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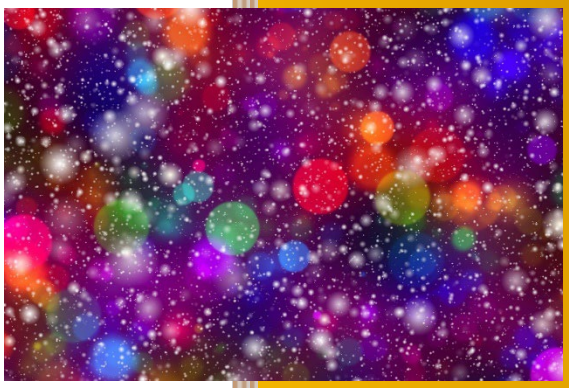

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Contents

Content Analysis or Thematic Analysis: Doctoral Students' Perceptions of Similarities and Differences

Niklas Humble and Peter Mozelius
Mid Sweden University, Östersund, Sweden
niklas.humble@miun.se
peter.mozelius@miun.se

Abstract: This paper is a review of content analysis or thematic analysis which is further explored though the lens of impressions of doctoral students who attended a presentation on the subject.The long tradition of quantitative research still dominates many university courses on research methodology and data analysis. During the 20th century the field of qualitative research has had a growing need for new analysis methods that accommodate qualitative data and two frequently used methods are content analysis and thematic analysis. They have several things in common and sometimes, they have been understood by researchers to be interchangeably. It has been argued by some researchers that conventional content analysis has really the same functional approach to analysing data as an inductive thematic analysis. This study reports on two webinars on qualitative analysis involving doctoral students and facilitated by the authors. The webinars presented, discussed content analysis and thematic analysis, and gathered participants' reflections on these methods using a Padlet (padlet.com). The aim of the study was to analyse and describe doctoral students' perceptions of content analysis and thematic analysis. The data collected has been analysed using conventional content analysis applying an abductive coding approach. The study identifies several perceived similarities and differences between the two methods, but also opportunities and challenges for applying them. Findings highlight that the two methods are perceived to be applicable to different types of research. Furthermore, they offer similar challenges to the researcher including their potential for bias and could be considered a choice between an intuitive and a practical approach to analysis. Many of the identified perceptions can be related to previous literature on content analysis and thematic analysis. However, other perceptions seems to indicates a need for more thorough and nuanced discussions on methods for qualitative analysis. The study suggest that more efforts should be made to support doctoral students in attaining a nuanced understanding of qualitative methods for analysis.

Keywords: Content analysis, Thematic analysis, Qualitative analysis, Qualitative research, Nuanced understanding

1. Introduction

There is a long tradition of quantitative research that still has a significant impact on the design of university courses on research methods. The more recent phenomenon of qualitative research could be traced back to the 1920s and the pioneer work by the Austrian-American sociologist, Paul Lazarsfeld (Bailey, 2014). He played an important role for 20th-century empirical sociology, and among many other contributions, he developed new analytical methods (Jeřábek, 2001). After the Second world war, qualitative methods began to be stablish in research fields such as journalism, sociology, business psychology, communication studies, and anthropology. On the other hand, quantitative methods are still frequently used in these research fields (O'Dwyer & Bernauer, 2013; Grossman & Cohen, 2017), and with an emerging use of combining the two in mixed method approaches (McCusker & Gunaydin, 2015; Bernard, 2017).

There are many different approaches for analysing qualitative data. Some examples of well-established methods for qualitative data analysis are content analysis, thematic analysis, open coding, axial coding, narrative analysis, phenomenological analysis, and discourse analysis (Hsieh & Shannon, 2005; Nowell et al., 2017; Walia, 2015). Unlike open coding and axial coding that are aligned to grounded theory, and phenomenological analysis that is developed for phenomenological studies, content analysis and thematic analysis do not require any specially focused research strategy. This study had a focus on content analysis and thematic analysis, and the comparison of the two. Content analysis and thematic analysis share a common approach to qualitative data analysis, and since they often have been used interchangeably, they can be difficult to distinguish and choose between in research study design. This is especially true for doctoral students and unexperienced researchers in the qualitative field. Therefore, this study focuses on the perceptions of content analysis and thematic analysis by doctoral students after attending a webinar where these two methods were presented, discussed, and applied by the participants.

To get a better understanding of content analysis, this study has made a distinction between Conventional content analysis, Directed content analysis, and Summative content analysis. These three different approaches and their differences and similarities compared to thematic analysis, are seldom explained and discussed in doctoral courses on research methods. It has been argued that the conventional content analysis has the same main approach to analyse data as an inductive thematic analysis. Without knowledge about thematic analysis, the different types of content analysis and the distinction between induction and deduction, doctoral students and unexperienced researchers can find it problematic to distinguish and choose between them.

The overall research question to answer was:

What are doctoral students' perceptions of content analysis and thematic analysis after participating in a webinar where these two approaches were presented, applied, and discussed?

2. Extended background

A quantitative content analysis was used as early as in the early 19th century by Thomas Young in the deciphering of the Rosetta Stone hieroglyphs (Larmor, 1934). The first use of a qualitative content analysis that has been documented was in 1893, in a study with the aim of finding patterns in Shakespeare texts (Sumpter, 2001). Thematic analysis is a more recent method for analysis that was more strictly defined by Boyatzis (1998), and by Braun and Clarke (2006). However, thematic analysis had been used earlier in research fields such as psychology, literature, business study, and sociology, but presented in other terms (Boyatzis, 1998).

Thematic analysis has its roots in the older tradition of content analysis, and shares many of the principles and procedures (Joffe, 2012) that originate from a historically quantitative tradition that dates back to the early 20th century within social sciences, and even further back in the humanities (Smith, 2000). In content analysis, as well as in thematic analysis, themes, patterns, and codes should be identified and grouped in mainly two different ways: inductively or deductively (Braun & Clarke, 2006). Using the inductive approach, the identified themes, patterns, or codes emerges from the data, in what could be described as a data driven bottom-up process (Patton, 1990; Braun & Clarke, 2006). This should be compared to the more theory driven deductive approach, where data are analysed in a top-down process using codes chosen earlier (not from the data itself) and supported by theory or previous research (Boyatzis, 1998; Braun & Clarke, 2006).

2.1 Content analysis

The term content analysis includes a continuum of analytic approaches in a wide range, from impressionistic and more intuitive analyses to the side of systematic and structured analyses (Rosengren, 1981). This wide variety makes content analysis useful in many different research fields, with the idea that the type of content analysis to use is depending on the study design, and the actual research aim (Weber, 1990). In a frequently cited article by Hsieh and Shannon (2005), three different types of often used described as Conventional content analysis, Directed content analysis, and Summative content analysis (Table 1).

Table 1. Hsieh & Shannon's (2005) summary of three approaches for content analysis

Type of content analysis	Study starts with	Timing of defining codes or keywords	Source of codes or keywords
Conventional content analysis	*Observation*	*Codes are defined during data analysis*	*Codes are derived from data*
Directed content analysis	*Theory*	*Codes are defined before and during data analysis*	*Codes are derived from theory or relevant research findings*
Summative content analysis	*Keywords*	*Keywords are identified before and during data analysis*	*Keywords are derived from interest of researchers or review of literature*

2.1.1 Conventional content analysis

At several universities this approach is seen as the "standard content analysis". The conventional content analysis is often used in research studies where the aim is to explore a phenomenon with limited theory or previous literature (Hsieh & Shannon, 2005). In the conventional content analysis, the researchers work inductively, and avoid the use of pre-defined categories for the analysis. Instead, they create categories that emerges from the collected data set (Kondracki, Wellman & Amundson, 2002). What is seen as an advantage of the conventional approach is the possibility to directly generate information from informants or documents, without any preconceived theoretical lenses.

In a five-step process described by Hsieh and Shannon (2005), the conventional content analysis could be carried out as: Step 1: Immerse yourself actively into the gathered data, read and reread to get a sense of the whole, Step 2: Create codes by close reading, while highlighting key themes and concepts, Step 3: Label preliminary codes from notes of first impressions that reflect multiple key thoughts that are based directly in the data, Step 4: Create categories and subcategories by sorting and grouping codes into clusters, based on the relationship between the codes, and finally Step 5: Develop and fine-tune definitions for categories and codes with extracts from the data set.

2.1.2 Directed content analysis

In research areas with more previous research and existing theory, qualitative researchers could instead choose the directed content analysis. This is a deductive, top-down and theory driven approach (Potter & Levine-Donnerstein, 1999; Hsieh & Shannon, 2005). The directed content analysis has been frequently used in studies that aim to extend the existing theory and the prior description of phenomena. Furthermore, a selected theory or prior research often guides the presentation and discussion on the outcomes of this analysis approach (Hsieh and Shannon, 2005). The directed content analysis is described as a more structured process, compared to the conventional content analysis (Hickey & Kipping, 1996).

With existing theory or previous research as a theoretical lens, the first step is to decide the key concepts or main variables as initial coding categories (Potter & Levine-Donnerstein, 1999). This is followed up by a second step where the operational definitions for categories are guided by the selected theory. In a third step, data should be coded and organised into the predetermined categories. However, it is rare that all the gathered data fit into the predetermined categories, and as a fourth step other relevant data is highlighted. Finally, this is followed up by a fifth step where the highlighted data are reanalysed and grouped into new emerging categories or sorted as sub-categories to the existing categories (Hsieh and Shannon, 2005).

2.1.3 Summative content analysis

The third approach presented in the article by Hsieh and Shannon (2005), is the summative content analysis. This approach which has a quantitative touch where selected words or content in the data are quantified to better understand the contextual use of the words or content. However, summative content analysis should continue beyond the mere frequency counting. The initial frequency counting to derive keywords could preferably be computer-supported and be carried out with a computer-assisted qualitative data analysis software (CAQDAS) tool (Kaefer, Roper & Sinha, 2015).

Structured as a five-step process, a summative content analysis could be carried out as: Step 1: Create the initial coding scheme based on theory, previous research or data, Step 2: Frequency counting of words, patterns or key concepts, Step 3: Calculate and compare the found frequencies in relation to total length of data and/or to different data sources, Step 4: Identify and quantify alternatives by counting frequencies of the alternatives to what was chosen in Step 2, and finally Step 5: Update the calculation and comparison with the identified alternative words, patterns or concepts. (Hsieh & Shannon, 2005).

2.2 Thematic analysis

Despite the wide use of thematic analysis in research fields such as psychology, the term was during many years poorly demarcated and acknowledged (Braun &Clarke, 2006). After the definitions and thorough descriptions by Boyatzis (1998) and Braun and Clarke (2006), the use of thematic analysis increased rapidly and spread into many other research fields. Of all research articles that were published in 2006, the article by Braun and Clarke has the highest number of citations in Google scholar. Some reasons for the increasingly broad use in various research fields might be the straightforward approach for finding themes that are relevant for the chosen research study design, and the actual research question(s). Thematic analysis can be carried out without any frequency counting, as in content analysis, and enable the idea that large data sets can be used and reused for several separate studies with different research questions.

A six-step process for thematic analysis has been presented by Braun and Clarke (2006). The six phases of this process are 1) Familiarising yourself with your data, involving transcription, immersion and taking notes on initial ideas, 2) Generating initial codes from the data that identify a feature of the data, semantic content or latent, that appears interesting, 3) Searching for the themes by collating codes into preliminary themes, 4) Reviewing themes, and checking if the themes work in relation to codes and data extracts (Level 1) and the entire data set (Level 2), 5) Defining and naming the final themes, and refine the specifics of each theme, and the overall story

the analysis tells, and 6) Writing up the presentation of the found theme and fine-tuning the overall story. (Braun and Clarke, 2006)

There are other defined processes for carrying out thematic analyses, one of them is the seven-stage process presented by Norton (2009). Most stages are similar to the Braun and Clarke process, but categories are created already in Stage 2, and there are two separate stages for deleting potential categories (Stage 3), and another for merging categories (Stage 4). Moreover, Stage 6 highlights the importance of describing the found relations between found themes/categories (Norton, 2009, p. 121). What the variations of a thematic analysis process have in common is that the final result of a thematic analysis should describe the most salient constellations of themes in the analysed dataset (Joffe, 2012).

2.3 Deductive and inductive coding

In the discussion on what differentiate qualitative research from quantitative research, a common notion is that qualitative research is mainly associated with induction while quantitative research is mainly associated with deduction (Bergdahl & Berterö, 2015; Bendassolli, 2013). However, there are no hard lines between qualitative and quantitative research and both traditions have examples of induction and deduction (Kennedy & Thornberg, 2018). As highlighted by Love and Corr (2022), most qualitative analysis is to some extent informed by existing theory or literature. However, one important distinction in qualitative research is the one between the deductive and the inductive approaches. The deductive analysis approach explicitly draws from existing theory or frameworks and is often the choice in research studies that attempt to contextualise and problematise existing knowledge (Ravitch & Riggan, 2012). Existing theory and frameworks could be seen as a start list of codes in deductive analyses of qualitative data sources (Miles, Huberman & Saldaña, 2018).

Another view of deduction is the top-down aspect of a theory-led analysis, where deduction could be described as "a type of reasoning that starts with the general or abstract concept and reasons to specific instances" (Bryant & Charmaz, 2007, p. 608). In an inductive analysis themes or categories emerges progressively from an iterative process of rereading data sources and grouping data into meaningful units (Love & Corr, 2022). The inductive approach is a systematic procedure for analysing qualitative data when the analysis is guided by specific evaluation objectives (Thomas, 2006). This has been recommended for analyses where the studied phenomenon has insufficient or fragmented existing knowledge (Elo & Kyngäs, 2008). Compared to deduction, induction has been described as a bottom-up approach (Braun & Clarke, 2006), and "a type of reasoning that begins with study of a range of individual cases and extrapolates patterns from them to form a conceptual category" (Bryant & Charmaz, 2007, p. 608).

3. Method

A qualitative approach was used in this study to gather information about webinar participants' understandings of, and meanings attached to their encounter with, qualitative analysis through content analysis and thematic analysis (Polkinghorne, 2010). Further, the qualitative approach allows for a deep examination of the participants' perceptions of qualitative analysis with content analysis and thematic analysis (Bryman, 2016, p.32-33; Garcia & Quek, 1997). The qualitative approach has been applied in this study with a pragmatist stance for developing knowledge that is useful and can be applied when conducting quantitative research (Goldkuhl, 2012).

3.1 Data collection

Two webinars for doctoral students interested in methods for qualitative analysis and a total of 76 participated in the webinars during the autumn semester of 2021 and the spring semester of 2022. The first webinar (autumn 2021), targeted an international audience of doctoral students and had 60 participants. The second webinar (spring 2022) targeted a Swedish audience of doctoral students and had 16 participants. Both webinars covered the same topic and included the same information and webinar activities.

The information presented about content analysis during the webinars were mainly based on the works by Hsieh and Shannon (2005), Drisko (2005), and Blair (2015). Information presented about thematic analysis during the webinars were mainly based on the works by Braun and Clarke (Braun & Clarke, 2006; Braun & Clarke, 2012; Braun, Clarke & Hayfield, 2019). During the webinars, participants also got the opportunity to conduct, and discuss, content analysis and thematic analysis on mock-up data in breakout-rooms, with approximately 3-5 participants in each room.

At the end of each webinar, a Padlet (padlet.com) was presented for the participants. A Padlet acts as an online noticeboard where multiple collaborators can post notes and comment on other notes. Webinar participants were asked to reflect on challenges and opportunities with, and differences and similarities between, content analysis and thematic analysis in the Padlet. Participants were informed about the intent to use the Padlet for research and that only those who wanted to participate should partake in the Padlet. To protect the identify of participants, from the authors and the other participants, the Padlet was set to be anonymous (that is, no name was required for posting and commenting in the Padlet) and time was allocated for writing in the Padlet during a break or after the webinar had concluded.

The duration of the first webinar was 2 hours, and the Padlet was presented at the end to allow participants to answer the questions after the webinar, without interferences of the webinar facilitators. The Padlet remained open for about 2 months when data were collected. The duration of the second webinar was 3 hours, and the Padlet was presented before a break of approximately 15 minutes. Participants were also encouraged to engage in the Padlet after the webinar had concluded. The Padlet remained open for about 4 months when data were collected. A consequence of the Padlets being anonymous and time for answering the Padlets were allocated during a break and after the webinars is that the authors have no way of knowing how many of the participants engaged in the Padlets.

3.2 Data analysis

To examine the content and meanings expressed in the Padlets, content analysis was used to analyse the collected data. Inspired by what is labelled *conventional content analysis* by Hsieh and Shannon (2005) and an *abductive coding approach* (Graneheim, Lindgren & Lundman, 2017), the analysis was conducted in a number of steps where coding moved between inductive and deductive coding. An advantage of conventional content analysis is further that it does not impose preconceived theory or categories on the collected data but allow for a more direct contact with participants' information. The process of analysis conducted in this study can be described in 3 steps and encompasses 4 practices for content analysis described by Erlingsson and Brysiewicz (2017): familiarise yourself with the data, divide data into units of meaning, formulate codes, and develop categories or themes.

In the first step, the collected reflections in the Padlets were read and re-read for author familiarisation with the data. Through this step, the authors were further able to make an informed decision on whether the collected data were relevant for the intended study, and if the analysis should proceed. After familiarisation with the collected data in the Padlets, authors decided to continue with the study and proceed to the second step of analysis.

The second step of analysis consists of an iterative process of identifying units of meaning, formulating codes, and developing categories through an abductive approach. First, units of meaning were identified in the collected data by relating the posts and comments in the Padlets to the study's aim. Second, when a unit of meaning, relevant to study's aim, was identified in the Padlets it was moved to a spreadsheet document in the form of a code, either in its existing form or condensed into a descriptive label. Third, codes moved into the spreadsheet document were organised in categories where included codes deal with the same issue. Categories were named based on the issues that the included codes addressed. The second step was repeated for each new identified unit of meaning in the collected data. Each new code that was moved into the spreadsheet document either created a category, added to an existing category, or re-organised existing categories.

In the third step, all codes and categories in the spreadsheet document were discussed and revised. This was done for consistency in the presentation of the analysis but also for ensuring equitable representation of the data and the context. As expressed by Hsieh and Shannon (2005): "One challenge of this type of analysis is failing to develop a complete understanding of the context, thus failing to identify key categories. This can result in findings that do not accurately represent the data.". To avoid inadequate representation of data and identifying false categories, authors discussed the content of the spreadsheet document (i.e., the codes and categories of the analysis) to ensure that it was consistent with the discussions and workshops that had occurred during the webinars. Codes and categories were also compared and discussed in relation to the source material in the Padlets, to ensure an equitable representation of webinar participants' reflections.

4. Results and analysis

Five categories of webinar participants' perceptions were developed in the analysis. The categories have been grouped as differences between thematic analysis and content analysis, and similarities between thematic analysis and content analysis (Table 2). The categories *deep analysis vs. wide application* and *intuitive approach vs. practical approach* cover perceived differences between thematic analysis and content analysis. The categories *coding process and data analysis*; *subjectivity and potential bias*; and *defining and organising data* cover perceived similarities between thematic analysis and content analysis.

