IS THE PROJECT MANAGEMENT FIELD SUFFERING FROM METHODOLOGICAL INERTIA? LOOKING FOR EVIDENCE IN PUBLICATIONS IN A RECENTLY ESTABLISHED JOURNAL.

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ABSTRACT

Project management (PM) researchers have traditionally used quantitative methods in their research due to the origins of this practice-based discipline in defence and engineering. Although qualitative methods are starting to be used in PM research, most of the qualitative research reported tends to use case studies. Recently, there has been a call for PM researchers to use more novel methods to increase the variety of methods used by the researcher in the field contributing to its further development (Drouin, Muller and Sankaran 2013; Cameron, Sankaran and Scales 2015). A review of papers presented at the International Research Network on Organizing by Projects (IRNOP) conference in Berlin in 2009 showed a surprising trend that papers presented at these conferences used more qualitative methods in comparison with articles published in key PM journals. This paper analyses articles published over the past six years in a comparatively new PM journal, since its inception, to explore whether the new journal has motivated PM researchers to overcome their methodological inertia and broaden the variety of research methods they use. A mixed methods prevalence study was undertaken on articles published in the International Journal of Managing Projects in Business (IJMPiB) from 2008 to 2014 (n=265). The findings point to methodological inertia in the majority of research but also an unusually high proportion of the use of mixed methods. Future research is needed to add finer granularity to the analysis.

Keywords: Project Management; Research Methods; Methodo

Is the project management field suffering from methodological inertia? Looking for evidence in publications in a recently established journal

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Abstract

Project management (PM) researchers have traditionally used quantitative methods in their research due to the origins of this practice-based discipline in defence and engineering. Although qualitative methods are starting to be used in PM research, most of the qualitative research reported tends to use case studies. Recently, there has been a call for PM researchers to use more novel methods to increase the variety of methods used by the researcher in the field contributing to its further development (Drouin, Muller and Sankaran 2013; Cameron, Sankaran and Scales 2015). A review of papers presented at the International Research Network on Organizing by Projects (IRNOP) conference in Berlin in 2009 showed a surprising trend that papers presented at these conferences used more qualitative methods in comparison with articles published in key PM journals. This paper analyses articles published over the past six years in a comparatively new PM journal, since its inception, to explore whether the new journal has motivated PM researchers to overcome their methodological inertia and broaden the variety of research methods they use. A mixed methods prevalence study was undertaken on articles published in the *International Journal of Managing Projects in Business* (IJMPiB) from 2008 to 2014 (*n*=265). The findings point to methodological inertia in the majority of research but also an unusually high proportion of the use of mixed methods. Future research is needed to add finer granularity to the analysis.

Keywords: Project Management; Research Methods; Methodological Inertia

1. Introduction

1.1. This paper presents the findings from an analysis of articles published over the past six years in a comparatively new project management (PM) journal, *The International Journal of Managing Projects in Business* (IJMPiB), since its inception, to explore whether a new journal has motivated PM researchers to overcome their methodological inertia and broaden the variety of research methods they use.

1.2. This study forms part of a broader body of work investigating researchers' choice of methods, particularly the use of mixed methods, in various management fields. The use of novel methods by a research community represents a willingness to try new approaches when addressing research questions, and such willingness is indicative of creativity in problem solving.

1.3. This paper is structured as follows. First, a brief review of the literature reporting on the trends in research in the PM community is presented to support the research question being investigated. Next, the methodology used to answer the research question is presented including how the data was collected and analysed. Then, a detailed data analysis is presented supported by tabular and visual representation of the findings. This is followed by a discussion about the significance of the findings. The limitations of this study are then explained followed by the conclusions and future plans arising from this study.

2. Literature Review

2.1. In 2002, Kloppenborg and Opfer published the results of a major study in the *Project Management Journal* (PMJ), titled "The current state of project management research: Trends, interpretations, and predictions". The study was very broad, covering research published in English, from 1960 through to 1999. Over 100,000 entries were considered for inclusion, involving 92 people working approximately 6,000 hours. They described how they framed their research.

