyses 100

Discussion 106

Prelude to Chapter Six 109

CHAPTER 6: A Longitudinal Study of the Effects of Parental Mental Health and Handheld Devices on Child Outcomes 111

Abstract 112

Introduction 113

Parental Factors and Screen Time 114

Screen Time and Child Outcomes 116

Aim of Present Research 118

Method 118

Participants 118

Measures 119

Demographic Variables 119

Symptoms of Anxiety 119

Symptoms of Depression 120
Symptoms of Stress 120
Screen Time 120
Internalising and Externalising Symptoms 121
Procedure 121
Analysis Plan 122
Results 123
Discussion 128

CHAPTER 7: General Discussion & Conclusion 133
Summary of Results 133
Theoretical Implications 137
Clinical Implications 141
Strengths of the Present Research 146
Limitations of the Present Research and Future Directions 149
General Conclusion 153
References 155
Appendices 199
Appendix A: Participant Information Sheet 199
Appendix B: Participant Consent Form 202
Appendix C: Ethics Approval Letters 203
Appendix D: Stakeholder Approval Letters 209
Appendix E: Additional Results and Tables 215

List of Figures

CHAPTER 2:

Figure 1. *Model 1: Direct effects of screen time and NAPLAN reading scores*…...52

Figure 2. *Model 2: Direct effects of screen time and NAPLAN writing scores*…....52

Figure 3. *Model 3: Direct effects of screen time and NAPLAN numeracy scores*...53

Figure 4. *Model 4: Direct effects of screen time and NAPLAN spelling scores*…...53

Figure 5. *Model 5: Direct effects of screen time and NAPLAN grammar/punctuation scores*…….…....54

CHAPTER 3:

Figure 1. *PRISMA flow diagram outlining the study selection process*……...68

CHAPTER 5:

Figure 1. *Results for the model testing the mediating effects of parental and child phone and tablet use on the relationship between parental anxiety and internalising problems in children*……..…….....102

Figure 2. *Results for the model testing the mediating effects of parental and child phone and tablet use on the relationship between parental depression and internalising problems in children.*……..102

Figure 3. *Results for the model testing the mediating effects of parental and child phone and tablet use on the relationship between parental stress and internalising problems in children.*…….....103

Figure 4. *Results for the model testing the mediating effects of parental and child phone and tablet use on the relationship between parental anxiety and externalising problems in children*…….....104

Figure 5. *Results for the model testing the mediating effects of parental and child phone and tablet use on the relationship between parental depression and externalising problems in children.*…….....104

Figure 6. *Results for the model testing the mediating effects of parental and child phone and tablet use on the relationship between parental stress and externalising problems in children.*…….....105

List of Tables

CHAPTER 2:

Table 1. *Demographic characteristics of the sample at T1 collected in 2008-09*…46

Table 2. *Means, Standard Deviations and Bivariate Correlations among Key Study Variables and Covariates*…….....50

Table 3. *Model-Fit Indices*..……..…….....51

CHAPTER 3:

Table 1. *Characteristics of eligible studies*...…….....72

CHAPTER 5:

Table 1. *Descriptive Statistics of Demographic Variables*…….....93

Table 2. *Descriptive Statistics of Key Study Variables*……..….....97

Table 3. *Bivariate Correlations among Key Study Variables and Covariates*.....9

Table 4. *Path coefficients for associations between parental mental health measures, screen time (hours/day), and internalising and externalising problems in children*…….....100

CHAPTER 6:

Table 1. *Descriptive Statistics of Key Study Variables*…….....123

Table 2. *Bivariate Correlations among Key Study Variables and Covariates*…...125

Table 3. *Results from Linear Regression with Internalising Symptoms as the Dependent Variable*..…….....……..127

Table 4. *Results from Linear Regression with Externalising Symptoms as the Dependent Variable*..……..... 127

APPENDICES:

Supplementary Table 1 *Search terms for databases*……....215

Supplementary Table 2. *Path coefficients for associations between parental mental health measures, screen time (hours/day), internalising and externalising problems in children, and covariates*..…….....215

Supplementary Table 3. *Results from Linear Regression with Child Screen Time as the Dependent Variable*..…….....217