Table 2: Categories ordered by differences and similarities

Differences	Similarities
deep analysis vs. wide application	*coding process and data analysis*
intuitive approach vs. practical approach	*subjectivity and potential bias*
	defining and organising data

4.1 Differences between thematic analysis and content analysis

The Padlets reflects that webinar participants perceive the choice between deep analysis and wide application to be a difference between thematic analysis and content analysis. If deep understanding is sought for the study, Padlets reflect that thematic analysis is considered an appropriate choice of method. Reflections in the Padlets suggests that this could be because thematic analysis is considered to be a method more purely based in the qualitative tradition (Quote 1). Although, webinar participants' reflections in the Padlets also reflect that they consider thematic analysis to be flexible within the tradition of qualitative research.

> *"I am unsure. I had very little knowledge of either before coming into this seminar. However, I feel like thematic analysis may pertain more to qualitative, overarching themes rather than potentially quantitative interpretations of content."*
>
> **Quote 1**. Webinar participant about thematic analysis as more qualitative.

Webinar participants' reflections in the Padlets reflect that they perceive content analysis to have a wider application than thematic analysis. Reflections in the Padlets suggest that this perception could be because of content analysis role as a method in both qualitative and quantitative research. Webinar participants also reflect on the possibilities that content analysis could potentially be a better method than thematic analysis for analysis of larger amounts of data, due to the connection to the quantitative tradition of research (Quote 2).

> *"[Opportunity of content analysis is to] Go through larger amount of qual data as it is hard to do thematic analysis on them."*
>
> **Quote 2**. Webinar participant about content analysis for larger amount of data.

Reflections in the Padlets suggest that webinar participants perceive the choice between an intuitive approach and a practical approach for analysis to be a difference between thematic analysis and content analysis. The Padlets reflect that webinar participants perceive thematic analysis to be intuitive in its approach of analysis. Webinar participants reflect in the Padlets that thematic analysis seems to look at data without presumptions and is more oriented towards inductive coding. Further, Padlet reflections suggest that webinar participants perceive thematic analysis to be an easier method for developing researcher to learn (Quote 3).

> *"As Braun & Clarke states: a flexible method for qualitative analysis! [Also], fairly quick to learn at a basic level as a developing researcher – a good way of starting your qual-analysis journey!"*
>
> **Quote 3**. Webinar participant about thematic analysis as a quick method to learn.

Webinar participants' reflections in the Padlets reflect that they perceive content analysis to be a practical and straightforward method for analysis. Reflections in the Padlets suggest that webinar participants consider content analysis to provide a fast and structured way of doing analysis, and a predetermined route to follow. However, this is also problematised in the Padlet reflections, implying that content analysis may result in unreflective analysis (Quote 4).

> *"[Content analysis has a] Clear epistemology. It seems like you are doing the right thing. You can follow a route of how to do research. I think this is a bit problematic though. But that is rather an ontological standpoint."*
>
> **Quote 4**. Webinar participant about content analysis as a clear route to follow but also problematic.

4.2 Similarities between thematic analysis and content analysis

The Padlets reflect that webinar participants perceive thematic analysis and content analysis to be similar regarding data analysis and the coding process. Reflections in the Padlets suggest that thematic analysis and content analysis both view data as something that can be collected and extracted from the outside world (Quote 5). A first step of familiarising with data is perceived as a similarity between thematic analysis and content analysis in the Padlet reflections. Another perceived similarity between thematic analysis and content analysis in the reflections of the Padlets are the possibilities for both deductive and inductive coding in both methods.

> *"Both seem to approach data in the same way (as something out there you collect) and can extract more or less visible traces of what is out there."*
>
> **Quote 5**. Webinar participant about similar approach to data with thematic analysis and content analysis.

Webinar participants' reflections in the Padlets reflect that they perceive similar challenges for thematic analysis and content analysis with subjectivity and potential bias in conducted research. Reflections in the Padlets suggest that both thematic analysis and content analysis are perceived as at risk for biased reading when conducting analysis. Padlet reflections indicate that this could be because of the interpretation and subjectivity that is involved in conducting qualitative analysis. However, reflections in the Padlets suggest that content analysis could potentially contain approaches that reduce the risk of bias (Quote 6).

> *"If a content is sensitive or contains strong stories it can be a way of distancing to it as a researcher, actually decreasing the risk of biases. Smashing it into digestible pieces, so to say. Word counting to identify content of significance is one way of doing this."*
>
> ***Quote 6**. Webinar participant about ways to decrease risk of biases with content analysis.*

Reflections in the Padlets suggest that webinar participants perceive similar challenges for thematic analysis and content analysis with defining and organisation data in conducting the analyses. The Padlets reflect that webinar participants consider defining and differentiating codes, themes, categories and sub-categories to a challenge in both thematic analysis and content analysis (Quote 7). Another perceived challenge that is reflected in the Padlets is how to manage the potential large number of codes, themes, and categories that will be the result of both thematic analysis and content analysis. How do you distinguish between them? What do you do if they overlap? Reflections in the Padlets further indicate that webinar participants perceive a risk for coding to much when conducting the analysis, and that it is important to be mindful of the research question to prevent this.

> *"As with content analysis, there can be challenges differentiating between themes, categories, sub-categories and codes. Also both types of analysis require some subjectivity."*
>
> **Quote 7**. Webinar participant about the challenge of differentiating between different units in the analysis.

5. Discussion

Much of the highlighted similarities and differences between content analysis and thematic analysis does not come as surprises. That the coding process and approach to data analysis are perceived as similar. The same should be concluded if a conventional content analysis is compared to inductive thematic analysis. However, compared to grounded theory where there is a resemblance to thematic analysis in the analysis process, thematic analysis does not have the goal of generating a theory. Both content analysis and thematic analysis can be used in a wide variety of research fields, as well as in interdisciplinary research teams, while a phenomenological analysis is better applied in phenomenology. As for the perceptions that both content analysis and thematic analysis have similar challenges regarding subjectivity, potential biases, and defining and organising data. Challenges that content analysis and thematic analysis share with most methods for data analysis.

The highlighted perception in the results and analysis-section about deep analysis vs. wide application, where thematic analysis is perceived as appropriate for deep analysis while content analysis is perceived to have a wider application, could potentially be explained by how the two methods were presented during the webinars. Thematic analysis was presented as a qualitative approach (Braun & Clarke, 2006), while content analysis was presented with an origin in quantitative research. From this, it is possible that participants concluded that content analysis has a wider application because of connections to both quantitative and qualitative research traditions. However, in the webinars, efforts were made to balance these perceptions. Boyatzis (1998) idea for transforming qualitative data into a quantitative form for carrying out further statistical analyses, was presented in relation to thematic analysis. Transformation in the reversed order, from quantitative to qualitative, was

described in the presentation of the summative content analysis. However, this should be elaborated in future webinars to stimulate a richer discussion on the many different applications of both content analysis and thematic analysis in research.

Regarding perceptions that thematic analysis is considered a more intuitive approach, oriented towards induction, while content analysis is considered a more practical approach, with a predesigned route for analysis. This could be explained by how the methods were presented during the webinars: thematic analysis in the qualitative tradition and content analysis in both qualitative and quantitative research traditions. Inductive analyses are often associated with qualitative research, while theory-driven analyses, or deductive analyses, are often associated with quantitative research. Further, the presentation of thematic analysis during the webinars contained a workshop activity to conduct an inductive thematic analysis, which could also explain the perceptions. However, the idea of thematic analysis as mainly an inductive approach does not align with what was intended during the webinars. As stated by Braun and Clarke (2012, p 58):

> *"In reality, coding and analysis often uses a combination of both approaches. It is impossible to be purely inductive, as we always bring something to the data when we analyze it, and we rarely completely ignore the semantic content of the data when we code for a particular theoretical construct"*

Braun and Clarke (2012, p.58) further posit that there are three main continua for qualitative research, where the first consists of induction versus deduction, and that thematic analysis has the potential of containing all three. During the webinars, the intention was to present thematic analysis with a width of approaches for qualitative analysis and the dual choice of induction and deduction. Still, an extended discussion on induction versus deduction should be added for future webinars to clarify this. If possible, future webinars should also contain rich variations of workshop activities, including both inductive and deductive analyses for both thematic analysis and content analysis. It would further be desirable to add and discuss the concept of abduction in relation to coding approaches for analyses.

Another possible extension for the webinars could be to involve the two other analysis continua presented by Braun and Clarke (2012), the experiential versus the critical orientation to data; and an essentialist versus a constructionist theoretical perspective in thematic analysis. According to Braun and Clarke (2012, p.59), thematic analysis with a deductive approach is often constructionist in the theoretical perspective and critical in orientation to data, while an inductive approach in thematic analysis relates more to the other ends of the continua. However, thematic analysis and content analysis also holds the potential of being approaches where constructivists, positivists and pragmatist could work together without ontological discussions.

An interesting point for more discussion is when and how to apply either content analysis or thematic analysis in qualitative research. As depicted in related literature, there is a tendency to favour qualitative content analysis over thematic analysis when analysing document data or applying quantification of themes and categories in the analysis (Bryman, 2016; Vaismoradi, Turunen & Bondas, 2013). However, these assumptions can be challenged with the support of literature describing the wide application of thematic analysis, and the move into statistical analysis). The question then arises, should these assumptions or practices surrounding content analysis and thematic analysis for qualitative research be enforced in how they are presented to doctoral students? Or should they be problematised or even challenged? For researchers, and aspiring researchers, the answer might seem obvious. However, considering that problematising and challenging traditions is time-consuming and not necessarily will forward an academic career, is this something to instil in doctoral students early on, or for them to discover by themselves?

6. Conclusion

This study reviewed content analysis or thematic analysis. It analysed and described doctoral students' perceptions of qualitative analysis with content analysis and thematic analysis. The analysis showed that doctoral students perceive both differences and similarities between the two methods, and also challenges and opportunities. Many of the identified perceptions can be observed in previous literature. However, other identified perceptions could be considered overly simplified and potentially problematic for a future research career. For example, that thematic analysis is considered more oriented towards induction and deep analysis, while content analysis is considered more practical and with wider application.

This could partly be explained by how the two methods for analysis were presented during the webinars. Although, as described in the discussion section, efforts were made to present a varied use of both methods. However, it could also be seen as a need for more thoroughly presenting and discussing methods for qualitative analysis as a part of doctoral studies. This discussion should apply a nuanced perspective of methods for qualitative analysis and highlight the many different applications that each method has to offer. This would be an important next step for the authors, updating and revising the webinars on qualitative data analysis.

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Literature Reviews: What are the Challenges, and how can Students and new Business Researchers be Successful?

Anthony Mitchell[1] and Martin Rich[2]
[1]Independent
[2]City, University of London, UK
anthony@mitchellpalomares.com
m.g.rich@city.ac.uk

Abstract: The literature review is a key part of a dissertation, academic or journal paper, yet it is also one that often proves challenging. The multidisciplinary nature of business and management studies adds to the demands of writing a critical review by deciding which theories, subject areas and texts to interrogate. There are a number of approaches that students and academics might take in writing a literature review that require differing emphasis, resources and timeframe. The purpose of this paper is to review the literature and develop an understanding of the complexities and challenges faced by students and new researchers in preparing journal papers. We share our experience as faculty with teaching and writing at undergraduate and postgraduate level, and identify a number of the problems typically faced. Recent trends with regard to the proliferation of open access journals are outlined, and the perspective of a journal Editor addresses common mistakes that lead to poor submissions and reviews. A popular business school text is amongst the views considered. Several examples of different types of literature review are included to illustrate the breadth of choice. Specialist types of software for analysis associated with the complexities of systematic literature reviews are outlined. We close with guidelines for success and conclusions for each of four objectives. More research is encouraged as students now have fewer opportunities to develop the skills required for critical writing; yet these are the very skills in demand for consultancy and similar professions following graduation.

Keywords: type of literature review, systematic, scoping and narrative, critical review and writing

1. Introduction

1.1 Why do students find it a challenge?

Over the past two years we have experienced a continuum of student responses to the requirement to develop an effective literature review (LR). New researchers continue to face challenges in publishing their work, often receiving criticism of the LR. In this paper we aim to identify several choices in approach and lessons within the business and management field of study. Similarly, our experience of teaching research methods and supervising students in preparing dissertations has revealed a wide range of ability, enthusiasm and interest. More recently a growing level of disinterest in undertaking a project and learning research skills has become apparent (Brown and Rich, 2020; Mitchell and Rich, 2020, Mitchell and Rich, 2021). The popularity and recent growth in eBusiness may mean that assumptions underpinning a traditional Business School curriculum cease or are at least challenged. We are concerned in this paper that the manner in which students and novice researchers, prepare LRs needs to change; and we wish to explore how open access publication and student expectations have made an impact; see Starkey & Howard (2019) and other recent critiques of Business Schools.

1.1.1 Objectives

We appreciate that a broad range of students embark on Business and Management studies; some have commercial or industrial experience but typically lack research training and skills. PhD candidates and new researchers continue to be under pressure to publish. These assumptions inform the following objectives:

1. Review the literature to better understand issues with writing LRs.
2. Consider our experience as academics and that of journal editors in identifying the criteria for an effective LR.
3. Identify several of the different approaches to writing a LR.
4. Appreciation of the differing timescales and resource requirements that are necessary.

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1.1.2 Structure of this paper

The paper explores the experience of academics in teaching students to write LRs (2.1) as well as editors in reviewing journal papers (2.3) Different approaches to writing a LR are considered (3.0) along with software and technology support (4.0). Finally, some guidelines (5.0) are developed along with conclusions (6.0). In this way we address experiences of both students writing a literature review, often for the first time; and the frustrations that researchers sometimes experience with submitting journal papers, particularly given the various stylistic approaches to a literature review that are available.

1.1.3 Multidisciplinary nature of business and management studies

The multidisciplinary nature of business and management studies adds to the demands of writing a critical review. This is particularly true of strategic, operational and organisational issues where material would be drawn from a range of traditional functional subjects that require integration and careful interpretation. Business and management students and writers therefore need to cast their net wider than those of a 'pure' science, politics, language etc. However, this is contested as other subject areas make similar claims. For example, with medicine, knowledge of developments in molecular biology, genetics and pharmacology (Collins and Fauser, 2005). In economics, a knowledge of politics, sociology, geography may be required to research supply chain, outsourcing and offshoring decisions (Mitchell, 2016).

2. Experience with teaching students and submitting journal papers

In this section we share our experience as academics of teaching students to write LRs, the supervision of dissertations as well as submitting papers to journals. We also add the experience reported by a US journal editor in chief together with our experience editing papers for a UK based business journal.

2.1 Faculty experience

The authors have many years of experience at a number of global schools of teaching research methods, project supervision and as directors of MBA, MSc and BSc programmes. With 'Executive' MBA programmes (typically 5 years' plus work experience), a number of students already have a PhD, and experience little difficulty writing a LR and managing the project process (see Table 1). However, some students do lack enthusiasm for this area of study and may neither enjoy the experience nor appreciate the relevance. In recent years a number of taught master degree courses have revised the syllabus to include more group work, live case studies and simulations. As a result, there may be fewer individual assignments with less academic focus, and hence fewer opportunities for students to practice writing a LR, drafting research questions, designing a methodology, collecting and analysing data. Writing a LR is a daunting task for some. An online module (or taught alternative) on academic skills should be taught prior to a research methods module. There are also a range of affordable 'pocket books' available on study skills that are most instructive.

Bayes Business School stress in their guidance to undergraduates that writing a LR and dissertation is different from an essay in that it needs to have a distinctive, critical and analytical component. Table 1 summarises our experiences and some differences at Masters and Bachelor level.

Table 1: Comparison of postgraduate and undergraduate business and management students (authors)

	Postgraduate	**Undergraduate**
Experience/ qualifications	Those with research experience may have less difficulty with writing a LR.	Some recognise the importance for future employment e.g. consultancy, research agencies.
Timing	Early clarity on the topic and research question(s) helps with writing the LR, keeping on schedule and following the logical sequence of the dissertation.	Use of an option for a shorter 5000 words project (instead of 10000). Other options are also becoming popular.
Significance of LR	Often 20% of the dissertation word count and regarded as a key chapter.	The LR may be 30% of the marks in a full dissertation. Some students prefer something more 'practical' and less abstract. Many doubt the need for a LR and struggle to identify contingent areas of literature.
Practice	May not be a chance to practice with individual assignments as more group work and live cases dominate the curriculum.	One week teaching usually as part of a research methods module, examples and case studies.

Style	Not linear and descriptive, but thematic, comparative and critical.	Some writing workshops available as an option. The choice of supervisor is significant with regard to personal approach and level of commitment.
References	Select by theme and key word, check abstract before selecting.	Less experienced with search techniques using key words and theme headings.

For secondary research, the purpose of the LR is to summarise, synthesise and analyse the arguments of others; also, to critically assess the knowledge that exists and what gaps occur in research related to the field of interest. This should clarify the relationship with the student's research and reveal consistencies, inconsistencies and controversies with previous research. The LR should guide the subsequent development of an appropriate methodology design and subsequent data collection. The order for action learning and grounded theory approaches are often different but less usual for business and management students. Once relevant papers have been identified (ideally grouped by theme) they should be 'superficially scanned' and the abstract reviewed to check the paper's suitability in answering the research questions before reading the paper closely (Table 1 above). Those papers that do not 'fit' the research questions ought to be discarded rather than used to extend the list of references. Developing a draft list alongside the LR helps to keep track of sources especially as increasing use is made of online media. Comparing, contrasting and critiquing different authors on a particular topic helps to make the LR more interesting to read as well as avoiding plagiarism. A synthesis at the end of a LR helps to highlight the key messages, cross reference the relevant sources and develop a link to the methodology section.

Each year at Bayes Business School, a small number of undergraduate students write their projects in collaboration with the Corporate Social Responsibility (CSR) function of an employer. It is hoped to develop this option and offer it to students interested in other areas. While this is a different format, it is very clearly offered as a research activity and students are expected to undertake a LR. The employer is the source of primary data for the project. Options at other schools have included, 'Newsnight' media presentations, entrepreneurial studies and business plans.

2.2 Academic Texts

A seminal Business Schools text for research methods offers insights on critical writing (Saunders, 2019). Students should be sceptical towards rhetoric, tradition, authority, and objectivity (Mingers, 2000). Being critical in reviewing the literature is a combination of skills and the manner with which the text is read and interpreted (Saunders, 2019). This means that students should constantly consider and justify their own critical stance. This takes practice and considerable effort, especially if the student has little experience of writing LRs. Business students will find that subject areas, themes, strands, theories, overlap with one another (Danson and Arshad, 2014). For example, in marketing studies, opportunity and creativity are themes to be understood to develop marketing plans. However, opportunity and creativity themes are also discussed in entrepreneurship when seeking market gaps and developing a business plan.