> For the purposes of this study, project management research is defined to include published works that are based upon data (either primary or secondary) and that make generalizable conclusions drawn from the data, where the data and conclusions are focused on either the project management context or the management activities (not the

technical activities) needed to complete a project successfully. (Kloppenborg and Opfer, 2002, p6)

2.2. In Kloppenborg and Opfer's study, research was only included if it made generalizable conclusions, which they further defined as being "… able to draw inferences beyond the individual case" (ibid, p6). This definition clearly excludes much qualitative and particularly case study-based research, which is not designed to enable inferences to be drawn beyond the case(s) in question. The authors' positivist epistemological stance seems to have led them to exclude interpretivist research in PM from consideration.

2.3. Other scholars have also investigated PM research. Smyth and Morris (2007) set out to "… evaluate the extent to which our knowledge of projects is being developed through the appropriate application of methodology in research" (ibid, p423). The empirical component of their study involved a detailed review of all 68 articles published in the *International Journal of Project Management* (IJPM) during 2005. Their task was made more difficult as more than 90% of the authors did not make their methodology explicit. The authors had to infer the methodology through the methods used and the conclusions drawn. Their sample included, for instance, 16 articles where authors had seemingly confused methods as methodology (ibid, Table 1). They concluded from their data that positivism was the dominant epistemological stance, comprising over 60% of the sample. However, this included six articles where general conclusions were drawn from case study data, which they saw as "methodologically contradictory" (ibid, p433).

2.4. Smyth and Morris's data does, however, point to an improvement on the early days of PM research. In a 2010 editorial in the IJPM, Turner (2010) published the results of a study into trends in PM research as evidenced by articles published in that journal in the years 1987, 1997 and 2007.

2.5. One of the criteria used for investigation was to check whether a methodology section had been included in the articles. The results were 3%, 29% and 72%, respectively, indicating that authors are becoming more aware of the necessity to explain their methodology in their publications. This also shows indirectly that they think about methodology before they carry out their research.

2.6. Biedenbach and Müller (2011) took a similar systematic sampling approach to investigate "philosophical stances and related methodologies" in conference papers presented at the International Research Network on Organizing by Projects (IRNOP) conferences in the years

1994, 2000 and 2007, showing "… a dominance of ontological subjectivism and epistemological interpretivism, with a preference for case studies and qualitative methods" (ibid, p82). Ontological subjectivism comprised 90%, 84% and 84%, respectively, in their sampled years, with epistemological interpretivism comprising 70%, 57% and 70%, respectively. They suggest that this "… dominance might be explained by IRNOP being founded by Umeå School of Business in 1994, which has a tradition of qualitative research, aiming for sense making and increasing understanding of phenomena" (ibid, p95).

2.7. IRNOP conference papers and the output from the Scandinavian School (Bredillet, 2007; Biedenbach and Müller, 2011), in general, seem to be atypical of PM research from Europe, with many authors agreeing that the field is steadfastly positivist in its outlook (Hodgson, 2002; Bredillet, 2004; Williams, 2004; Cicmil, Williams, Thomas and Hodgson, 2006).

2.8. This positivist outlook is often explained by taking an historical perspective on the development of PM as a distinct field of management expertise. Lenfle and Loch (2010), for instance, linked the genesis of modern PM to the mega defence projects of the 1940s and 1950s — the Manhattan Project, and the Atlas, Titan and Polaris missile projects. PM was seen at that time as innovative and flexible and the period ended with Gaddis hailing the arrival of a "new type of manager" in the *Harvard Business Review* (Gaddis, 1959, p89).

2.9. Studies of the evolution of PM research (Kloppenborg and Opfer, 2002; Turner, 2010) have also provided an historical perspective on how instrumental approaches came to dominate during the 1970s and 1980s, when the tools and techniques that have come to define project management were being brought together as a distinct corpus of knowledge. The 1990s saw the codification of this research base with the publication of competency standards and knowledge guides for PM: APM Body of Knowledge (UK), 1993; Australian National Competency Standards for Project Management, 1996; PMBOK® Guide (USA), 1996; National Vocational Qualification in (generic) project management (UK), 1997; IPMA Competence Baseline (CH), 1999. Bredillet (2009, p5) described the period 1995–2004 as the "Times of Glory" for PM research during which the publication of academic peer-reviewed articles grew by an average of 14% pa.