Glossary of Key Terms

Term	Definition
Academic achievement	Any identifiable success in the areas of education or disciplined study.
Anxiety	An emotion characterised by apprehension and somatic symptoms of tension in which an individual anticipates impending danger, catastrophe or misfortune.
Attachment	The emotional bond between a human infant or a young nonhuman animal and its parent figure or caregiver.
Attunement	The matching of affect between infant and parent or caregiver to create emotional synchrony.
Depression	A negative affective state, ranging from unhappiness and discontent to an extreme feeling of sadness, pessimism and despondency that interferes with daily life.
Developmental outcomes	A consequence on the social, emotional and behavioural development including features of child development, such as prosocial skills, emotional expression, self-regulation and hyperactivity.
Externalising problems	A group of emotional and behavioural symptoms that is contained outside of the self. These include aggression, conduct problems, delinquent behaviour, oppositionality, hyperactivity and attention problems.
Handheld devices	A piece of computing equipment that can be used in the hand, such as a smartphone or tablet.
Handheld screen time	The amount of time spent using a device that is used in the hand, such as a smartphone or tablet.
Internalising problems	A group of emotional and behavioural symptoms that refer to processes within the self. These

	include anxious and depressive symptoms, social withdrawal and somatic complaints.
Mental health	A person's condition in relation to their psychological and emotional wellbeing.
National Assessment Program for Literacy and Numeracy (NAPLAN)	A standardised national curriculum assessment undertaken by Australian students in Grade 3, 5, 7 and 9 in numeracy and literacy skills.
Reinforcement	A consequence that follows an operant response that increases (or attempts to increase) the likelihood of that response occurring in the future.
Screen time	Screen time is the amount of time spent using a device with a screen, such as a smartphone, computer, television or video game console.
Sedentary behaviour	Any waking behaviour characterised by an energy expenditure ≤1.5 METs while in a sitting, reclining or lying posture
Stress	A state of mental or emotional strain or tension resulting from adverse or demanding circumstances.
Technoference	The interruptions in interpersonal communication caused by attention paid to personal technological devices.
Traditional screen time	The amount of time spent using older forms of technology such as television, computers or video game consoles.

Abstract

This technological era has witnessed an increasing number of young children engaging in the use of handheld devices such as smartphones, iPads, and tablets; now widely accessible for both recreational and educational purposes. Parents shape screen habits and behaviours in children, and the subsequent effects of this device use on their developmental outcomes are unclear. This thesis aimed to examine: 1) the relationship between parental mental health and other parental characteristics and child screen time (ST), and 2) the effects of ST on the developmental outcomes of children. This thesis is structured around four studies, comprising an analysis of a secondary longitudinal dataset, a systematic review, a cross-sectional study and a longitudinal study. Study one consisted of an analysis of a secondary dataset namely *"Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)"* (Soloff et al., 2005). This study investigated the temporal effects of television (TV), computer and gaming console use on the academic achievement of children aged 4-5 years on enrolment (N=2954). This study supported previous findings that TV, computer and gaming console use had a negative association with academic achievement across time. Study two was a systematic review of the existing literature in the field. Twenty studies were included in the review, of which 15 studies examined parental characteristics associated with child handheld ST and five studies investigated the effects of screens on developmental outcomes in children. Study three was a cross-sectional study of 214 parents with children aged 4.5-6 years, which examined the relationships between parental mental health, handheld ST and child outcomes. Finally, study four (N=101, M_{age} at T1=5.25, SD_{age}=.44, M_{age} at T2=6.51, SD_{age}=.52) utilised data from the previous study to capture the longitudinal effects of the key variables. Collectively, this thesis identified many parental characteristics that contribute towards children's exposure to screens. In

particular, this thesis was among the first to consider studies that examined specific symptoms of parental mental health in relation to ST. This research found that parents with poorer mental health are more likely to have children who engage in greater ST, as well being more likely to engage in more ST themselves. Overall, these findings can inform policy development and guidelines tailored to parents with poor mental health, where warranted. Future research may consider factors such as screen content, and the context and conditions under which ST is engaged in, rather than just the amount of exposure to ST.