2.3 Journal editor

A student wishing to develop a quality dissertation may also submit to a journal paper. Sometimes this is done in conjunction with a supervisor. PhD students have always been encouraged to publish, and an awareness of the challenges set by the peer review process and journal editors is part of the preparation for a career in academia. It is becoming harder, and arguably taking longer to get papers reviewed and published in 'traditional leading' journals. The views of an editor are helpful in this regard (Jennex, 2015) as it has been suggested that the quality of many LRs is declining (Table 2). There has also been a huge rise in open access journals to support global access to research. Some open access journals are labelled as 'predatory' and frowned upon (https://www.nature.com/articles/d41586-019-03759-y), although the distinction is often unclear. This creates confusion amongst researchers and is unfair to those open access journals that do add value and meet a genuine market need. Technology has also impacted the manner in which researchers search for relevant papers and the way they reference and check scripts for plagiarism. Reviewers are encouraged to provide feedback in a positive and constructive manner to address complaints by authors.

Table 2: Reasons why reviewers decline papers (adapted from Jennex, 2015)

Content	The review must be limited to studies that have bearing on its specific research question.
Journals	The scope of the review might limit itself to high-quality journals, or journals in a particular field of study.
Authors	The study might be restricted to works by certain prominent authors.
Setting	Only studies conducted with specific industries or regions are considered.
Participants or subjects	Studies may be restricted to subjects of a certain gender, work situation, age, or other criteria.
Program or intervention	There might be a distinction made between data that is self-reported versus researcher-measured, or if subjects are self-selected into various groups.
Research design or sampling methodology	Studies might be excluded based on not using a particular research design; date of publication or of data collection, or duration of data collection
Date of publication	Studies will often be restricted to certain date ranges for data collection, or duration of data collection.
Source of financial support	Studies might be restricted to those receiving non-private funds unless there is a concern that this might be a source of bias in the results.

Common errors (Jennex, 2015) include authors not having access to relevant papers, weak search criteria, not using original source material, failure to synthesize material and translation issues for non-native speakers. Early career academics suffer the same problems as undergraduates and other specialist students, and more structured guidance would be beneficial.

2.4 Associate editors

We are both associate editors of an academic business research journal and acknowledge that it can become a rather tedious 'rite of passage' struggling to make multiple corrections or amendments before a paper is accepted for publication. Our observations on the LR include:

2.4.1 Style

A prevalent issue is that the review is linear in format referring to one reference after another in a descriptive manner. Better to group, compare and contrast, in a critical style, reference sources under a common theme. Sometimes, similar concepts will be covered by different articles but using different vocabulary, and this can usefully be highlighted in a LR.

2.4.2 Structure

A common problem is that an excellent LR fails to inform the methodology and data collection stages. This lack in linkage is a relatively easy fix. A literature review may be dispersed throughout an article or dissertation (rather than a dedicated section) subject to journal or university guidelines. When changes are required, good practice would include resubmitting a separate summary of changes with cross referencing, also the use of track changes.3

2.4.3 Editing

If there is more than one reviewer there may be conflicting advice as to what the author should do. In this case the editor can helpfully provide a suitable commentary as feedback to the author. It may be the case that the argument is contested.

2.4.4 Content

Authors should not be wary, or avoid offering their personal opinion
e.g. if Jones (19xx) argues that …… whereas Smith (20xx) suggests …… then……would be a valid consideration.
It is important to separate factual accuracy from a statement of opinion, and recognise that an article which states facts could nevertheless present them from a particular viewpoint.

2.5 Synthesis

We have reviewed literature, the views of academics, a chief editor together with our experiences. The LR is an important part of writing up a project report or dissertation but proves problematic for many, including academics, in submitting journal papers. For students new to academic and critical writing what are some of the options and suggestions for improvement?

3. Different approaches to writing a literature review

The traditional or critical narrative style is generally a starting point for students and academics. Different professions favour various styles of LR, as with medical research where in-depth structured evidence is the most common example of systematic LR approaches. There are other styles, and we use the key ones summarised below (Table 3) and in more detail in 3.1 to 3.3. Other approaches tend to be variants, although agreement on the types of approach and descriptions is contested, Danson and Arshad (2014) suggest that over the years, numerous types of LRs have emerged; three types are narrative, scope and systematic. An important distinction is the time typically required and the resources available. A narrative LR 1- 4 weeks, usually by one person whereas a systematic review is more likely to be in excess of 6 months with a small team of experienced researchers that require extensive library facilities. Specialist technical support for data search, storage and analysis may also be required (4.0) below.

Table 3: Types of Literature Review. Adapted from: Grant and Booth (2009).

Approach	Description
Narrative review	Generic term: published materials that provide examination of recent or current literature. Can cover wide range of subjects at various levels of completeness and comprehensiveness.
Scoping review	Preliminary assessment of potential size and scope of available research literature. Aims to identify nature and extent of research evidence (usually including ongoing research).
Systematic review	Seeks to systematically search for, appraise and synthesize research evidence, often adhering to guidelines on the conduct of a review.

The clarity, validity and auditability with which a review is developed are key tests of how structured the process is. This is applicable to a traditional narrative, scoping or more comprehensive systematic review (Booth et al, 2021). It is too easy for bias to arise whereby papers are rejected that propose an alternative argument. Resources and time are likely to be constraints, so it is important to fully outline any limitations in the chosen approach. No LR will be perfect, the reviewer who will have a particular kind of reader in mind and who they may wish to influence (Hart, 1988). A challenge for the author, reader or reviewer, is to be aware of one's own value judgements and to avoid a lack of scholarly respect for opposing values and ideas.

3.1 Narrative

The majority of LRs are narrative rather than systematic (Collins and Fauser, 2005). The approach and format are likely to change for different levels of student, also the university and journal guidelines. A project for undergraduates will tend to be more descriptive, topic focused and with analysis aimed at justification. (Hart, 1988). A master's degree dissertation will be more analytical, summative and written in critical and comparative terms. Literature, methodology and theory will be addressed. A doctoral thesis will synthesise relevant literature and theory, and will typically address greater breadth and depth than at master's level, for example discussing philosophical approaches to the problem. A scholar's intent is to think systematically, interpret and understand the literature (Hart, 1988). This may entail developing new typologies or new models for a taken-for-granted perspective.

It is suggested by Green, Johnson & Adams (2006) that within the narrative style there might also be various types of review: commentaries and overview. A commentary is typically written to express a particular opinion by an author with specific expertise, whilst its purpose may be to provoke dialogue amongst scholars who read the journal. It will be biased. A quality narrative overview will pull together relevant material in a readable format. Again, the purpose can be to provoke dialogue; and a rigorous methodology is key to creating a well agued piece. Work that is contested should also be included with reasons for concern or disagreement given.

Narrative reviews may be comprehensive and cover a wide range of issues within a given topic, but do not necessarily follow prescribed rules regarding the search for evidence or decisions about relevance and validity. Saunders (2019) suggests that it is necessary to have clearly defined research question(s) and parameters for the literature search, as well as key words or themes. The literature search may include tertiary sources and the Internet, following up reference articles previously read; scanning and browsing secondary literature. The literature should be synthesised for relevance to the research question(s) and key messages that subsequently inform the methodology.
To illustrate the diversity of approach three rather different examples of a narrative approach follow with brief insights on the purpose, approach, findings and outcome:

*T*homas and Morgan (2021) identified evidenced-based job retention interventions for people with disabilities. They reported specific skills that it would be beneficial to teach adults in post-secondary or adult education to improve levels of retention. The literature addressed peer reviewed quantitative papers from 1994 to June 2019. Four studies showed interventions with statistically significant improvements in retention. These included self-advocacy skills in resolving work related challenges, social skills, managing medication and receiving on the job support. The conclusion was to replicate studies from diverse socio-economic backgrounds to more fully understand the potential of retention strategies.

A second illustration is an integrated framework for studying organizational spaces (Taylor & Spicer, 2007). The authors suggest that existing research in this field fits three categories: studies of space as distance, as the materialisation of power relations, and studies of space as experience. These approaches are drawn together using Henri Lefebvre's theory of spatial production to argue that an adequate understanding of organizational spaces would investigate how they are practised, planned and imagined. To illustrate the potential of their framework they present three studies of multiple organizational spaces, from social anthropology and economic geography. They conclude by presenting a research agenda that indicates how data collection and analysis in established fields such as employee relations and international business might become more 'space sensitive'.

The World Health Organization (WHO) claim that over 130 million people are in constant need of humanitarian assistance due to natural disasters, disease outbreaks, and conflicts (Fernandez-Luque & Imran, 2018). The literature was reviewed with the purpose of identifying challenges and opportunities for using AI in humanitarian health crises, and specifically the use of AI techniques to process social media. The search strategy was designed to get a broad overview of the different applications of AI in a humanitarian health crisis and their challenges. A total of 1,459 articles were screened, and 24 articles were included in the final analysis. Successful case studies of AI applications in a humanitarian health crisis have been reported, such as for outbreak detection. A commonly shared concern in the reviewed literature is the technical challenge of analysing large amounts of data in real time. Real time data exchange between systems is both essential and a barrier with regard to the integration of online and traditional data sources. Further work would entail identifying human and organizational aspects that might be key factors for the adoption of AI and social media. A publication bias toward high-income countries was identified. The feasibility of using AI to extract valuable information during a humanitarian health crisis was felt to be proven.

These three examples demonstrate that this approach has a limited scope, a clear purpose that helps to identify key words and data searches, identifying relevant theory and critical analysis. The format and length vary and are generally in-line with journal or university requirements.

Undergraduate students carrying out a significant project as a capstone within a Business and Management degree are expected to include a narrative LR within their work. Typically, this is the first time within their education that they have encountered the need to produce a LR. Two examples adapted from the author's experience as a supervisor are noted below.

Student 'A' set out to research the effects of gender diversity in innovative and entrepreneurial businesses. Their project included a LR and empirical work based on interviews of key players within such businesses. While it was carried out on a small scale, with 38 items identified in an initial search and 14 discussed in the paper, the LR was built around a highly structured approach with explicit criteria used to determine whether or not to include particular items. These criteria were related to the research aims set out in the student's introduction, and accommodated the inclusion of a variety of items of different types (scholarly papers, industry publications, etc) but which nevertheless carried a measure of authority. The narrative then fed into a minor revision of the student's initial stated research aim, which was discussed as an illustration of the extent to which learning took place through the research process. This student adopted grounded theory as a basis for their research and set out to develop new theory informed by their analysis.

Student 'B' set out to research the motivation of people working in a particular sector covering a range of conditions, notably varying from those who were self-employed to those working within large businesses with well-known brands. The project was based on in-depth interviews with a selection of workers in the sector to whom the student had privileged access, and the originality and distinctiveness of the project stemmed from this use of primary data. The narrative LR was structured in three sections. The first discussed literature around

motivation and working conditions, notably the vitamin model identified by Warr (2007) which the student highlighted as a framework which could be applied to their primary research. Therefore, this section focused principally on summarising the vitamin model and situating it within the related literature on work and motivation. The vitamin model was used to structure the interview questions for the primary research. For an undergraduate project there was no pretence that this was a comprehensive LR: it set out to be a summary with an emphasis on one key framework relevant to the empirical analysis that followed. The second section focused on the relevant industry and again given the limitations of an undergraduate project was limited to highlights which set the scene for further research. The third section was a brief synthesis which provided a bridge to a discussion of methodology immediately following. In this case the key role of the LR was to provide a framework within which the research behind the rest of the project could be conducted.

A key difference between these two students was the way in which connections between items within the LR were drawn. Student 'A' perceived the literature as representing a complex landscape and wove together points from the different items. For instance, student A's review highlighted areas where similar concepts were adopted by different authors but often explained using different language. Each paragraph typically drew on several different items but was unified by exploring a particular theme relevant to the project. By comparison student 'B' set out to evaluate the literature and to highlight the concepts most relevant to the empirical work, but took a more linear approach in which a paragraph or sequence of paragraphs would typically address one item or one author's contribution.

3.2 Scoping

Scoping reviews help to determine the coverage of a body of literature on a given topic and give clear indication of the volume of literature and studies available (Mann and Peters et al, 2018). Scoping reviews are useful for examining emerging evidence when it is still unclear what other, more specific questions can be posed and valuably addressed by a more precise systematic review. They can report the types of evidence that address and inform practice in the field and the way the research has been conducted. Scoping reviews are an increasingly a popular methodology to synthesise evidence that can be influential for policy and practice (Colquhoun et al, 2014). However, variability in the labelling, definition, methodology, and reporting currently exists, which limits their potential. The purpose may include identifying the types of available evidence, the key concepts/ definitions; an examination of how research is conducted on a certain topic, the key characteristics or factors related to a concept or knowledge gaps (Mann and Peters et al, 2018). A scoping review may be used in preparation for a more detailed systematic review.

As with other approaches to LR's, scoping reviews were developed as a technique in subjects allied to health and medicine. Arksey and O'Malley (2003) created a framework for scoping reviews and locate this in the importance of evidence-based practice in healthcare, social policy, and elsewhere. They acknowledge that there is a range of understanding of what a scoping review could entail but they highlight the need to map concepts rapidly and they suggest that the coverage is necessarily broad, but can vary in depth according to the nature of the review. In proposing a framework, they draw on their own work around support for carers of people with mental health problems. Their framework is based around five stages:

1. Identifying the research question
2. Identifying relevant studies
3. Study selection
4. Charting the data
5. Collating, summarising, and reporting the results

In their more detailed discussion of the process they note the sheer range and variety of source used, and the necessity of, to use their terminology, hand-searching of key journals in recognition that the most carefully thought through database searches will not necessarily yield the desired results. They contrast scoping reviews with systematic reviews and point out that a scoping review does not necessarily aim to come up with a particular outcome through synthesising different elements.

Unsurprisingly, given the background of the concept, scoping reviews outside subjects related to healthcare are scarce. One interesting example related to business and management (Boiral et al, 2021) has a significant public health dimension and is written in the context of the Covid-19 pandemic. In line with the expectations of a scoping review it was conducted rapidly, published in early 2021 and based on items that had been published in the spring of 2020. Research questions were identified, but these were fairly broad and while given a slant

towards sustainability, in line with the open access journal within which they were published, were written in terms such as 'identifying best practice for managing Covid-19'. The articles chosen were taken from a range of sources, in this particular case covering articles in both English and French and using databases which focused on material available in print. These were mapped by categorising them according to geographical location, to the business sector to which they referred, and a number of themes which were identified by the researchers.

Significantly, the above discussion includes an observation that scoping reviews are not widely used within the study of management and that the use of such a review to pull together a disparate set of articles, which on their own may be of limited value, is a valuable contribution to understanding of research methods.

3.3 Systematic

Systematic literature reviews (SLRs) use explicit methods to methodically search, critically appraise and synthesize literature on a specific issue (Collins and Fauser, 2005). SLR's attempt to reduce reviewer bias through objective, reproducible criteria to select relevant individual publications and assess their validity. A systematic review may include a meta-analysis or statistical summary of individual study results. The aggregate of effects from several studies yield an average that is more precise than individual study results. Thus, the SLR involves explicit, transparent methods which are clearly stated, and reproducible by others. For some review topics, however, the strengths of the SLR may turn into weaknesses. The primary problem is that the narrow focus and prescribed methods of the SLR do not allow for comprehensive coverage. SLR is less suitable for students or new academics with limited time and resources compared with a traditional narrative review, where less explicit methods are the trade-off for broader coverage. Every step of the review, including the search, must be documented for reproducibility. SLR's are most commonly associated with medicine and clinical trials (Georgetown University Dahlgren Memorial Library). Publication bias can cause positive results to become exaggerated as medical researchers are less likely to submit bad results. Other fields include IT and more recently HR, operations and supply chain management.

Carcary, 2018 has applied this approach in the field of IS Management; the insights led to a better understanding of the benefits and challenges also some guidelines for future researchers. It was noted that the approach was contested and authors differed widely in the style, application and interpretation of SLRs. Carcary has applied SLR in an explicit, structured manner with a clearly formulated research question (Tricco et al 2011) to identify, select, appraise and extract data from relevant research. Softening the approach to 'comprehensive rather than exhaustive' coverage helps to make the approach practicable (Rowe, 2014). The search procedure still needs to be described explicitly to enable others to reproduce the study, (Okoli, 2015). Starting with an initial selection of 253 papers from peer reviewed journals, 46 papers were eventually selected, classified and analysed. With large data sets software tools become essential; and one example is CAQDAS (see section 4.0 below).

Schaltegger et al (2022) use a SLR to explore Sustainability Management Accounting and they list among the aims of their review to establish how effectively this technique in fact impacts sustainability beyond the boundary of one organisation. The paper is explicit about the search strings and databases used to identify suitable papers and also the conditions used to exclude papers. The four authors each reviewed thirty articles as part of a highly structured process to determine how to identify those suitable for further analysis. The review focused on different levels at which Sustainability Management Accounting could take place and therefore included papers which discussed linkages between these levels. The conclusions pointed to areas where there were gaps in understanding the practice at different levels.

To summarise, the following table clarifies some of the differences in rigour and resources required for systematic reviews.

Table 4: Comparison of Narrative v Systematic Literature Review approaches (adapted from Ferrari (2015); Collins and Fauser (2005) and University of Alabama

	Narrative	Systematic
Authors	One or more authors usually experts in the topic.	Two or more authors are involved in good quality systematic reviews, may comprise experts at different stages.
Protocol	No study protocol.	Written protocol that includes details of the methods to be used.
Research Question	Range from broad to specific, hypothesis not stated.	Specific question that may have all or some of PICO components e.g. medical research (Population, Intervention, Comparator, and Outcome). Hypothesis is stated.
Search Strategy	No detailed search strategy; probably conducted using keywords.	Detailed and comprehensive search strategy is developed.
Sources of Literature	Not usually stated and non-exhaustive, usually well-known articles. Prone to publication bias.	List of databases, websites and other sources of included studies are listed. Published and unpublished literature are considered.
Selection Criteria	No specific selection criteria, usually subjective. Prone to selection bias.	**Specific inclusion and exclusion criteria.**
Critical appraisal	Variable evaluation of study quality or method.	**Rigorous appraisal of study quality.**
Synthesis	**Often qualitative synthesis of evidence.**	Narrative, quantitative or qualitative synthesis.
Conclusions	Sometimes evidence based but can be influenced by author's personal belief.	Conclusions drawn are evidence based.
Reproducibility	Findings cannot be reproduced. Conclusions may be subjective.	**Accurate documentation of method means results can be reproduced**
Update	**Cannot be continuously updated.**	Systematic reviews can be periodically updated to include new evidence

Section 3 has reviewed several of the different approaches to writing a LR, and contexts where a choice is appropriate, A number of examples are provided.