2.10. Instrumental approaches, however, would seem to sit more comfortably with a pragmatic rather than a positivist epistemology and this may be indicative of the differing agendas pursued by practitioner researchers and academic researchers. The allure of positivism may also be

particularly strong since PM is generally held to lack any unifying theory (Turner, 1999; Morris, 2002; Winter, Smith, Morris and Cicmil, 2006). Being without a unifying theoretical framework, PM researchers are particularly at risk of the "mechanical and uncritical application of habits of thought" (Hayek, 1952, p15) developed for other disciplines, particularly science and engineering in the attempt to "prove" their hypotheses.

2.11. Jacobsson and Söderholm (2011, p380), for instance, noted in their meta-analysis of PM research that the "taken for granted" assumptions that underpin the theoretical and practical understanding prevalent in a community can "become so strong that they shape the practice". The dangers have not gone unnoticed and the epistemological assumptions underpinning the methods used to investigate PM research questions have themselves been the subject of recent research, often with a view to expanding the repertoire (Morris, 2002; Melgrati and Damiani, 2002; Bredillet, 2004; Winter, Smith, Morris and Cicmil, 2006; Cicmil, Williams, Thomas and Hodgson, 2006; Smyth and Morris, 2007; Chia, 2013; Whitty, 2013; Clegg and Kreiner, 2013, Drouin, Muller and Sankaran 2013).

2.12. Given that the generally held view mentioned above that much PM research is steadfastly positivist and yet the history of PM practice and the development of its corpus of knowledge seems to indicate a prevailing instrumental, problem-solving philosophy, we undertook to investigate the types of methodologies PM researchers have more recently been choosing. We were specifically interested in any evidence for the level of methodological inertia exhibited in PM research as a proxy for the more difficult to address questions regarding ontological and epistemological stances taken by researchers — "methodological inertia" being the use of the same tried and trusted methods rather than the application of many and varied methods depending on the research question; the antithesis of methodological inertia being the mixing of methods from different traditions in a single study, that is, mixed methods. The research question then became: what evidence exists for methodological inertia within PM research?

2.13. To complement the existing data available on research methods referenced above, we chose to focus on the IJMPiB, which has been publishing research papers since 2008.

2.14. We wanted to see if a new journal in the field that promises to link business and PM attracted articles using a variety of methodologies. This study categorises all 265 peer-reviewed articles published since the inception of the journal to the end of 2014.

3. Methodology

3.1. A mixed methods prevalence rate study was conducted on articles published in the IJMPiB from 2008 to 2014.

3.2. Mixed methods prevalence rate studies aim to discover the extent and current role research methods play in a specific field/discipline through a process of content analysis of empirical studies. Alise and Teddlie (2010) refer to these as prevalence rate studies emerging from within the mixed methods research (MMR) community. Cameron and Molina-Azorin (2011) conducted a comprehensive investigation into the acceptance of mixed methods in business and management research by synthesising the results of several MMR prevalence studies across the disciplines of marketing, international business, operations management, entrepreneurship, strategic management, organizational behaviour and human resource management, and found that 14% of the articles used mixed methods. Cameron, Sankaran and Scales (2015) conducted a similar study with three key PM journals and found only 1.5% of the 1755 articles analysed used mixed methods. Although mixed methods prevalence studies have a particular focus on the utility of mixed methods within a field/discipline, the approach also allows for a scan of the methodological approaches across the categories used: quantitative; qualitative; mixed methods; and conceptual. This study has included a fifth category to capture and effectively exclude the significant number of thesis summaries published in the IJMPiB. While interesting in their own right, these summaries of previously published material do not fit within the evaluation criteria of this paper and have therefore not been included in the analysis.

3.3. The authors of this paper agreed that they would first classify the articles as per Table 1:

Qualitative
Quantitative
Mixed Methods
Conceptual
Thesis Summary*

Table 1 Classification Categories

*Published frequently in the IJMPiB

3.4. Within these major classifications, a detailed analysis was planned to further classify the articles by examining the methods used based on the terms used in prominent research texts (Gray 2014; Punch 2005; Silverman 2010; Seale et al. 2004; Stake 2010; Symon and Cassell

2012; Bryman and Bell 2007; Drouin, Muller and Sankaran 2013). This allowed the creation of lists of commonly used terms that can be mapped onto the much more complex conceptual landscape that links philosophy, methods and design in research.

3.5. Table 2 shows the variety of methods that we looked for in the articles classified as qualitative research methods.

3.6.