4. Use of Software / Technology

Students usually have access to Google Scholar and university library databases, and should be encouraged to use them. MAXQDA may be helpful for developing a comprehensive LR. It works with a wide range of data types and offers powerful tools for LRs, such as reference management, qualitative, vocabulary, and text analysis tools, and more. Highly structured approaches e.g. SLRs, require the use of specialist software and Technology (Carcary, 2018) particularly where a large volume of studies is involved. The use of Computer-assisted (or aided) qualitative data analysis software (CAQDAS) offer tools that assist with qualitative research such as transcription analysis, coding and text interpretation, recursive abstraction, content analysis, discourse analysis, and grounded theory methodology. Optimal searches in SLR's could search Embase, MEDLINE and Web of Science as a minimum requirement to guarantee adequate and efficient coverage. Most universities have access to this software which is necessary for the highly detailed data analytics associated with the large number of papers. One of the authors had significant experience of guiding students through use of two CAQDAS packages, Atlas.ti and Nvivo in a university whose software licence allowed students to install it on their personal computers for use at home. This software is intended to facilitate qualitative analysis and researchers can use it to extract themes and to search considerable volumes of text for key words and patterns. It is useful for searching and analysing large volumes of text but is not a substitute for manual analysis.

5. Guidelines for success

Having reviewed some of the challenges, issues and alternatives we are left with the question of 'how to decide on what approach to use for a specific type of review?' (Snyder, 2019)

Table 5: Defining characteristics of traditional literature reviews, scoping reviews and systematic reviews. Adapted from:

https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/s12874-018-0611-x/tables/1

	Narrative	Scoping	Systematic
Protocol based on theoretical deduction	No	Yes (some)	Yes
PROSPERO registration of the review protocol	No	No	Yes
Explicit, transparent, peer reviewed search strategy	No	Yes	Yes
Standardized data extraction forms	No	Yes	Yes
Mandatory Critical Appraisal (Risk of Bias Assessment)	should be	should be	Yes
Synthesis of findings from individual studies and the generation of 'summary' findings	Yes	Yes	Yes

The project research question(s) and purpose of the review should determine the right strategy to use. While the SLR is perhaps the most accurate and rigorous approach to collect articles with certainty that all relevant data have been covered, this approach requires a narrow research question, and might not be feasible or suitable for all projects. This is where a scoping review can be useful, but this approach is also problematic. While the methodology for SLR's is straightforward the scoping review process requires tailoring to the specific project. A form of scoping review may be helpful with grounded research where an initial brief LR is required while the main LR follows later. Researchers need to develop their own standards and a detailed plan to ensure the appropriate literature is covered to both answer the research question and be transparent about the process. However, if done properly, this can be a highly effective way of covering more areas and broader topics than a systematic review can handle. In addition, when it comes to the narrative review, it becomes even more demanding, which puts responsibility on and requires more skills of the researchers, as there are fewer standards and guidelines. There is a contradiction here in that for students this is usually seen as the most straightforward and common choice. Successfully conducting a critical, thematic review and contributing with a new conceptual model or theory, can be significant reward and suit most purposes.

6. Conclusion

Four objectives were set for this paper (1.1). Reported evidence from the literature together with our experience is set out below in answer to each of the objectives posed.

6.1.1 Objective 1.1.2a: Literature

Undergraduates find the process of writing a LR demanding if they have received little training in research methods, and have had few opportunities to practice critical writing through assignments and course work. Exploring what has gone before, finding gaps in literature, identifying relevant theory are important aspects of research. Critical writing, thematic literature search, comparisons of literature is an important skill. Postgraduates have an advantage especially if they have previously experienced a research degree (2.1-2.2).

6.1.2 Objective 1.1.2b: Experience

As students, an ability to summarise, synthesise, interpret and justify arguments is key to producing a good LR. As academics, submitting papers to journals can be a demanding process where common mistakes include not having access to relevant papers, weak search criteria, not using original source material, failure to synthesize the material and translation issues for non-native speakers (2.1-2.3).

6.1.3 Objective 1.1.2c: Choice of approach

A key message is the need for an appreciation of critical skills writing, and the possibility that students today may have less chance to write a LR in advance of a dissertation (1.1). There are a number of distinct approaches plus variants that have become popular over the years. Choice of the most popular types is contested and here we have chosen narrative, scoping and systematic. In fields such as medicine, the rigour and ability to repeat and check experimental data makes systematic approaches a clear leader. There are examples of a systematic approach being taken within business and management e.g. IT and Operations, but this choice is for those who are experienced academics with time, library, budget and software resources. For students with broader research questions and scope, limited timescales and less academic experience of LRs then a traditional narrative style is a practical and realistic choice (3.0).

6.1.4 Objective 1.1.2d: Timescales and resource

An important distinction is the time and resources that are available. A narrative LR takes 1- 4 weeks, usually by one person whereas a systematic review is more likely to be in excess of 6 months and with a small team of researchers requiring extensive library facilities. Specialist technical support for data search, storage and analysis may also be required. Software includes MAXQDA, and CAQDAS, see 4.0 (Carcary, 2018).

Overall, the choice of approach is dependent upon the aim, scope, research questions and experience of the writer. A systematic style is the most rigorous and designed so that reported experiments can be repeated and checked. However, it is highly structured, time and resource intensive requiring experience. For students, a narrative or traditional style is still demanding but more suitable for 'business projects' (5.0). We acknowledge that the writing of a LR is indeed a challenge for many, but as suggested there are a range of options and approaches to consider and some relatively easy steps to follow when seeking refinements. Given that the impact an effective review will have on the rest of the paper or thesis it is arguably one of the most critical sections and deserves our attention. We remain concerned that a number of academic courses now provide less support for research methods and the practice of writing LR's.

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Looking back on Online data Collection Through Mindful Reflection

Margaret Mangion
Edward de Bono Institute for Creative Thinking and Innovation
margaret.mangion@um.edu.mt

Abstract: Reflections emerging from what was learned from conducting online research by using an online survey administered to primary school pupils during the Covid-19 pandemic are presented in this paper. First, a brief review of relevant literature is outlined. Secondly, the advantages and limitations of conducting online research are addressed. An overview of the research process employed including the sample, measures used and procedures employed for ethics clearance are how online research was made possible during a pandemic was explored. The main challenges were: (a) parental engagement and the subsequent collection of consent forms; (b) the actual data acquisition itself. These issues and others are explored through a reflection process using the cycle outlined by Gibbs (1988). The paper also points out how the reflective process was applied throughout the project. The study is focused on how pupils aged between 9 – 11 years perceived their own creative self-concept and their wellbeing at school. In this quantitative study, five hundred and thirty pupils were recruited through their schools following the dissemination of information letters and consent forms. While various advantages emerged from conducting online research, this approach was not without problems. Finally, this study presented an opportunity for learning and growth for the author through a process of reflection and evaluation.

Keywords: researching school children, parental engagement, online data collection, employing reflection, researcher's learning

1. Introduction:

The pandemic induced by the spread of the COVID-19 virus left a mark on the development of empirical research on a global scale (Harper et al., 2020). The limited mobility due to various lockdowns restricted access to various sample populations. These new conditions led to a state of VUCA (Hadar et al., 2020) with many researchers requiring the redesign of research projects they were undertaking possibly including alternative means of data collection. Since many individuals have access to the world wide web (Granello and Wheaton, 2004), possibilities to conduct online data collection increased. (Ward et al., 2014).

Through a mindful reflective process, this paper presents what was learned from conducting online research by collecting data through an online survey administered to pupils aged 9 - 11 during the Covid-19 pandemic. There is scarcity of material in the available literature related to researchers' adoption of mindful approaches to the reflective process of researchers. This gap together with the opportunity to learn from this new experience led me to explore and develop a method to support the reflection process mindfully. Following a brief review of relevant literature, an outline the research process employed is presented in the sections below. A mindful reflection on the experience of collecting data online based on Gibbs (1988) followed by recommendations for further consideration ensues.

Being mindful entails being aware of the present situation by focusing on the moment as it is lived (Kabat-Zinn, 1990). This aspect of the researcher's ability to reflect is deemed essential when conducting collecting data from children for a variety of reasons. In this case, three points were kept in mind; (i) children's vulnerability, (ii) the need to quickly take note of potential unusual reactions and avoid normalisation during the data collection process, and (iii) to avoid forgetfulness until the journal entries were completed. Jasper and Rosser (2013) refer to a reflective process as a learning experience where evaluation on the acquired knowledge takes places while fine tuning procedures for future use. Outlining the advantages of reflexivity, Nadin and Cassell (2006) state that the researchers' awareness of their impact on the study may lead to increased trustworthiness of the data and integrity of the research process. These two practices, mindfulness and reflection, may arguably augment the learning experience emerging from online data collection.

2. Doing research online

Online research has increased considerably over the years especially since access to online media had become widespread (Hokke et al. 2018) in most developed countries. This presents an array of issues of an ethical nature. Using mindfulness to raise awareness of these matters could enhance the research process (Lemon, 2017).

2.1 Advantages when collecting data online

In person data collection can be time consuming and expensive (Granello and Weathon, 2004; Lefever, et al. 2007). There are various advantages in favour of online data collection over more traditional methods. Commutes to visit data collection sites for instance could be one of the most time-consuming aspects if multiple data collection location are used. Online data collection presents researchers with the opportunity to collect data efficiently and in a timely manner (Lefever, et al. 2007) cost-effective for a variety of reasons (Mohanty et al. 2020). Firstly, paper and pencil methods are replaced by online forms thus eliminating the need for printing. Moreover, manhours spent on the field to collect the data could be expedited through access to online portals. Mertler (2002) noted these advantages in relation to data collection from students, teachers and parents. Other points in favour of data collection appear to support the researcher directly. Using online data collection methods enhances the safe storage of data and makes loss of data less likely. Moreover, the inputting of data is efficient since it is easily downloaded into user-friendly formats. Data can then be cleaned and analysed more easily (Ilieva, Baron and Healey, 2002).

2.2 Limitations when collecting data online

Notwithstanding the various advantages of online data collection, a number of short-comings are still present when using this method. One of the main bones of contention here remains the issue of sampling and data integrity. Hocevar and Flanagin (2017) raise this issue in their work and claim that sampling and data integrity raise critical concerns in the assessment of research results no matter which online data collection method is used. Further limitations are pointed out by, Granello and Weathon (2004) who claim that when conducting online data collection, there may be issues related to the representativeness of the sample. When the researcher does not have face to face access to respondents it may be difficult to tell who is actually completing a survey. Technical issues present other difficulties (Lefever, et al. 2007) that may vary in nature from issues to establish an online connection due to faults from the part of the internet service provider to difficulties emerging from the level of technological literacy experienced by respondents.

Response rates may still vary when collecting data online. Whereas Fricker Jr in Fielding et al (2017) claim that often the response rate for online data collection can be low, previously had indicated that there may be an argument for a better response rate when using this method. Granello and Weathon (2004) suggested the use of reminders to nudge respondents into participating. Others have anticipated these issues and identified means to make the process of online data collection more user friendly. Dillman et al., (1999) identified eleven principles that may encourage participation in online data collection. These include the following: include a welcome screen, formats that are similar to paper-and-pencil formats, limiting scrolling for respondents to view statements and clear instructions for different operating systems.

2.3 Ethical issues when conducting online research

The increase in use of the internet and smartphone technology made it easier for researchers to engage with family and child populations (Hokke et al., 2018). Online research and the ease with which respondents may be approached has created new challenges for ethics committees and institutions as well as researchers (Ackland, 2013 cited in Sugiura et al 2017). The increase in engagement with online environments calls for the establishment of ethical guidelines. The rise in online data collection may have created difficulties and opportunities for new thinking for ethics committees and researchers alike (Sugiura, 2017). Some of the newly introduced research ethics procedures have been said to be to 'restrictive' (Langer and Beckman, 2005). Shelley-Egan (2015) identified a number of issues related to ethics when conducting online research. Privacy, confidentiality and anonymity are amongst the most problematic. Another critical element is informed consent. These matters need to be given adequate consideration especially when conducting research with families and children (Hokke et al. 2018). Obtaining valid informed consent becomes critical especially since minors are considered as vulnerable and their capacity to conclude if they should participate in an online study may not be clear. It is therefore important to obtain consent from parents or legal guardians.

This section offered a brief overview of the issues surrounding online data collection. These issues were considered at research design stage. In the following section, contextual elements about the project are outlined for better appreciation of the reflection exercise.

3. Research context:

The study subject to this paper involved gathering of information from pupils about their own perceptions of their creativity and their wellbeing at school during the time of the Covid-19 pandemic. The study took place in Malta (EU), and it adopted a quantitative approach with the aim to be able to generalise findings to the relevant age group. Statistical analysis can be used to indicate how a sample population could behave at a macro-level. This is typically done since quantitative measures address the 'what' elements (Kelle, 2006). In this quantitative study, a sample of 530 pupils coming from eight different schools were surveyed using an online platform. Participants were recruited through their respective schools following the dissemination of information letters and consent forms.

Ethics clearance was obtained from the stakeholders involved, namely the University, Department of Education, the Secretariat for Catholic Education and each Independent School. The Head of each school acted as an intermediary between the researcher and parents or legal guardians. The latter had to provide written consent to allow the participation of their children on the project. This was done keeping in mind, the claims by Hokke et al (2018) that it is important to establish the capacity of young pupils to consent to participate in the study.

Since handling of materials was kept to a minimum to mitigate the spread of the virus, information letters and consent forms were issued electronically by the school in the two official languages, Maltese and English. In Malta, approximately 90% of the population has access to the internet (NSO, 2020). This should have facilitated access to the information letters and consent forms as well as access to the online survey for pupils following school from home. Access to the survey was not anticipated to be a problem since all the pupils in the identified sample had access to a tablet provided by the Department of Education nationwide. Data for the project was to be collected using a one-time intervention on the part of each student using an anonymous self-rated survey. The researcher planned to access each class virtually to guide the pupils through the survey by giving the same instructions to all groups and by reading out each statement to each group. This was done at different times and according to slots previously agreed upon with the participating schools. This method ensured that data was collected simultaneously and that pupils had the same interpretation of the statements they were to use for the self-rating exercise. Data collection took place during school hours. In keeping with total anonymity of respondents, digital identifiers of any type were not considered for harvest.

4. Learning through reflection as a researcher

Taking place constantly (Tracey et al. 1995), learning can be tacit or explicit. The new normal induced by the pandemic required individuals to adapt and normalise the situation while carrying on with life in general. This was the case for academic research too. These changes provided the opportunity to capitalise on experiential learning, which often goes unnoticed due to its informal nature. The need to redesign the data collection method presented an unprecedented opportunity for learning at design stage and also in retrospect by way of reflection.

4.1 A guiding framework for the reflective process.

Reflection is an essential part of learning. Although this method has gained prominence over the years, a single definition of what is understood by 'reflective practice' is not available (Fook et al., 2006; Moon, 2013). This lack of a standardised definition causes various difficulties. Rodgers (2002) points out that there is lack of clarity about how reflection may differ from other thinking processes. For the purposes of this paper, reflective practice involved the review of an experience to actively and critically think about how the activity could be improved in future. At the origins of critical reflection, we find the need for sense making to add meaning and context to develop. This notion is grounded in the definition offered by Remenyi (2022) "Reflection occurs when an activity is paused in order to consider or reconsider any aspect of phenomenon such as its authenticity, justification, processes or potential outcomes etc. Reflection may be solitary, or it may be conducted by a group. It may be triggered as a result of an event, or it may be routinely conducted as part of a review process. Reflection may be understood as a means of testing whether a current train of thought and actions are valid and likely to produce the desired outcome."

Various reflective models were explored to mobilise this paper. It was noted that most models appear to be grounded in experiential learning. Jasper (2003) offered the simple ERA cycle where she addresses experience, reflection and action, while Kolb (1984) introduced the experiential learning cycle that addresses the concrete experience, reflective observation, abstract conceptualisation and active experimentation. The cycle appears to

facilitate the application of a learning experience through experimentation. Given that the aim of the paper is to reflect on a procedure, Gibbs (1998) seemed most appropriate for the task. It provides a cycle that encourages reflective thinking focusing on different stages of the experience made (Fig. 1).

Gibbs identifies 6 key steps that encourage the user to think and process experiences. In itself the process may lead to recalibration of how procedures are executed thus resulting in a learning experience.

Below are the six stages involved in the reflection process by Gibbs (1988).

1. Description. In this first stage details about how the experience unfolds are shared.
2. Feelings. Feelings may be associated an emotional state or a frame of mind. It is important to recall and acknowledge the feelings that emerge as a result of an experience.
3. Evaluation. This stage requires an assessment of the experience itself. Details of what worked and what could be improved or what did not work at all need to be highlighted.
4. Analysis. At this point we would interpret and understand the experience. This supports our sense making of a series of events that make a whole experience.
5. Conclusion. This stage is particularly important if an experience is to be repeated. Using the previous stages as a scaffold, the opportunity for creative thinking emerges since deliberate effort needs to be made to generate alternatives. At this point one needs to capitalise on the learning and identify what could be done differently if there had to be a repeat of the experience.
6. Action plan. The alternatives identified in the previous stage can be developed and turned into an action plan that can support future experiences.

Journaling was used to collect reflections that would mobilise the reflective cycle by Gibbs (1988). It provided the conceptual foundations to pursue a mindful reflection on the experience of doing online research. Mindful reflections were noted throughout the entire research process from its inception; before, during and after the data collection process by keeping journal entries. Journals are convenient since they capture the experience as it is lived while thoughts and feelings are still fresh. This method is useful due to the critical and reflective stance in which one needs to be in order to revisit and process events as they unfold chronologically. This practice allows the possibility to look back on the experience and capitalise on opportunities for improvement thus fostering critical reflection.

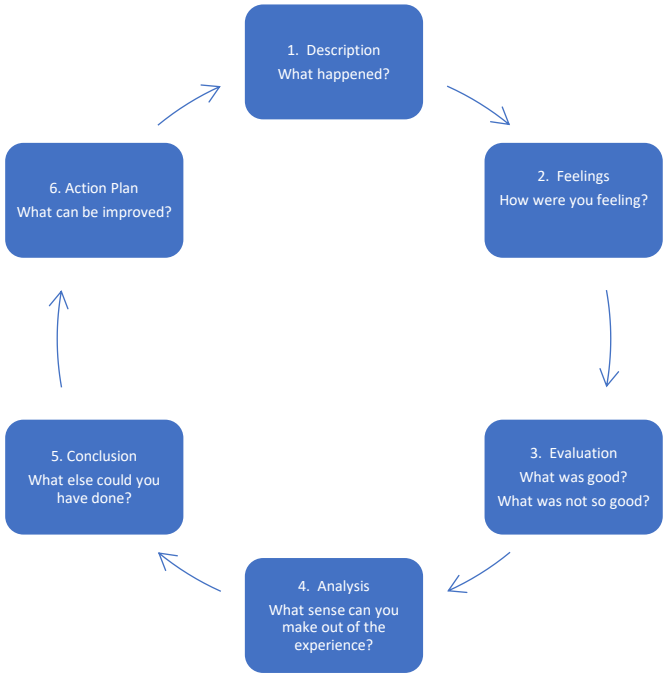

Figure 1: Reflective Cycle. (adapted from Gibbs,1988)

5. Reflections

The reflective process started during the planning of the research project itself. Assumptions about how meaning is typically made (Brookfield, 2000a) were questioned since the challenges imposed partly or completely due to the pandemic influenced how data was collected. A number of questions emerging from the different stages presented by the model by Gibbs (1988) were identified by the researcher and used as cues to guide the reflection process as found in Table 1.

Table 1: Cues guiding the reflective process

Stage	Cues
Description	Where and when did the activities unfold? What happened? What was the outcome of the activities? What worked as anticipated? What were the potential difficulties? What was the role of the different stakeholders?
Feelings	How did the processes of collecting data online make me feel? How was I feeling before and after data collection? How did the stakeholders feel?
Evaluation	What went well when collecting data online? What didn't work out well? How did the respondents contribute to make the experience a positive or negative one?
Analysis	Why did the process work out? What made the process stall?
Conclusion	What did I learn from this experience? What could have been done differently? What precautions can be taken for future studies?
Action Plan	How can the process be improved for next time?

Advantages and limitations emerged from conducting online research. This paper explores the issues that were encountered and how online research made data collection from schools possible during a pandemic are explored through reflection. The main stumbling blocks were related to: (a) parental engagement and the subsequent collection of consent forms; (b) issues that emerged during the actual data collection.

5.1 Description.

The planning phase and ethics clearance for the project took place between December 2020 and March 2021. Submission to different institutions made ethics clearance time consuming. This process ensured that the study adhered to all ethical principles both in its design and during the data collection phase. Following Recital 38 (https://gdpr-info.eu/recitals/no-38/) under the GDPR act, special attention was given since data was collected from minors. Once all approvals were in place, information letters and consent forms for parents and legal guardians and assent forms for the pupils were distributed by the Head of each school who acted as an intermediary. Consent forms were to reach the researcher directly from the parents or legal guardians of each participating child. This was a very long process.

Issues to ensure the integrity of data that was collected online (Hocevar and Flanagin, 2017) were overcome through the specific targeting of schools with populations of pupils aged between 9-11 years. Collecting data during the school day helped with the preservation of integrity. Issues pertaining to the authenticity of respondents were resolved easily since the schools confirmed the ages of the participants taking part in the project. Information letters and consent forms were sent out to the parents or legal guardians of approximately 1275 pupils.

While different schools were using different online platforms one commonality prevailed. Visitors were not allowed in schools during the time of data collection allowed in schools during the time of data collection. This presented two options. The first involved the dissemination of the surveys by class teachers who would have received training on how to present the instructions to their pupils prior to data collection. This method could compromise the data (Hocevar and Flanagin, 2017) due to multiple interpretations. The second option, was for the researcher to reach each school online and instruct each class on the aims of the project and how to complete the survey. The latter was the preferred option. Following a pilot study with a separate school, a

written script containing the instructions was written for consistency. The researcher accessed each school online and read out each statement to all respondents. A number of sessions where required since each class or year group within the participating schools was approached separately to allow time for clarifications by the respondents if requested. The respondents indicated how they perceived their own creativity using the 'Short Scale for the Creative Self' by Karwowski et al. 2013 and the 'How I Feel About Myself and School Questionnaire' by Stewart and McLellan (2015) on a Likert scale. Sample questions from these questionnaires may be found in Appendix 1.

At the outset of the project, it was anticipated that obtaining consent would not be a problem. This was an assumption that was soon discounted as will be outlined below.

5.2 Feelings

Online data collection brought with it feelings of excitement and anticipation coupled with a careful stance to ensure the all ethical procedures were adhered to especially because of the vulnerability of the sample. Guided by elements highlighted in the literature, privacy, confidentiality and anonymity (Shelley-Egan, 2015) were adhered to. Feelings of nervousness arose each time that data was being collected due to fears that there could be a technical breakdown. Due to the large number of people making use of the bandwidth locally, technical issues were not uncommon. A frozen screen or loss of connection were issues that we have learned to deal with during the pandemic. Apart from these isolated occasions that caused disruptions the overall experience was appreciated by the participating schools.

The interaction with respondents raised hopeful feelings in the researcher. This was a result of the interaction while collecting data since mutual visibility was possible. Access to the classroom using Zoom or MS Teams made the distance between the researcher and the respondents 'shorter'. The researcher could see the pupils and vice-versa through the interactive whiteboards used in local schools and on the personal laptop for the researcher. The scripted introduction and overview of the project along with each question that respondents had to answer were carefully read out to each class in the same manner to ensure consistency. This gave the researcher peace of mind by way of assuring that the young respondents clearly understood the procedure, why it was taking place, and how important their input was. The respondents were engaged, attentive and very cooperative. A sense of connection was also created when clarifications were required since the pupils had an instant visual/audio reply to their query.

Feelings related directly to the project were compounded by a degree of disappointment coming from the expectation that a higher number of parents or legal guardians would consent to their children to take part in the study. The assumption that widespread use of internet services is made by many induced the researcher to expect a higher response rate.

5.3 Evaluation

For most of the project online data collection proved to be a pleasant experience. The advantages referred to in the literature, were experienced in their entirety. The project ran efficiently both in terms of time and cost acknowledging findings by Lefever, et al. (2007), and Mohanty et al., (2020). The data collection exercise was welcomed by the participating schools since this activity provided space for pupils aged 9-11 years to experience personal reflection about their own creativity and wellbeing at school.

Data collection had to be postponed on one occasion due to lack of access to the school network. The IT technician was not informed of my online visit. In this school the network was set up to allow access to approved individuals only. Since I was not given rights to access, my attempts to use the provided link were futile. This led to frustration on both sides. The teachers and the pupils involved in this school were deeply disappointed.

From an ethical perspective, conducting the research during school hours with the school Head acting as an intermediary proved to be a successful strategy. Since the dissemination of information letters and consent forms was conducted by the school the reassurance of knowing who to expect to be interacting online was easily obtained. To minimise issues of validity of consent, consenting parents and guardians had to forward a signed consent form via email directly to the researcher. Addressing concerns raised by Shelley-Egan, (2015), anonymity and confidentiality were respected since no digital identifiers were collected and the respondents were explicitly asked not to write their names anywhere. Only the school year (Year 5 or Year 6) was made available to the researcher.

Hocevar and Flanagin, (2017) referred to the issues pertaining to data integrity when this was collected online. Sampling and sampling criteria were two main concerns outlined by the authors. In the present study, these issues were easily overcome by asking the school Head to act as an intermediary between the parents or guardians giving their consent and the researcher. The preservation of data integrity was achieved by collecting all data during school hours. No interventions by parents, guardians, or teachers were possible since all respondents were visible to the researcher on screen in their respective class or in their homes according to the mode of schooling adopted. These conditions also allowed the researcher to obtain representativeness of the sample, an issue deemed as problematic when conducting online studies by Granello and Weathon (2004). Notwithstanding this, a higher response rate was expected especially in State funded schools. One might speculate that at the time of data collection parents may have experienced an overload with letter circulars being sent electronically throughout the scholastic year.

Overall, adopting this strategy eased the process and ensured its success. This was made possible following an extensive search related to online data collection especially in relation to vulnerable participants, in this case young pupils. Although the process was laborious and lengthy, the outcome was positive and rewarding for the researcher.

5.4 Analysis

The overall satisfaction with how the online data collection project unfolded still leaves space for reflection about the different touchpoints of the process. The carefully laid out instructions along with appropriately scheduled data collection sessions made the process run smoothly most of the time. It was particularly pleasant to see how engaged the pupils were during the process.

As mentioned above, the research ethics committee of the university stipulated that the schools act as intermediaries between the researcher and the parents and their children. Signed consent forms had to be sent directly to the researcher via email. This process involved the assumption that parents were downloading the information sheet and the consent form that were sent by email. Initially, the response rate was low, however, a number of reminders (Granello and Weathon, 2004) encouraged more parents to give their consent on behalf of their children. After a few weeks of assessing why a number of parents were not giving their consent, potential reasons leading to a low response rate were generated as follows: (1) parents may not have had access to online devices where they could download a document, sign it and upload it again, (2) the email detailing the research project may have been interpreted as less important than other emails sent by the school and therefore it was not read, (3) parents were experiencing screen fatigue from getting all school communication sent via email, (4) parents viewing emails on a mobile phone may not have had the opportunity to download the documents. Following communication with the various schools about the response rate being lower than initially expected, one of the participating schools asked parents to simply send an email to the researching stating the name of the school, name of the child and a statement confirming their wish to participate in the project. This led to an instant increase in the number of parents or legal guardians consenting participation.

5.5 Conclusion and Action Plan

Similarly, to Warin (2011), I felt that the outcome of the study and the representativeness of the sample depended on positive relationships with the stakeholders. Although the sample size was satisfactory, unfortunately, this was not enough to achieve a higher turnout. Various lessons were learned with the most salient ones being to ensure that access is granted by gatekeepers on the ground, IT technicians in this case and to potentially make the information and consenting process more accessible to respondents. In future a recorded message or a video link could replace the information sheet since this may have been too long and detailed for parents to read through especially if the medium used is a smartphone.

The reflective process provided insight about the experience gained from the project through a mindful disposition that the researcher committed to adopt as a result of the opportunity to evaluate the research process. It enabled me to adopt a self-critical perspective over the processes I was implementing. Although objectivity was a guiding principle throughout the processes, subjective elements are difficult to obliterate completely (Bouzanis, 2022). Bouzanis claims that self-reflection is critical to develop an agential conduct. From this point of view, it must be noted that since the reflective cycle by Gibbs (1988) is primarily an exercise in experiential learning through reflection, it may be considered as parsimonious when looking at the method in which data is collected. In previous sections, the limitations of conducting online research and the ethical issues involved where discussed. These elements are not directly captured by the model since it does not capture the

issues that are directly related to the project unless the researcher specifically identifies technical cues or prompts to be used during the reflection process. In the current study they were given prominence primarily because a researcher needs to be accountable for the data collected and also because of the vulnerability of the sample. Accountability starts with the obligations that the researcher has towards the stakeholders involved (Given, 2008), in this case young pupils, their families and the schools concerned.

6. Embarking on mindful reflection and the uses of keeping a research journal.

Deciding to practice mindful reflection was primarily influenced by a six-week course in Mindfulness Based Cognitive Therapy (MBCT) that I had attended previously. Brief five-minute mindful meditations were incorporated in the reflection process prior to each 'debrief' session that I had to identify what went well and what could be improved. Each session took place immediately after the data collection activity. To concretise the reflection process a journal was kept throughout the project. Differentiating this process from other journaling activities was the explicit use of the reflective cycle identified by Gibbs (1988) while employing a mindful approach loosely following the procedure highlighted by Lemon (2017). Aiming to make future occurrences of online data collection smoother, journaling offered a space to record my thoughts as a researcher while they were still fresh during the data collection process was created. One downside of keeping a journal is the deliberate effort that needs to be made and the time that must be allocated in an already busy schedule. These slight hindrances were overcome by positive outcomes that emerged as a result of sorting out my thoughts and to avoid potential research blocks since the notes could be an efficient refresher of the experience.

Overall, the procedure entailed the preparation of templates with the six-step process detailed by Gibbs (1988) on MS Word. Prompting questions were used to avoid any mental blocks. The process in itself is not difficult, however, the diligence to pursue and adhere to the plan each time required effort. Each mindful reflection session lasted between 15-25 minutes following a brief moment to collect my thoughts and the disconnection from other media to avoid distraction. During data collection similarities in the entries were noticed apart from when different circumstances occurred. Initially the journals were not aimed to inform a study. The aim was to have the possibility to look back on the experience and assess the learning experience. Early entries express feelings of hope and frustration until ethics clearance was obtained, followed by the regular communication with intermediaries to enquire about the rate of signed consent forms obtained.

Below a sample entry from the journal can be found. Notes in the journal were typed in a Microsoft Word document for ease of reference and for practical reasons related to retrieval and legibility of the notes. The entries themselves were not intended to be long but simply to provide a reference point related to the journey of online data collection.

Table 2: Typical journal entry

Phase: Data collection
Date: 12/04/2021
School: Alpha, Year 5 Green
Session Number: 10
Number of pupils taking the survey: 20

Description	Logged in on Teams at 08.45 – Lesson to start at 08.50.
What happened?	I had the script ready on my desk.
How did things unfold?	The teacher using her laptop logged in from school and she projected my image on the screen.
What was the outcome?	The children from home also logged in on time.
What was the role of the stakeholders?	The pupils were eager to start. They were ready to go with their tablets already set up. I started off by introducing myself and by introducing the project. I asked the pupils if they every think about creativity, if they knew what it is. I also asked them if they very thought about their wellbeing. I told the pupils that it is important for us grown-ups to understand how they feel about their creativity and their wellbeing so that we can improve on what we are doing. I went through the procedure of anonymity and that it was important for me that they did not write their names anywhere on the online form.

	We started off with the demographics and gradually worked our way down the survey. Each question was read to the pupils and interpreted in the same way as for other classes and schools. The pupils took their time to listen and understand. Today the exercise lasted almost one hour – average time. Today's session was regular. Nothing out of the ordinary. As usual grateful for the smooth organisation set up by the school head - intermediary
Feelings How did the process make me feel? How am I feeling right now? How did the stakeholders feel?	I quite like this method of collecting data. It is efficient! I did not have to look for a parking space close to the school! The session went smoothly. It's lovely to be back in class and to see the eagerness on children's faces. I hope that this study will bring something out that will help children to really engage with 21st Century Skills and that may enhance their wellbeing especially psychologically. The curriculum is too vast almost suffocating any aspiration or dream that these young people may have.
Evaluation What worked well? What difficulties arose? How did the respondents contribute towards the experience?	It went well. Logged in ok Children were ready Teachers were also interested in the process. No stumbling blocks – internet connection worked well today.
Analysis Why did the process work out? What made the process stall?	I got the hang of it by now. The investment in the WIFI booster was good. They whole process is efficient and happy that I can access all respondents to ensure that they all have the same interpretation throughout. If only more parents gave their consent the sample would be much more representative!
Conclusion What did I learn from this experience? What could have been done differently? What precautions can be taken for future studies?	Collecting data online is proving to be a good aid especially since I can download things to excel instead of having to input each response risking to misread! It is good to also be in touch and have a bridge connecting me to the school – teachers and pupils. Helps me appreciate what happens in their daily routine. Perhaps roping in the Dept of Educ to actually push this down the schools could be useful in future – rather than just approving for ethics purposes
Action plan How can the process be improved next time?	The session worked well. Keeping it simple and ideally short due to attention span of pupils and their time away from lessons could help more buy in from the Head next time.

7. Why are reflections useful?

Mortari (2015) suggests that researchers should engage in deep reflection for them to perform their work well. Even if we do not consciously reflect on happenings in life or on a professional level, we make mental notes about what works and what doesn't as we go through experiential events and adjust our behaviour accordingly (Gould et al., 2004). Making a deliberate effort to think about behaviour could enhance the outcome of such practice. The definition of reflection cited earlier adds relevance and practicality to the practice of the method. This critical stance sets the scene for potential learning from and improvement of one's practices.

Reflection, primarily employed in qualitative research to legitimate empirical procedures (Guillemin, and Gillam, 2004) is perceived as a critical skill by Dahlberg et al. (2002) where they argue about the value of reflexivity in academic research. Mortari (2015:1) attributes high importance to reflection due to the requirement of those practicing the skill to engage in a "thoughtful relationship with the world-life and thus gain an awake stance about one's lived experience". This process adds value to the experience of the researcher as meaning is attributed to the events that make up the experience. Through this paper these remarks are further heightened by the introduction of mindful activity to accentuate the reflective process.

8. Concluding remarks

The pandemic induced by the spread of Covid-19 provided new opportunities and learning experiences for researchers. Reflection methods are often desired and actively used as self-development tools, however, Hobbs (2007) claims that this practice ought to be pursued by researchers too. This bears relevance especially in view of the experiential learning process that is undertaken through reflection leading to potential improvement of activities.

This paper outlined how a process using mindful reflection based on the reflective cycle illustrated by Gibbs (1988) could offer a learning opportunity for the researcher. The reflection process together with the increased interest in online data collection could provide fertile grounds for in-depth study of ethical procedures to enhance and encourage researchers to engage with online methods while keeping respondents safe. The level of engagement with respondents as well as the factors that could lead to enhanced participation rates need to be explored in detail to facilitate future online research. In conclusion, this paper extends on the knowledge related to the application of reflexivity throughout the research process. The mindful reflection used exemplifies the ease of access to the practice while using a guided approach through the templates used. This may lead to further research about researchers particularly focusing on mindful behaviours and their outcomes along with confidence building that may enhance psychological wellbeing.

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Appendix 1. Sample questions used in the survey.

Sample from Karwowski et al. (2013)
Short Scale of Creative Self

I think I am a creative person
My creativity is important for who I am
I know I can efficiently solve even complicated problems
I trust my creative abilities

Sample from Mclellan and Steward **(**2015)
How I Feel About Myself and School

I feel good about myself
I feel I am doing well
I feel I can deal with problems
I feel bored

An Illustration of Teaching and Assessment Practices of the "Conceptual Framework" as a Threshold Concept

Noel Pearse
Rhodes University, Makhanda, South Africa
N.Pearse@ru.ac.za

Abstract: Threshold concepts are critical to student learning, providing gateways to understanding particular fields or disciplines. This paper adopts this idea of threshold concepts and relevant teaching and assessment practices to illustrate its use in postgraduate students' teaching and learning activities when developing a conceptual framework for their research. This paper addresses several key topics, namely: (1) How conceptual frameworks are introduced and explained; (2) Differentiating quantitative variance conceptual frameworks from qualitative process conceptual frameworks; (3) Explaining and illustrating how to conduct process theory in qualitative research using the case study method, grounded theory method, and critical incident technique; and (4) Illustrating the role of formative and summative assessment as a form of scaffolding in the teaching and learning process.

Keywords: threshold concepts, conceptual framework, leadership process, teaching research design

1. Introduction

Numerous challenges are encountered by lecturers, research supervisors and students alike in teaching and applying research methods at a postgraduate level (Sverdlik, Hall, McAlpine, & Hubbard 2018). Furthermore, research suggests that postgraduate students expect to be taught how to apply research-based knowledge rather than discover it themselves (Albertyn, van Coller-Peter, & Morrison 2018). Consequently, team teaching and supervision models are more effective than having a single supervisor guide a research candidate (Agné & Mörkenstam 2018). Research supervision is increasingly recognised as a form of teaching (Bruce & Stoodley 2013; McCallin & Nayar 2012). Structured programmes are often offered at a postgraduate level to support postgraduate research and the socialisation of research candidates (Sverdlik, Hall, McAlpine, & Hubbard 2018).

Some of the more challenging areas in teaching research methods include academic writing, reviewing the literature to demonstrate originality, conducting research in a manner that is coherent with the research paradigm, analysing and interpreting data, and conducting ethical research (Humphrey & Simpson 2012; Kiley 2009, 2015, 2017; Kiley & Wisker 2009; Smith 2016; Wilkins, Neri, & Lean 2019).