Interviews
Focus groups
Observation
Content analysis
Grounded theory
Discourse analysis
Action research
Delphi
Case study
Ethnography
Phenomenology
Actor-Network Theory
Other

Table 2 Qualitative Methods

3.7. Table 3 shows the variety of methods that we looked for in the articles classified as quantitative research methods.

3.8.

Survey
Structured Interviewing
Structured Observations
Experimental design
Quasi-experimental design
Simulation
Cluster Analysis
2ndy data analysis numeric
Pre & Post Test
Other

Table 3 Quantitative Methods

3.9. Table 4 shows the variety of methods that we looked for in the articles classified as using mixed methods.

Interviews
Focus groups
Observation
Content analysis
Grounded theory
Discourse analysis
Action research
Delphi
Case study
Ethnography
Phenomenology
Actor-Network Theory
Qual. Other
Survey
Structured Interviewing
Structured Observations
Experimental design
Quasi-experimental design
Simulation
Cluster Analysis
2ndy data analysis numeric
Pre & Post Test
Quant. Other

Table 4 Mixed Methods

3.10. One of the authors of this paper looked at all the articles and divided them into the five main classifications. The articles were then distributed between the three authors who analysed the methods used by reading the articles. Complex or borderline articles were reviewed by more than one author to ensure consensus in the analysis results.

4. Data Analysis

4.1. Prevalence data was analysed directly from the coding spreadsheet by summarising data by category, year of publication and type of method. Table 5 shows all 265 peer-reviewed

articles categorised by type. The IJMPiB is unusual in that a significant proportion of its articles are summaries of doctoral theses. These were categorized separately as they were not primary publications of empirical data or results. The numbers in the conceptual category were increased by special issues which had sections focusing on particular topics. Of the four issues annually, the frequency for special issues was: 1 in 2010, 3 in 2012, 1 in 2013 and 3 in 2014. The effects of this can be seen in the distribution by year of publication. Overall, and in individual years, the use of qualitative methods outweighs the use of quantitative and mixed methods combined. Focusing only on empirical articles (*n*=149) this study found 69% Qualitative (*n*=102), 16% Quantitative (*n*=24) and 15% Mixed Methods (*n*=23) articles. This is in marked contrast to Cameron and Molina-Azorin (2011), who found the proportions to be 10% Qualitative, 76% Quantitative and 14% Mixed Methods across 2353 articles published in 12 journals from across a variety of management discipline journals. Focusing only on the Mixed Methods articles, comparison can be made with Sankaran, Cameron and Scales (2012, Table 5) analysis of the prevalence of Mixed Methods use in PM journals (2004–2010; IJPM, IEEE-TEM) and PMJ) finding only 1.5% in 1755 articles analysed.

	2008	2009	2010	2011	2012	2013	2014	Total	
Qual	11	12	18	18	12	17	14	102	38%
Quan	3	5	2	2	3	5	4	24	9%
MM	2	2	2	5	3	4	5	23	9%
Conceptual	11	7	8	5	20	7	15	73	28%
Thesis	9	7	6	8	3	7	3	43	16%
	36	33	36	38	41	40	41	265	

Table 5 Papers Categorised by Type of Data Analysis Method

4.2. Table 6 shows the prevalence of methods used across all articles categorised as Qualitative, 287 methods in 102 articles or an average of 2.8 methods per article. While the standard business research tools of case study, interviews, content analysis and observation together comprise 81% of the methods used, the remaining 19% are more eclectic and can be seen to vary year by year in the distribution. Smyth and Morris (2007, Table 1) identified 24

instances of case studies and 14 of interviews from 116 methods in 68 articles in the IJPM, and Biedenbach and Müller (2011, Table 1) identified 65 instances of case studies and 14 of interviews from 116 methods in 94 articles (when excluding the Conceptual category).