This paper aims to illustrate the teaching and assessment practices adopted in introducing postgraduate research students to conceptual frameworks, viewing the notion of a conceptual framework as a threshold concept. Firstly, the literature on threshold concepts is introduced as a perspective for educators to adopt in identifying and handling the complex and critical concepts that underpin these challenging research tasks. After that, the "conceptual framework" is introduced as an example of a threshold concept. Finally, the largest portion of the paper is dedicated to illustrating how the author taught conceptual frameworks as a threshold concept before ending with some implications and conclusions.

2. Threshold concepts

In the teaching and learning literature, threshold concepts are critical to student learning (Wright & Hibbert 2015). They serve as gateways to understanding, can be transformative, providing critical insights into the field or discipline, and shape how students "'think' in a particular discipline, or how they perceive, apprehend, or experience particular phenomena …" (Meyer & Land 2003, p. 424). According to Meyer and Land (2003), threshold concepts are transformative, irreversible, integrative, bounded, and troublesome. Firstly, they are transformative. By implication, not every concept in a field, discipline or subject is a threshold concept, but rather is limited to those concepts that change how students think. In learning and development, grasping threshold concepts has been compared to a rite of passage or a state of liminality, of being stuck and then getting unstuck, and has been applied to the development process of PhD candidates and research supervisors (Burger 2016; Maistry 2017; McKenna 2017). Threshold concepts are irreversible in that they are unlikely to be forgotten. They are integrative in connecting other learning that was thought unrelated to create a more holistic view (Kiley, 2019). Fourthly, threshold concepts are bounded in that they demarcate disciplinary areas and their

boundaries (Barradell & Fortune 2020), thereby differentiating them from other disciplines. According to Barradell and Fortune (2020), these boundaries help shape a disciplinary mindset and ways of thinking and practising within a discipline or profession. Finally, threshold concepts are troublesome in that they are often counterintuitive, alien to students' experiences or appear to be incoherent to them. As a result of this combination of characteristics, threshold concepts are critical for educators to address through their teaching and learning activities. However, simultaneously, they are hard for students to grasp.

The literature on threshold concepts has been expanding over the past 15 years or more, and a list of resources from 2003 to 2018 was compiled by Flanagan (see https://www.ee.ucl.ac.uk/~mflanaga/thresholds.html). Despite this interest in threshold concepts, few guidelines were available on how to identify and embed threshold concepts in curriculum design. Meyer and Timmermans (2016) then introduced their "Integrated Threshold Concept Knowledge" framework, which, more recently, has been further explicated (Timmermans & Meyer 2019). Much of the literature on threshold concepts was initially applied at the undergraduate level and later adopted at the postgraduate level (Kang et al. 2022; Lindsay, Jack, & Ambrosini 2018) and taught students about research. The research conducted at the postgraduate level has mainly been focused on the doctoral level (Kiley, 2019), and Flanagan's list includes a section on "Research Education and Doctoral Studies" (https://www.ee.ucl.ac.uk/~mflanaga/thresholdsR.html#resed). Research-related themes have focused on supervision (Keefer 2015) and the development of the research capacity and skills of the PhD candidate in general (Kang et al. 2022), but also examine specific topics such as academic writing (Iermolenko, Aleksandrov, Nazarova, & Bourmistrov 2021).

The few research concepts that have received attention as threshold concepts include writing up qualitative data, sustaining an argument, theory or theorising, research paradigms, knowledge creation/originality, data analysis and interpretation, research ethics, and conceptual frameworks (Humphrey & Simpson 2012; Kiley 2009, 2015, 2017; Kiley & Wisker 2009; Smith 2016). There is also some evidence suggesting that research-related skills develop sequentially, with skills related to the literature review (including formulating conceptual frameworks) developing first. In contrast, skills related to the analysis of data and drawing of conclusions develop later (Timmerman et al. 2013). However, there seem to be relatively few publications that illustrate the teaching and learning practices associated with threshold concepts in postgraduate research in general, let alone "conceptual frameworks".

Looking more broadly at the teaching of threshold concepts outside of postgraduate research, educators that have addressed the challenges of teaching threshold concepts have adopted various teaching and learning techniques. These techniques include providing readings to students and holding discussions or workshops (Kiley 2009), adopting active learning techniques such as role-plays and presentations (Nicola-Richmond, Pépin, Larkin, & Taylor 2018), conducting tutorials and creating communities of practice (Leshem 2007), contrasting the everyday frameworks of students with scientific frameworks (Davies 2019), and enabling peer to peer collaboration (Bhola & Parchoma 2016) to facilitate learning.

This paper aims to illustrate how postgraduate students are taught to conceive and apply a conceptual framework to process-based theories. Several key topics are addressed in lectures and provide a structure for this paper, namely:

- Explaining and illustrating conceptual frameworks.
- Differentiating quantitative variance conceptual frameworks from qualitative process conceptual frameworks.
- Explaining and illustrating how to conduct qualitative research on process-based theories.

In addition, the complementary role of assessment in the teaching and learning process is considered.

The paper specifically illustrates the research design of leadership studies, thereby complementing the work of authors, such as Fischer, Dietz, and Antonakis (2017), who focus is on the leadership phenomenon. However, given the emphasis in the paper on research design, researchers should be able to transfer the ideas presented here to phenomena other than leadership. In order to simplify this illustration of teaching and assessment, like Niederman and March (2018), a pragmatic approach is adopted in exploring *process*. That is, it is agnostic on matters related to ontology and epistemology. As Niederman and March (2018) point out, this stands in contrast to the philosophical approaches to process as advocated by, for example, Whitehead and Demir and Lychnell (2015).

3. Conceptual frameworks

A conceptual framework portrays the status and relationship of several concepts related to a phenomenon of interest (Grant & Osanloo 2014; Jabareen 2009). These frameworks can be investigated quantitatively or qualitatively (Miles, Huberman, & Saldaña 2014; Pearse 2019). The conceptual framework is often presented in the form of a "flowchart, web diagramme or other type of schemata" (Glatthorn, 1998, cited in Leshem & Trafford 2007, p. 98). It is derived through a review of the literature, which provides an overview of the state of the body of knowledge and the gaps in research that need to be addressed, thereby justifying the need for carrying out a particular study (Varpio, Paradis, Uijtdehaage, & Young 2020). In other words, it helps to answer two questions, namely: ""Why is this research important?" and "What contributions might these findings make to what is already known?"" (Varpio, et al., 2020, p. 990). Since the conceptual framework scopes and shapes the research by explicitly displaying the central concepts of a research study and their relationships, it is an essential reference point for supervision and a potential instrument to scaffold learning (Berman & Smyth 2015).

While the terms are sometimes used interchangeably, a distinction has been drawn between theoretical and conceptual frameworks (Wilkins, Neri, & Lean 2019). That is, the conceptual framework shows the relationships between the concepts of interest in a study, with these concepts typically having been drawn from a more comprehensive theoretical framework. The theoretical framework, therefore, shapes the study (Varpio, Paradis, Uijtdehaage, & Young 2020). However, it is quite feasible for researchers to draw upon the same theory and produce different conceptual frameworks for different studies (Wilkins, Neri, & Lean 2019).

When teaching students how to design a research study, a "conceptual framework" can be recognised as a threshold concept encountered in that students find it troublesome (Alpi & Hoggan 2016; Kiley 2017), and so not surprisingly, it has been a focus of attention in the examination of students' work (Leshem & Trafford 2007). However, a conceptual framework is also transformative in that it can help students shift their practical, applied way of thinking about research towards a more scholarly or academic mode of thinking (Kiley 2009). Since it is produced through reviewing the literature, a conceptual framework is integrative in nature but simultaneously boundary forming as it locates the study within the body of knowledge and sets up its boundaries (Kiley 2009).

The more specific framework and threshold concept of interest in this paper is a process-based conceptual framework. Process theories represent a distinct category or type of theory concerned with "process" and are differentiated from "variance" and "systems" as two alternative categories of theories (Burton-Jones, McLean, & Monod 2015). Given space limitations, the systems category of theory is not discussed here. Rather process and variance theories are compared. A variance perspective assumes that the nature or properties of concepts (or entities) do not change, only their value.

On the other hand, a process perspective recognises that the concepts of interest are changed by a series of events or over time, so the sequencing of these events in time is critical (Burton-Jones, McLean, & Monod 2015). That is, a series of conditions need to occur in a particular sequence for them to have the potential to cause a change (Markus & Robey 1988). Since the nature of the concepts themselves change over time and not only their value, with the unfolding of a series of events, it is not feasible to construct valid and reliable measures of these unstable concepts. Therefore, they can only be investigated using qualitative research approaches. By implication, variance studies' conceptual frameworks differ from those of process-based studies.

4. An illustration of teaching conceptual frameworks

This section of the paper illustrates the teaching of conceptual frameworks. Firstly, the idea of a conceptual framework is introduced, and students are encouraged to generate, illustrate, and discuss the conceptual frameworks for their research studies. After that, quantitative (variance) conceptual frameworks are described and differentiated from qualitative (process) frameworks. Finally, several approaches to developing qualitative, process-based leadership theories are introduced.

4.1 Introducing the basic building blocks

According to Burton-Jones, McLean, and Monod (2015), building a theory consists of two main components: concepts and relationships. These are also the basic building blocks for designing conceptual frameworks. Tom Wujec has developed a "Draw Toast" workshop (see https://www.drawtoast.com/) to apply systems thinking and address wicked problems. Here, the basic building blocks of a systems design are nodes and connectors, which closely resemble the concepts and relationships of Burton-Jones, et al. (2015). This activity is adapted to

a classroom exercise of "Draw how to make a cup of coffee". Students each draw their process diagrams and then compare them with the drawings of others. This comparison leads to further classroom discussion, emphasising the process of design.

After that, examples of conceptual frameworks used in management research are provided, and attention is also drawn to the distinction made in the literature between untested conceptual frameworks and tested conceptual models. Finally, students are asked to draw a diagram illustrating their conceptual framework, showing the main concepts of their research and the relationships between them. In degree programs such as the MBA, the research is of limited scope. Therefore, students are encouraged to identify a theoretical or conceptual framework in the literature and adapt it to derive a simplified conceptual framework representing their research, with far fewer concepts and relationships. Cooperative learning (Slavin 1995) then takes place with students presenting the conceptual frameworks to their peers, explaining what they have drawn, and making modifications in the light of feedback received and their further reviewing of the literature.

4.2 Quantitative conceptual frameworks versus qualitative process frameworks

In quantitative leadership studies, an input-output model is dominant, with a questionnaire typically being the preferred data collection method (Bryman 2004). While quantitative researchers may frequently refer to leadership processes, according to the categories of Burton-Jones, et al. (2015), this research is classified as variance research and not process research. Explaining this distinction to students is an essential step toward explaining qualitative, process-based theories and how their conceptual frameworks differ.

From a quantitative perspective, leadership theories explain the causal relationship between inputs and outputs (Fischer, Dietz, & Antonakis 2017). Therefore, the most basic quantitative relationship is illustrated by an independent and a dependent variable. By definition, a change in the independent variable's level is responsible for a change in the level of the dependent variable. More complex quantitative conceptual frameworks build on this fundamental relationship, creating a configuration of various types of variables. A summary of the main types of variables is included in Table 1. These types of variables are illustrated in class through a lecture and supplemented with a reading that explains these various quantitative conceptual frameworks and provides research articles that exemplify each case.

Table 1: Illustrating the configuration of quantitative variables

Variable or Model Type	Explanation	Statistical tests	Examples
Situational variables	Situational variables incorporate physical and social surroundings, temporal and task dimensions, and various antecedent states that affect a variable of interest (Belk 1975).	Correlation analysis or ANOVA (James, Demaree, & Hater 1980).	Contingency theories of leadership in the 1970s and 1980s (House & Aditya 1997). Context in psychological leadership research (Liden & Antonakis 2009).
Moderating variables	Moderation occurs when another variable is introduced that modifies the relationship between an independent or dependent variable by either strengthening, weakening, negating, or otherwise altering the relationship (Allen 2017).	Moderated multiple regression (Jose 2013).	A meta-analysis of the Multifactor Leadership Questionnaire noted that significant moderators of the relationship between leadership style and effectiveness included the level of the leader (high or low) and organizational setting (public or private (Lowe, Kroeck, & Sivasubramaniam 1996).
Mediating variables	A mediating variable is understood as part of a causal chain that is built, whereby the mediator explains to a greater or lesser extent the relationship between the independent and dependent variable (Baron & Kenny 1986). A mediator is, therefore, a causal mechanism in the chain of variables.	Stepwise (Baron & Kenny 1986) or by an analysis of the coefficients of estimated regression equations (MacKinnon & Dwyer 1993).	Gottfredson and Aguinis (2017) established that leader-member exchange was a mediating mechanism between leadership behaviour and its effect on follower performance. Lu, Lau, and Yiu (2012) investigated multiple mediators in their study of transformational leadership.

Variable or Model Type	Explanation	Statistical tests	Examples
Nomological networks	"A lawful pattern of interrelationships that exists between hypothetical constructs and observable attributes …" (Colman 2009).	Structural equation modelling.	Numerous nomological network models for leadership exist, including ethical leadership (Brown, Treviño, & Harrison 2005), servant leadership (Eva et al. 2019), authentic leadership (Gardner, Cogliser, Davis, & Dickens 2011) and the implicit followership theories of leaders (Sy 2010).
Multilevel models	Provide a more integrated explanation of leadership phenomena across various levels (e.g., at a micro and macro level; or individual-, team- and organisational-levels).	Multilevel structural equation modelling.	Maynard, Gilson, and Mathieu (2012) provide a multilevel review of psychological empowerment at the individual, team, and organisational levels. Zhang, Lee, and Wong (2016) investigated servant leadership measures at both the individual and organization levels.

Source: Author's construction

4.3 Explaining and illustrating process theory as a qualitative process

As explained and illustrated earlier, according to Burton-Jones, McLean, and Monod (2015), the quantitative processes referred to above and summarised in Table 1 would be classified under a variance category of theory types. To illustrate to students the distinction between quantitative variance models and qualitative processes, several process models that show qualitatively different stages are explained in a lecture, including:

- The experience of change as a loss (Bridges, Bridges, & Lencioni 2016; Prochaska, Prochaska, & Levesque 2001). This process has been built upon the grieving process of Kübler-Ross (1973), which is characterised by qualitatively distinct phases of denial, anger, bargaining, depression, and acceptance. Not surprisingly, what is viewed as appropriate leadership behaviour in each phase of the process of change differs (see, for example, Kotter 1996).
- The classic forming, storming, norming and performing stages in the development of a team (Tuckman 1965) also require different types of behaviour from the leader at the different stages, to facilitate team development (Rickards & Moger 2000).

As a further example of the distinctly dynamic nature of concepts from a process perspective, the Horila and Siitonen (2020) paper is given as a reading. It shows that relational leadership was not stable, and nor was it developed linearly. Once students grasp the distinctive nature of process theories versus quantitative variance theories, they can develop conceptual frameworks that illustrate these types of processes. After that, the focus of attention in teaching turns to designing a qualitative process-based research strategy for process-based conceptual frameworks.

4.4 Approaches to developing qualitative leadership theories

In class, students are introduced to various qualitative research methods and techniques, with examples being provided of their use in leadership research. While a broader range of research methods can potentially be used, this paper only discusses three possibilities that are taught: the case study method, grounded theory method, and critical incident technique in theory building.

4.4.1 The case study method

Case study research is predominantly concerned about finding explanations to questions of "How?" and "Why?" (Yin 2014). Case studies of process-based explanations typically illustrate a series of unfolding steps or stages over time, with some also explaining the process or identifying its underlying causal mechanisms. The primary function of these mechanisms is not to predict but to explain "how?" (Davis & Marquis 2005). As Davis and Marquis (2005, p. 336) elaborate, "If a regression tells us about a relation between two variables - for instance, if you wind a watch it will keep running - mechanisms pry the back off the watch and *show how*." Several mechanisms can be identified, including situational, action formation, transformational, environmental, cognitive, and relational (Davis & Marquis 2005). For example, Beyer and Browning (1999) explained how

charisma was routinised through administrative structural arrangements, succession planning and strategic and cultural initiatives. These various types of mechanisms can be analysed using, among other methods, a case study approach.

Five analytic techniques of case studies have been proposed by Yin (2014), which can all be used in process-based research:

- Pattern matching may be employed to match the process observed in the data to a theoretical process derived from the literature or presented as a conceptual framework.
- Explanation building attempts to identify the causal links that explain "how" or "why" something occurred as it did.
- Time-series analysis seeks to map out changes over time by compiling a chronology of events and their causes.
- The logic model explains why a sequence of events unfolded as it did by referring to an existing theory that provides a causal explanation and determining if it applies to the case at hand. This causal explanation can be analysed at an individual, organisational or programme level. As such, it is a type of pattern matching.
- Cross-case synthesis is used to analyse multiple cases, such as investigating leaders' learning processes in international organisational settings (Bingham, Eisenhardt, & Davis 2007). It can also be helpful in analysing processes across levels, if the cases are nested, such as in the example of O'Kane's (2006) study on leading a turnaround.

4.4.2 The grounded theory method

Mechanisms explain the occurrence of a process. Therefore, in contrast to events-based stepwise processes, which answer the question "how?", mechanisms are distinct in addressing "why?" questions. One popular qualitative research method that aims to explicate mechanisms is grounded theory. That is, grounded theory intends to generate a theory or explanation for a basic social process (Goulding 2002). For example, in the grounded theory study of Kan and Parry (2004), "identifying paradox" emerged as a basic social process in their investigation of leadership overcoming resistance to change in a New Zealand hospital.

Processes can consist of a series of events and/or activities, where events refer to something that happens to leaders, while activities are initiated by leaders who demonstrate agency (Niederman & March 2018). In grounded theory studies, which seek to explicate basic social processes, this agency is reflected in the paradigm model as action/interaction strategies (Strauss & Corbin 1990). In their grounded theory study, Haque, Liu, and Titi Amayah (2017) showed how leaders who were patient during decision-making were better able to cultivate a collaborative culture, encourage growth, and attain organisational goals and objectives.

4.4.3 The critical incident technique

Originally designed as a quantitative observation-based technique by Flanagan (1954), the critical incident technique was subsequently adapted as a qualitative technique for gathering and analysing interview data (Chell 2004). The critical incident technique has also been used to provide structure to the collection of data, with an alternative method of data analysis being applied, such as content analysis (Ellinger & Cseh 2007), grounded theory (Hamlin & Whitford 2020), or thematic analysis (Ruiz, Hamlin, & Esparza Martinez 2014). The qualitative version of the critical incident technique provides one approach to exploring the unfolding of events and behaviours related to the occurrence of the critical incident.

For example, Bott and Tourish (2016) investigated the leadership dynamics in 18 diverse non-profit organisations. While the technique has tended to focus on significant events (Bott & Tourish 2016), a growing number of studies have used it to investigate the effects of routine activities in shaping behaviour (Ellinger & Cseh 2007; Ruiz, Hamlin, & Esparza Martinez 2014). For example, Parzefall and Coyle-Shapiro (2011) studied how employees made sense of a breach in the psychological contract and reported how employees attributed responsibility for the breach (typically to their immediate manager) and found an explanation for its occurrence.

4.5 The role of assessment

Having illustrated how conceptual frameworks are taught, it is now possible to explain the complementary assessment tasks that can support teaching and learning. For deep learning to occur, course outcomes, the teaching and learning activities, and the assessment tasks must all be aligned (Biggs & Collis 2014). Well-designed

formative and summative assessment tasks have been shown to facilitate student progress with their research projects (Pearse 2012; Vickerman 2009) and are a form of scaffolding. Scaffolding in education has its origins in the work of Vygotsky (1962) and refers to the interactional support that is provided to mediate learning in the zone of proximal development. Assessment can be used to drive student learning, especially when feedback is viewed as a dialogue between the student and teacher (or supervisor), then higher quality instruction, guidance and learning occur – including when feedback is about the mistakes that students have made (Ramsden, 1992). Well-designed assessment tasks, therefore, provide direction to students. Thus, Lovitts (2007) argues for greater transparency in the assessment of PhD research, suggesting that making the unspoken rules for assessment more explicit will make them more transparent to students. They will then be able to prepare more effectively and produce better quality work. In other words, detailed assessment guidelines provide postgraduate research students with much-needed structure, facilitating their learning and research endeavours.

Several formative and summative assessment tasks form part of the research course for which the teaching of conceptual frameworks has been illustrated. Firstly, students are taught how to search for and review relevant literature to design conceptual frameworks. They are then required to choose a research topic from a list provided by potential supervisors and develop a conceptual framework for a research topic that they may or not ultimately pursue. Detailed instructions are given, and this task is assessed against four main criteria, namely:

- *The Conceptual model*: A clear and concise figure representing the key concepts and their relationships is presented.
- *Definition of concepts*: Current, clear, and relevant formal definitions of the key concepts in the conceptual model are presented.
- *Statement of research proposition(s)*: Based upon the conceptual model, at least one proposition is stated in a manner that can be developed into a research question or hypothesis.
- *Description and log of search process*: A complete and detailed table is included logging the literature search process that was followed. Sound explanations are given for search decisions.

Students then have a second opportunity to develop the conceptual framework for their specific research topic. After students have received peer feedback on their conceptual frameworks, they prepare a presentation of their intended research that includes the conceptual framework and receive feedback from their supervisor on this research idea, including the conceptual framework. This formative assessment task is followed by another summative literature assignment built around the conceptual framework, and that is assessed using the following main criteria:

- *Clarity*. The conceptual framework is clearly explained and illustrated so that the relationships between the different elements/variables/phenomena are evident.
- *Soundness of the Framework*. The construction of the conceptual framework is well-argued and supported by the literature and research studies.
- *Conceptual clarity*. All key terms of the conceptual framework are clearly defined, referring to and using current and quality scholarly sources.
- *Research propositions*. Research propositions are clearly stated. It is evident how these propositions have been derived from the literature. The research propositions address a gap in the literature.
- *Theoretical underpinning*. The relevance of an underpinning theory to the framework is evident.

As illustrated by the sequencing of the assessment tasks, they are incremental, ensuring that appropriate scaffolding is provided in support of learning. Later assessment tasks build on earlier feedback provided to students and become more complex and demanding so that students can ultimately formulate a conceptual framework that forms the basis for their research proposal. Furthermore, this structured approach includes supervisors as assessors and supports and complements their supervision of the students.

5. Implications for postgraduate teaching

Several implications emerge from this brief overview of teaching and assessment activities to introduce postgraduate students to conceptual frameworks as a threshold concept. Firstly, research supervisors should acknowledge that their students expect to be taught how to design and conduct research (Albertyn, van Coller-Peter, & Morrison 2018). Therefore they should embrace the teaching role within their supervisory practice (Murphy, Bain, & Conrad 2007; Van Veldhuizen, Oostdam, Enthoven, & Snoek 2021). One way to do so is to identify those concepts and skills that are both difficult and critical to successfully conducting research. Supervisors can then provide teaching and learning opportunities in these areas. If supervisors identify these as

threshold concepts, it can be a helpful framing of these challenging areas and provide postgraduate students with the scaffolding they need.

Secondly, a distinction is evident between quantitative and qualitative understandings of, and approaches to, the idea of process in theory building and testing. This distinction must be made explicit to students so that they can successfully navigate their review of the literature. For example, the research methods utilised in the literature need to be identified and included in reviews. This will ensure that the nature and (in)stability of the investigated concepts are clearly understood. By extension, when identifying the gaps in the literature, researchers may find it necessary to view quantitative and qualitative studies as two separate bodies of literature. This may aid in problematisation or gap-spotting (Sandberg & Alvesson 2011) to demonstrate the intended contribution of the research. For example, adopting a different research approach to that prevalent in the literature can also create an opportunity to make an original contribution to the existing body of knowledge.

6. Conclusion

This paper has aimed to illustrate how postgraduate students are taught to conceive of and apply a conceptual framework to their research studies. In describing these teaching and assessment practices, given the space limitations of this paper, a pragmatic approach was adopted. As a result, this paper did not, for example, get to explore the philosophical underpinnings of process-based research. For a more detailed discussion of the ontology and epistemology of the topic of "process", readers are referred to the work of Demir and Lychnell (2015). Furthermore, it has not been possible to include mixed-method research designs that focus on the leadership process, even though there are examples of such studies (see Karsten & Hendriks 2017; Lyndon, Pandey, & Navare 2020; Serban & Roberts 2016).

Hopefully, in teaching how quantitative and qualitative researchers differ in their approaches to the investigation of leadership behaviour, this paper has achieved a greater appreciation of conceptual frameworks as a gateway or "portal" (Meyer & Land 2003) to understanding *process* in leadership behaviour research. In addition, it is hoped that educators and supervisors alike can adopt some of these ideas in their teaching and supervision practices.

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Data: Its Nature and Management
A Short note on some of the Complexity Behind the Concept of data

Dan Remenyi[1] and Paul Griffiths[2]
[1]University of KwaZulu Natal, South Africa
[2]EM-Normandie, Oxford, UK
dan.remenyi@gmail.com
pgriffiths@em-normandie.co.uk

Abstract: This is a wide-ranging paper that discusses a number of issues surrounding the nature and use of data in academic research. As this is a vast subject the authors consider it a short note on this most important topic. It is a noteworthy fact that very little attention has been given to reflection on and understanding of the nature of research data. It seems to have been taken for granted that researchers would intuitively know what data is and how it should be handled. And interestingly this has not historically been an issue but in the light of the proliferation of multi-forms of data it is appropriate to reconsider the nature of research data and discuss how it is used in academic research processes. This is no trivial matter as many of the issues involved can often be used in imperfectly defined ways and thus there is a continuous propensity to ambiguity. The realisation that data is primarily a catalyst to human thought processes is an important insight to what data is really about. The main outcome of this paper provides a fresh or freshly invigorated insight leading to a novel conceptual understanding of the nature, role and potentiality of research data and this leads to emphasising the central importance of the researcher understanding what data will facilitate his/her answering the research question. The issue of the importance of data management is also emphasised as are the challenges of data interpretation. As an aid to future researchers, the paper offers a visual depiction of "The roadmap from phenomenon to idea to pursue". The discussion in this paper is primarily philosophical although it does venture to address some of the more operational issues related to the effective use of data. The findings benefit from, and are underpinned by, the authors' experiences over many years of practical empirical research. The authors regard this paper as an invitation to the academic community to engage in a discourse on issues underpinning this new understanding of the nature of research data.

Keywords: nature of data, definition of data, data objectivity, data versus noise, data ethics, data management, data protocol

1. Introduction

Vast amounts (circa ten trillion US dollars) are being expended on scientific research across the world and a very significant number of scientific researchers (circa ten million) devote themselves to it[1]. Thus, it is not surprising that there are multiple views of what constitutes scientific research. From the point of view of developing a useful working definition this paper accepts the following, "*Scientific research is the pursuit and application of knowledge and understanding of all aspects of the natural and social world following guidelines involving a systematic methodology which is based on observation and analysis of data or evidence, abiding by strict codes of ethics*". In this context the words data and evidence are often thought to be interchangeable and they include all the possible subcategories of data such as primary, secondary, numeric, and qualitative which may be used in a wide range of methodologies. However, in reflecting on how data fits into the greater scientific endeavour, it is important that too much emphasis is not placed on the need to follow a *systematic methodology*. Many different types of data can support understanding in different ways. Rosenthal and Rosnow (1991 p6) citing Kaplan (1964, p.27) recalled that, *One contemporary philosopher, Abraham Kaplan, when asked to define the scientific method, answered that the 'scientist has no other method than doing his [sic] damndest'.* The simple "truth" of the matter is that scientific research, driven by human curiosity, can involve unusual processes and procedures beyond and seek out a variety of data which is normally considered within the ambit of the scientific method. Much more important to scientific researchers than following any particular formulated research methodology are the results rather than anything else (Feyerabend 1993).

It is also important to point out that there are a number of different perspectives regarding the use of the term data. In some traditions, data is not regarded as having value except as the raw material from which information is produced Ackoff (1989). Applying this thinking it is information that informs research. According to this perspective the transformation from data into information is a key element in the research process. Generally,

[1] In addition to abundance of academic research UNESCO claims that US$1.7 trillion is being spent on corporate research and development http://uis.unesco.org/apps/visualisations/research-and-development-spending/

in academic research the term information is not used in this way and the notion that data is not of much value until it is processed into information is not common.

The distinction made here between the two senses of the word data (i.e. the raw material from which to produce information and a directly useful artefact) is not unimportant but the distinction is worth clarifying so that confusion does not arise. One of the reasons for this potential ambiguity is that the word data has been appropriated by the information and communications technology community and used in expressions such as database, data communications and data centres in a way that is different to what the academic research community would normally means by the word. A data centre is normally a collection of hardware (accompanied by appropriate software and telecommunications) used for the purpose of storing and transforming large quantities of electronic records. While the records remain un-processed their potential value is not being realised. And a database is a set of records which often has no value until some individual makes an inquiry. Thus, in a particular sense it is possible to assert that data only comes about when a record is assessed by someone or something.

This discussion reveals a world of great proliferation of volumes and diverse forms of data combined with some ambiguity on when to consider that data actually comes into existence Thus, this situation calls for fresh or fresh ly invigorated insights into the (theoretical *cum* philosophical) concepts surrounding research data and its related ethical and practical management within scientific research (while implicitly applying the Scientific Method) and to provoke the academic community to reflect on the importance of understanding the nature of data, which is the ultimate purpose of this paper.

In engaging in this discussion, it is useful to look at the historical evolution of the concept of data and its effect as a stimulus for understanding so as to illustrate the conceptual nature of research.

2. Conceptual nature of research data

2.1 An etymological and historical analysis of the word data.

Empiricists will argue that without data there is no opportunity for meaningful research, and they will rush to produce data[2]. The same empiricists will often not be clear about the issue of what actually constitute appropriate data. This was perhaps most obvious when Glaser, one of the Grounded Theory initiators, asserted "*all is data*" (1978). As it stands this comment might be considered meaningless or may be even distinctly misleading. What is needed is a move towards a better understanding of the concept of data especially in as far as it is used in the field of academic research. It is a remarkable fact that although data is often described in terms of primary or secondary, or quantitative or qualitative, or natural or constructed (Silverman 1993; Remenyi 1998) but the concept of data itself is seldom addressed. Except for theoretical research[3], data plays a central role in all academic research activities and often constitutes the major part of the effort required in any given research project. Conceptualising the data required, its acquisition, its analysis, and its management can all be most time consuming.

Presumably, there is some unspoken assumption that the definition of data is intuitively obvious and does not need articulation. This seems to be inappropriate in any academic endeavour and this paper will take a step towards rectifying this situation.

In coming to terms with the meaning of a word an etymological approach is sometimes useful. This however does not always produce much clarity which will now be demonstrated. The website https://www.etymonline.com/word/data provides the following definition of data.

1640s, "a fact given or granted," classical plural of *datum*, from Latin *datum* "(thing) given," neuter past participle of *dare* "to give" (from PIE root ***do-** "to give"). In classical use originally "a fact given as the basis for calculation in mathematical problems." From 1897 as "numerical facts collected for future reference."

[2] There is sometimes a debate as to whether it is more appropriate to suggest that data is produced or captured or generated. This aspect of the subject will be developed here.

[3] It is worth pointing out that this paper is, itself, presented without data in the sense which is being discussed in the paper. As a theoretical piece of work it draws on argument rather than data and thus demonstrates that some forms of research may not require access to data.

Meaning "transmittable and storable information by which computer operations are performed" is first recorded 1946. *Data-processing* is from 1954; *data-base* (also *database*) "structured collection of data in a computer" is by 1962; *data-entry* is by 1970.

As can be seen from the above an etymological point of view the word data is derived from a Latin word which means *given* which implies in some sense that data is something that is based on authority and thus should not be questioned. Another way of understanding this is that when one says someone has data it suggests that this represents "the answer" or at least suggest a clear path to the answer. This idea was elegantly demonstrated in the 1997 film Contact, which is an adaption of work of Carl Sagan of the same name, in which Dr Eleanor Arroway played by Jodie Foster is asked if she believes in God and she replies simply that she has no data on that topic and therefore cannot answer the question. Is it true that without data the academic community is silenced?

One of the interesting things about the above etymological description is that it attempts to sidestep the main problem by introducing another challenging word i.e. fact. If we go back to the same website or for that matter other sources, we see that the meaning of *fact* has evolved over the ages:

- Medieval Latin – "state, condition, circumstance" literally "thing done" (genesis associated with Old French (*fait*), Italian (*fatto*) and Spanish (*hecho*)"; *Circa* 1530s – "action, anything done" especially an "evil deed". This is derived from the Latin (*factum* – an event, occurrence, deed, achievement). Post 1630 – assumes the notion of "something that has actually occurred". Modern sense – mainly "thing known to be true".

The connecting thread in the evolution of the word fact points to the idea of a*ction*. And this makes clear that in using the word fact we are talking about something which *has been done* i.e. historical action and thus to some extent our understanding of facts relies on our ability to be aware of a past event i.e. to remember. This insight is useful in developing an understanding of data as something in our memory. However, this is but a small step, and in general, these types of etymological definitions do not add much depth of understanding to the word data in that they are by no means complete and certainly do not stand up to any thorough academic scrutiny.

In this association between data and remembering, it is an amusing coincidence that the ultimate tool for organising data was invented by a Tuscan merchant called Datini. Indeed, Francesco di Marco Datini was a merchant in the XIV century who ordered wool from Mallorca two years before it was grown and sold it four years later as magnificent rolls of dyed cloth. The supply chain in that four-year process (Harford, 2021) "stretched across Barcelona, Pisa, Venice, Valencia, North Africa and back to Mallorca. "Surrounded by fools that would lose their way from their nose to their mouth", he invented the spreadsheet with double entry to keep track of things. Close to a hundred years later the double entry bookkeeping (*alla veneziana)* was formalised and published in 1494 by Luca Pacioli, an accomplished mathematician who befriended Leonardo de Vinci; and in 1979 a Harvard Business School student by the name of Dan Bricklin launched to market *VisiCalc*, the first digital version of Datini's paper spreadsheet and the predecessor of Lotus 1-2-3 and Excel (Harford, 2021; Origo, 2020).

2.2 Data as a stimulation for understanding

The notion of data in the context of academic research is actually complex and it is for this reason often not directly addressed or just treated as an afterthought. Researchers who primarily work with data often ignore the complexities and simply use the work-a-day understanding of the word which is at best a simplification and at worst a concept that is easily muddled. However, as implied above this is not satisfactory to those who seek a fuller or thoughtful appreciation of the fundamental principles on which much research is based.

The first factor to come to terms with is that data is not the same as the phenomenon it represents. Data may be thought of as a residue or footprint, conceptual or physical, left behind by beings, things or events in the past. It is a record or perhaps only a reflection of what has been. In some sense it can be compared to *the silvery trail left behind by the snail* as it crosses our path. But such a trail of conceptual or physical activity is in itself of very little value and could be labelled "proto-data". This term proto-data suggest that it is not quite data but may become so. A computer record sitting on a computer disc somewhere might be considered proto-data.

Data come into existence and thus acquires value when it is used as a prompt to the mind, mostly the imagination. Data suggest how events, circumstances or contexts can be understood. The use of data stimulates human thinking, which facilitates the bringing together of different concepts in such a way that it can lead to a more comprehensive appreciation. Understood in this way data is a powerful facilitator in developing ideas and

concepts which can lead to understanding and possibly improving whatever task is at hand. Of course, mistakes can be made, and the understanding produced can be misguided and even data of the highest integrity[4] can lead to errors. There is no guarantee that the possession of data would lead to a greater or better understanding, let alone a "correct" answer to whatever question we face.

In a similar way, data can also stimulate the brain in addressing what might be achievable in the future. Trends can be found in data which can suggest how future events or activities might unfold. This, of course, is the domain of forecasting and it is most important to appreciate that a forecast is always nothing more than a reflection of what is thought to be the most likely outcome of a particular set of given circumstances. Even the most assiduous application of forecasting techniques cannot deliver certainty with regards to any actual future outcome.

Thus, from an academic researcher's point of view data can be described as:

> *Data stimulates human thinking and can facilitate the bringing together of different ideas and concepts in such a way that it can lead to a more comprehensive understanding. In this sense data may be regarded as a powerful facilitator in developing theories which can lead to improving whatever task is at hand.*

With the above definition and description of data in mind it is possible to outline the roadmap of thinking which spans from an observation to an idea prompted by data (Figure 1.) Clearly there may be many sub-activities associated with each of the nodes in Figure 1.

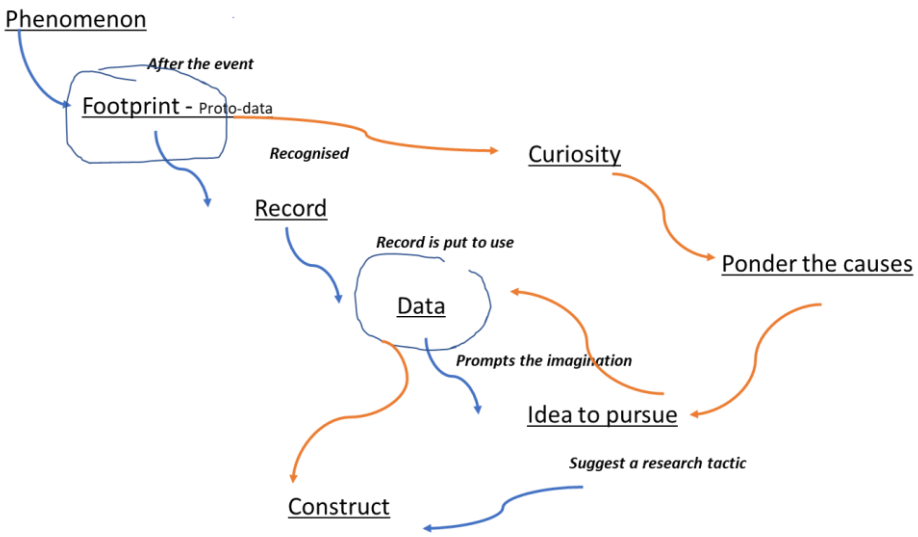

Figure 1: The roadmap from phenomenon to idea to pursue

Sometimes a case is put for saying that some ideas are not stimulated by data, at least not by data in the sense that is normally encountered in academic research. A researcher might have a dream which causes a new line of enquiry to be followed. If this is the case one can ask, Was the dream data? If a researcher observes some small incident of misbehaviour which is not recorded and as a result decides to explore a theme of human behaviour should the incident be considered as data? It is unlikely that either of these event would normally be considered data but in terms of the definition suppled in this paper they could be.