Qual	2008	2009	2010	2011	2012	2013	2014	Total	
Interviews	6	9	14	11	8	17	13	78	27%
Focus groups	0	2	1	1	0	1	0	5	2%
Observation	2	3	3	4	7	7	3	29	10%
Content analysis	2	4	4	7	4	10	12	43	15%
Grounded theory	1	1	1	2	0	0	2	7	2%
Discourse analysis	1	1	1	2	0	1	0	6	2%
Action research	3	3	1	1	1	2	1	12	4%
Delphi	1	0	0	0	1	0	0	2	1%
Case study	9	10	11	13	11	17	12	83	29%
Ethnography	0	0	0	0	3	0	0	3	1%
Phenomenology	2	0	3	1	0	3	1	10	3%
Actor-Network Theory	1	0	1	2	0	1	0	5	2%
Other	0	0	0	1	1	0	2	4	1%
	28	33	40	45	36	59	46	287	

Table 6 Instances of Qualitative Methods Use in Papers categorized as Qualitative

4.3. Table 7 shows the prevalence of methods used across the 24 articles categorised as Quantitative. Each article used only one method. Twenty-three articles used survey methods and one used structured interviewing. The single instance of a non-survey method was in 2010 as can be seen from the distribution. Smyth and Morris (2007, Table 1) identified 27 instances of survey use in 68 articles, and Biedenbach and Müller (2011, Table 1) 19 instances in 94 articles. Neither Smyth and Morris nor Biedenbach and Müller identified any significant use of alternative quantitative methods.

Quan	2008	2009	2010	2011	2012	2013	2014	Total	
Survey	3	5	1	2	3	5	4	23	96%
Structured Interviewing	0	0	1	0	0	0	0	1	4%
Other	0	0	0	0	0	0	0	0	0%
	3	5	2	2	3	5	4	24	

Table 7 Instances of Quantitative Methods Use in Paper categorized as Quantitative

4.4. Table 8 shows the prevalence of methods use across the articles categorised as mixed methods, 63 methods in 23 articles. Qualitative methods comprise 62% and quantitative methods 38%, mostly from the use of surveys. Interestingly, the average number of methods per article is lower than in the qualitative category at 2.7 methods per article.

MM	2008	2009	2010	2011	2012	2013	2014	Total	
Interviews	1	2	1	3	3	2	5	17	27%
Focus groups	0	0	0	1	1	0	1	3	5%
Observation	0	0	1	2	0	0	0	3	5%
Content analysis	0	0	1	1	0	1	0	3	5%
Grounded theory	0	0	0	0	1	0	0	1	2%
Case study	2	0	1	3	0	2	2	10	16%
Qual Other	0	0	1	1	0	0	0	2	3%
Survey	1	2	1	5	3	4	3	19	30%
Cluster Analysis	0	0	1	0	0	1	0	2	3%
2ndy data analysis numeric	0	0	0	0	0	0	1	1	2%
Pre & Post Test	1	0	0	0	0	0	0	1	2%
Quan Other	0	0	0	0	0	0	1	1	2%
	5	4	7	16	8	10	13	63	

Table 8 Instances of Qualitative and Quantitative Methods in Papers categorized as Mixed Methods

5. Discussion

5.1. PM is a practical discipline and lauds the reflexive practitioner who can learn from self-observation. This paper adds to the relatively small pool of observational data on choice of

research methods within the PM research community and extends that data to include one of the newer journals.

5.2. This study identified 374 instances of method use in 149 empirical articles, 87% of which were qualitative methods and 13% quantitative, across the three empirical categories used (Qualitative, Quantitative and Mixed Methods). This aligns with Smyth and Morris's (2007) analysis, which we summarise as 77% qualitative and 23% quantitative, as well as Biedenbach and Müller's (2011) analysis, which we summarise as 84% qualitative and 16% quantitative. Our results are more qualitatively biased than Turner's (2010, Table 3), which we summarise as 50% qualitative and 50% quantitative from the descriptions provided. However, both Turner and Smyth and Morris analysed the IJPM at different times and in different ways. These data can be contrasted with Turner, Pinto and Bredillet (2011), who published data on the PMJ for the years 1997 and 2007 (Table 3.6), which we summarise as 36% qualitative and 64% quantitative, as well as the IEEE-TEM for the same years (Table 3.9), which we summarise as 35% qualitative and 65% quantitative.

5.3. Gemünden (2014) has also conducted an analysis of articles published in the IJPM and PMJ over an extended period, 2000 to 2011. Presentation of the data associated with this study at the 2011 IRNOP conference held in Montreal (personal communication) included a categorisation of the articles by type of study; qualitative, quantitative, theory-conceptual, meta-analysis or review and simulation-scenario. Focusing only on the qualitative and quantitative categories as empirical articles, we summarise Gemünden's data as 55% qualitative, 45% quantitative for the PMJ and 56% qualitative, 44% quantitative for the IJPM over the full data range. Interestingly, the balance between qualitative and quantitative was seen to change over the period, with qualitative articles growing steadily from near parity with quantitative articles in 2000-2002 to significantly outnumbering them in 2009-2011. Gemünden's data then aligns with Turner's at the beginning of the sample period and approaches the more qualitative balance of the other data sets towards the end.

5.4. It is difficult to reconcile this data with the view that PM research is largely positivist as Smyth and Morris do, although they specifically investigated epistemological stances whereas we have focused on the prevalence of methods used. This leaves open the possibility that a significant proportion of methods are being misapplied and that the epistemological assumptions implicit in their construction are not being taken into account.

5.5. Within the qualitative category methods, the majority (81%) focused on the intuitively straightforward case study approach, where you talk to people, observe what they do and review their documentation. Several more theoretical approaches account for most of the remainder, with no favourites evident from the data.

5.6. The situation becomes more interesting with quantitative methods. Methodological inertia seems quite evident when a purely quantitative approach is taken, with the survey being almost the only tool in the shed. However, once methods start to be mixed, any sense of orthodoxy starts to be eroded as other, more theoretically complex, methods gain currency. On this evidence, the rise of mixed methods as an alternative research paradigm is an encouraging development within the project management research community.

6. Limitations

6.1. This study is limited to a single journal with a relatively short publication history and may not be indicative of the broader field of PM research. Indeed, the results show methodological differences when compared with available data on other journals.

6.2. The categorisation process used in this study is subjective. Even in instances where an article being categorised has a detailed methodology section, which fortunately is becoming more common, there is a necessary amount of interpretation based on experience and knowledge of standard research techniques.

6.3. This study compares results from studies undertaken by different researchers pursuing different research questions using different analytical techniques. Such comparisons have been kept at the broadest level possible to limit differences in the use of specific terms.

6.4. The level of analysis included in this study is necessarily brief given the short time between the availability of the data (end 2014) and the submission deadline date (Jan 2015) of the EURAM conference. Further analysis is planned in the future.

7. Conclusions

7.1. Methodological inertia is evident in the high proportion of research conducted using the standard methods of case studies and surveys. Case studies and the associated methods of interviews, content analysis and observation account for over 80% of all instances of qualitative methods use; qualitative and mixed methods categories combined (n=326). Surveys account for

87% of quantitative methods use; quantitative and mixed methods categories combined (n=48).

7.2. Notwithstanding the choice of methods remaining generally conservative, the proportion of empirical papers categorized as mixed methods was high (15%) when compared with the data available for other PM journals (1.5%). This indicates that a significant proportion of researchers publishing in the IJMPiB are innovative in their choice of research design if only being slightly more varied in their choice in methods.

7.3. The IJMPiB also seems to align more closely with the IJPM than PMJ or the IEEE-TEM in terms of the balance of qualitative versus quantitative methods in published papers. That perceived editorial style can be a significant influencer of author's choice of journal for publication is a topic the authors have commented on elsewhere (Cameron, Sankaran and Scales 2015).

7.4. Our analysis shows that the new journal IJPMiB has attracted PM researchers who use a variety of methods. IJPM, an established journal, is also attracting new methods being reported in its articles. PMJ has recently started publishing articles with new methods and a special issue devoted to methodology is also forthcoming in 2015, including articles using action research and ethnographic research. These articles were submitted from the papers presented in a special track on novel research methods in PM presented at the EURAM 2013 conference in Istanbul. It looks like such special tracks motivate researchers to use innovative methods. IEEE-TEM has published articles with new methods in areas other than PM and it is expected that PM researchers will submit articles using newer methods to this journal as well.

7.5. "Companies are increasingly keen on projects. Why, when so many fail?", asked *The Economist* in its 11 June 2005 issue, going on to observe that "business as usual" for many modern companies comprises a portfolio of projects. "Nike, for instance, does not make shoes any more; it manages footwear projects" (ibid). PM is recognized as an important management approach but one that also has significant issues. Research into resolving these issues is unlikely to be fruitful if the same old approaches are applied to new data; we need to be creative in our problem solving, taking new perspectives and generally think "outside the box".

7.6. The authors want to continue further analysis of the articles analysed for this paper to investigate the reporting of the underpinning philosophical paradigms used by PM researchers.

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