Data is normally thought of as being intangible, but it is clearly observable, and its existence relies entirely on the ability of the observer to imagine how it relates to a person's or event's current or past status or behaviour. This cognitive function requires the observer to perform a matching between what *the silvery trail* constitutes and what might be useful in answering a question at hand. This needs an understanding and *a priori* decision of

[4] The notion that data itself has integrity is sometimes challenged by the argument that data is always neutral and that it is the user of data who may use it inappropriately which causes concerns of integrity. However, data can be corrupted in a number of ways such as for example what sometimes occurs in data communication transmissions. Alternatively, data can be produced with the deliberate intention of obfuscation or deceit.

what might be relevant. In simple terms it is impossible to answer a question unless one has some idea of how it can be answered (and even what the answer might look like). This realisation implies that considerable thought needs to be given to the type of data that might be available and how it can be acquired by the researcher. And in so doing, as data is that which stimulates thoughts, it is important to be as open minded as possible about all the possible manifestations the necessary data could take.

Researchers do not always get this right and many false trails and blind alleys are followed which do not produce any useful results. In Jonathan Swift's tale of Gulliver's Travels the protagonist visits a university where there is a team of academics who are exploring the nature of sunshine which they are doing so by examining cucumbers. This project is not going well, and the frustrated academics proclaim that if they only had the resources to acquire more "cucumbers" they would soon come up with an answer. Clearly, they do not have an adequate *a priori* understanding of the problem required to be able to determine where they might look for the type of data which could be useful to them in solving their research question. A priori, cucumbers should not have been regarded as a data source for this purpose. In fact, in this situation cucumbers were what could be regarded as noise. Or perhaps more accurately the idea that cucumbers could shed light on the nature of sunlight should be regarded as noise. Noise is a distraction which has been incorrectly assumed to facilitate, support, or deliver some results for the researchers' efforts and more will be said about this later. Swift's comment points out the need to always challenge the appropriateness of the chosen data[5].

Perhaps the most important skill of a researcher is having the cognitive capacity to connect any given *silvery trail* with the research question or any research question to a *silvery trail* which might be appropriate in facilitating the delivery of the success of the research.

2.3 The ethics dimension of data

Having established that data or maybe proto-data can be envisaged as something similar to *the silvery trail left behind by the snail* a question arises of who owns the *the silvery trail* and how should it be appropriately used. Some data will be privately owned, and some will be in the public domain. Generally, data in the public domain may be used freely. But privately owned data is accompanied with many regulations and a large number of ethical issues. It is beyond the scope of this paper to explore many of the ethics issues. Notwithstanding this one important general principle could be mentioned. The suggestion that the more data the better is not universally accepted. The view that Ockham's Razor which states that "it is vain to do with more what may be done with less" is relevant to data has been expressed. This applies to both the quantity of data and to the number of different sources. There is no doubt that data is challenging to acquire and not easy to manage. Therefore, it is important to be aware of what is actually needed. The data acquisition and management aspects of a research degree represents a substantial amount of the work required and this should be handled efficiently and effectively. An example of this is the problem frequently encountered related to the difficulties in deciding how many case studies are required (Remenyi, 2013) and the number of interviews which are needed. And then although it is universally agreed that triangulation is essential there can be some considerable debate about the number of different sources of data and/or the number and different types of informants required. This issue is part of the general principle of academic research which emphasises the important of parsimony (Remenyi & Bannister, 2013) and are often challenging to address.

The problem on quantity of data has taken a new turn with the advent of the phenomenon known as Big Data and the widespread view in some circles that data-driven approaches are necessarily virtuous. The analysis of Big Data is now being seen as a way of understanding and possibly predicting human behaviour. It is still correct that this approach requires vast datasets such as those that were made available to Cambridge Analytica by Facebook (Confessore, 2018) but the emphasis has now changed in that it has been suggested that through the analysis and interpretation of very large datasets representing mostly individual historical purchasing behaviours and preferences, insights into individual current and future preferences and behaviour will become apparent with more certainty to the analyst than to the individuals themselves. This proposition is by no means proven. There is much hyperbola in this arena and very little rigorous research has been conducted at this point.

When data is understood in this way its importance becomes obvious and that efficient and effective management of data can have a major impact on the performance of academic researchers.

[5] The choice of data is so critical to solving a research question that it should be repeatedly questioned during the research project.

2.4 A philosophical fillip

It is worth noting at this point that data has one especially interesting characteristic which is that the absence of *the silvery trail left behind by the snail* is in itself potentially data in that it tells the observer that the surface has not been visited by a trail leaving creature. Once again literature offers us an eloquent illustration of this point. In Sir Arthur Conan Doyle's *Silver Blaze,* Sherlock Holmes points out that an important clue which will help solve the mystery is the fact that the dog did not bark during the night. Thus, if an event does not happen it is perfectly possible that the recording and use of its absence may constitute something which will in itself lead us to a greater understanding of the situation and thus it may be regarded as data. But this idea is sometimes associated with the aphorism that absence of proof should not be confused as being proof of absence. In the case regarding the discussion of data in academic research this legal issue does not generally arise.

Another interesting dimension of data is discussed by Mary Beard in her book entitled *How We Look - The Eye of Faith*, Beard (2018) where she points out that much can be learned from historical artefacts as they can be seen as bearers of data about a number of issues including their creation, their use and the circumstances prevailing when they were used or lost or discarded[6]. Using as examples monuments like the Olmec Heads and the Statue of Pharaoh Amenhotep III, she points out these artefacts contain much data about the nature of the societies which produced them. In fact, almost any activity whether it is fleeting such as a traffic jam or written in stone such as the Acropolis in Athens speaks loudly about the society in which it has occurred or been made. As such these artefacts may be considered a form of data.

Data derived from examining artefacts or natural phenomena or individuals or animals does not present only one possible interpretation. Nowhere has this been better illustrated than in the parable of the Blind Man and the Elephant by John Godfrey Saxe. In his poem Saxe tells the tale of six blind men from Hindustan who join together to examine an elephant, and this results in six entirely different descriptions of the beast with completely different allusions to the nature of what is being "observed". This anecdote is a clear reminder of the fact that the interpretation of data may be entirely subjective and gives the lie to the aphorism that "facts speak for themselves" (ICLR 2021). Of course, it is a fundamental requirement of academic research to make every effort to minimise subjective interpretation, but it cannot ever be assumed to have been achieved completely.

This problem of interpretation has been summaries by scholars of literature where the issue is continuously permanent. Literary scholars will often proclaim that the reader is indeed the writer which is no more than saying that the meaning of data is in the eye of the beholder (Eagleton, 1983). This is clearly a major challenge in the interpretation of literature, and it is a well-established phenomenon routinely facing qualitative researchers.

2.5 When is data not data?

Not everything which looks like data may in fact comply with our understanding of data. From the characterisations supplied above data is going to stimulate our minds to resolve a problem which in the academic context normally means to answer a research question. In the academic environment it is important to grasp that it is essential to distinguish the conceptual footprint of what we are interested in from many other footprints of passing phenomena which will inevitably be mixed up in the environment which we are studying. These other footprints can get in the way of our proper understanding of the phenomenon or situation in which we are interested and are usefully referred to as inappropriate data or even noise. Distinguishing data from noise is a major challenge and requires a high level of skill and experience. It is frequently the case that in any research project there could be many false data trails which could end up leading nowhere.

As a first step in establishing rules for making this distinction between data and noise it is important to point out that before anything should be classified as data there must be some a priori suggestion that what is under consideration is appropriate in aiding the answering of the question or contributing to a better understanding. And, what constitutes such a suggestion can be quite personal and thus problematic to describe and it is not possible to establish universally agreed procedures for this. Again, calling on literature for an illustration of this,

[6] This approach of using "bones and stones" and some other artifacts as sources of data is the basis of archaeology. Geology is much the same as is palaeontology to mention only a few examples.

when Agatha Christie has Hercule Poirot boast about his "little grey cells" he is accounting for his ability to cut through the random inappropriate data or noise and getting to the heart of the matter.

Alongside the issue of noise there is the integrity of the data being used. Data can be compromised in several different ways and can constitute little more than the biases of the individual or individuals who have prepared it. In addition, even data of the highest integrity can be manipulated in the way in which it is presented, and this has to be a major concern. It is essential that the provenance of any data be carefully scrutinised before it is given any validity.

2.6 Objectivity and integrity in data fabrication.

It is regularly claimed that data used in the research processes needs to be objective. However, like the concept of data itself the idea of objectivity is seldom well explored. It is simply too trivial to define objectivity as being the absence of bias as at some level it is probably never possible to extract any human activity from all the potential biases which will inevitably be present. Some scientists argue being objective is about the research taking an evidence-based approach and that objectivity is achieved when the researcher does not have any personal or specific interest in the findings. This, of course, is a necessary but not a sufficient condition or set of conditions to ensure objectivity.

In fact, the term objectivity, as commonly used, seems to mean that the individuals using this word expect that the readership of their work will accept the assumption that no material prejudice has been present which will affect the findings of the research. On its own this assurance will hardly produce any great confidence in the research but it is at least a step in the right direction.

As mentioned above integrity of the data is an important issue. A fundamental principle of academic research is that researchers are required to make their best efforts to ensure the integrity of any data that is used in the research. The term data integrity refers to ensuring that the data is authentic and error free and that it is presented with any of the limitations of which the researcher is aware. It also refers to the requirement that data be accurate and that it is consistent with any of the claims made for it by the researcher. Sometimes the term corrupted, compromised or tainted data is used to express the idea that data integrity has been lost. For the integrity of data to be maintained it is essential that there is complete honesty about its acquisition, preparation and its management. This will relate to the ethics protocol under which the data was produced. There are many issues involved here and these largely extend beyond the scope of this paper. Perhaps there is one issue which is worth mentioning in passing and that relates to the length of time for which the data needs to be preserved after the research has been completed. There is no simple answer to this question and many academics disagree with one another on this issue. In some countries issues such as these have been the subject of legislation which has sometimes been described as the Data Protection Act.

3. From data to imagination to action

From the above discussion it may be seen that having data is not an end in itself. In a sense it is the first step in the process of answering an academic research question. As previously mentioned some academics, particularly those who are involved in the study of information and communications technology perceive data as raw material in the creation of information which is best understood in terms of the Ackoff Model (1989). From this perspective it is information which is used.

But whether or not the term data or information is employed the question is how it is used. In general terms academic researchers are engaged into quite different activities which may be described as hypothesis testing and theory development. Hypothesis testing is often considered the simpler which normally requires quantitative data and uses a more or less universally accepted set of criteria to establish if a hypothesis can be rejected. The procedures here are quite method-driven and there is seldom much debate about them.

When it comes to theory development the situation is quite different. Both quantitative and qualitative data may be involved. There is much less agreement about the techniques which should be used and whatever is done by the researchers is open to much more debate with issues of interpretation being central. Modelling can be understood as a representation of theory development and the type of skill required to produce models draws much on the researchers' imagination. There are no universally accepted procedures involved here and

thus the researchers often have to draw on their creativity. Imaginative interpretation with all its challenges is central to this type of work.

In applying our imagination to data, it is essential that we understand the nature of the interaction mechanisms which are appropriate to our environment and the events in which we are interested. Without this any form of modelling becomes most difficult. Data normally has to be analysed, critiqued, summarised and/or synthesised in such a way that we are able to use it to explain the meaning of the activities and through this understanding suggest how events actually worked and what they actually mean to the researcher.

4. Implications and conclusions

The many aspects of data raised in this paper demonstrate the challenges in understanding the issues which surround, not only the concept but also the practical handling of data. They also point to the complexity of the development and implementation of an efficient and effective approach to managing data in an academic research environment. But more than anything else the paper's discourse should alert researchers to these issues and to encourage readers to set time aside to ensure that the discussion of data becomes an important factor in their projects.

Too many researchers gallop towards one or other traditional data source i.e., primary versus secondary or quantitative versus qualitative without properly examining the issue which should guide such a decision. A much wider discussion is required which explores all the issues addressed in this paper. This requires the importance of data be highlighted with an emphasis on its relevance, authenticity and integrity. Perhaps researchers could undertake this as a separate exercise, or it could be incorporated into the research projects as an extension of a more general research protocol. Whichever approach is taken it is important that data management acquires a higher degree of visibility on the agenda of academic researchers.

As stressed in the Introduction, the purpose of this paper is to promote discussion as well as encouraging researchers to take more time in examining their data management practices.

This paper is correctly described as "a short note" as the subject matter addressed here is extensive. The paper has described many issues related to the concept and the use of data in academic research, some of which are often currently overlooked. It makes no pretence to be in anyway definitive or to reach any dogmatic conclusion or recommendation.

The paper points out that the concept of data is in fact a highly complex issue with a number of philosophical and practical dimensions. The fact that data prompts the imagination is of central importance to all research as is the need for an a priori understanding of the sort of data that might be appropriate in answering the research question. The paper points out that all research should involve a challenge to the appropriateness of the data chosen to facilitate the answering of the research question. By defining data as something that stimulates the human mind this paper points out that any stimulation to any of the human senses can rightly be regarded as data.

The authors appreciate that there are many nuances with regards the use of the term data and welcomes further exploration of these and they also understand the pressure which academic researchers are often under and how this can result in less than perfect administration of their research projects. But a lack of attention to proper procedures employed for the identification, acquisition, analysis and management of data can lead to a number of problems during the latter stages of the research and can even cause difficulties during the examination of a dissertation or paper.

The authors suggest that it is time for more attention to be given to both the issues of what constitutes data including how the use of data maybe understood as vital in arriving at suitable scientific findings and the practice of efficient and effective data management.

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Common Challenges Postgraduate Students and Early-Career Academics face when Engaging with the Scholarly Literature

Ben K. Daniel
Higher Education Development Centre, University of Otago, Dunedin 9016, New Zealand
ben.daniel@otago.ac.nz

Abstract: This article presents nine common challenges postgraduate students and early career academics face when engaging with academic literature. Data was collected from a sample of sixty-two postgraduate and early career academics who participated in a series of workshops on research methodology at a research-intensive university in New Zealand. Participants were invited to answer open-ended questions online about the purpose of undertaking a literature review and the challenges associated with the process. Findings revealed that participants held fragmented views about the purpose of engaging with the literature review, which contributed to the difficulties they faced in effectively undertaking the literature review. The challenges participants reported when undertaking literature reviews: difficulties in choosing a practical approach to reviewing the literature, inability to design an efficient search strategy to locate materials for review, problems locating relevant literature, an inability to determine the appropriate scope of a review, issues in choosing relevant materials and managing the growing volume of published work, problems in effectively synthesising and critiquing the literature, inability to organise and write clear reports, and lack of indicators for assessing the quality of written literature reports. The research presents a wide range of strategies students, and early career academics can use to mitigate these challenges. Teachers of research methods can also use these strategies to support students develop the necessary skills and knowledge to tackle the challenges of engaging with the literature.

Keywords: challenges of literature review, systematic and tripartite, postgraduate education

1. Introduction and related background literature

Engaging effectively with academic literature is integral to scholarly and scientific work. Reviewing the literature enables researchers to develop depth and breadth of knowledge in a particular subject, highlighting trends in a specific area of inquiry, identifying existing academic debates and framing essential research questions for further investigation. A literature review can be used at the beginning of the study to explain what is known about a particular topic (Mertens,2019) and build a case for undertaking a particular research project. The outcome of a literature review can help inform the design of a research project by determining the structure, scope and process for executing the research (e.g. establishing an appropriate sample size or identifying data collection methods).

A literature review can also involve critical analysis of an academic subject to develop breadth and depth of knowledge of published work(Daniel and Harland, 2018; Xiao and Watson, 2019). This particular purpose of undertaking a literature review helps the researcher avoid the risk of duplicating what is already known or focusing on trivial problems that do not contribute to new knowledge(Bradbury-Jones et al., 2019; Terry and Terry, 2013).

Furthermore, evaluating previous research assists a researcher in setting the problem being researched into a broader context of what is already known and justifying the need for undertaking the study and the extent to which the new research makes a valuable contribution to knowledge (Saunders and Rojon, 2011). As Templier and Paré (2015) stated, synthesising existing research is key to identifying new research questions and advancing knowledge in a particular field. In postgraduate education, postgraduate students are required to read widely and in-depth about their topic; engaging with the literature helps them scrutinise large amounts of information on a given topic to enhance their understanding of previous research in their chosen research (Smallbone and Quinton, 2011). Moreover, effectively undertaking a literature review is crucial in framing a sound research problem and developing a conceptual and theoretical framework to guide a study.

Despite the well-established importance of undertaking a literature review and the skills needed to perform it well in postgraduate education, our experience in teaching research methods suggests that several students and early-career academics continue to face challenges when it comes to reading and critically engaging with published work (Daniel and Harland, 2018; O'Neill, Sarah and Lamb, 2018). Inexperienced researchers include early career academics (ECA). ECA are those with five years or less of teaching and research following PhD

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completion, with career progression from post-doctoral appointment to tenure, promotion and beyond (Bosanquet, Mailey, Matthews and Lodge, 2017; Rienties and Hosein, 2020). While experienced researchers can draw on prior experience and their networks to locate relevant literature, inexperienced researchers often lack access to concrete search terms and the methodologies required to perform literature reviews effectively (Warburton and Macauley, 2014).

In particular, the challenge of developing an effective search strategy to easily access relevant articles to review is widespread among postgraduate students. These challenges can also be seen in the poor quality of literature reviews in journal articles submitted for publication (Maier, 2013). Over time, these challenges have persisted as the task of conducting a literature review has become increasingly complex due to the growing number of publications and journals (Snyder, 2019).

In the context of information systems, inexperienced researchers face difficulties in developing effective strategies for reviewing literature due to the rapidly increasing number of potentially relevant publications (Vom Brocke, Simons, Riemer, Niehaves, Plattfaut and Cleven, 2015). Beginning educational researchers face similar and other challenges in conducting a literature review, including linguistic, methodological, conceptual, and ontological (Chen, Wang and Lee, 2016). Health science professionals, researchers, and students struggle with reviewing the literature and choosing a suitable way to structure and present review reports (Noble and Smith, 2018). Further, in business management, Fisch and Block (2018) noted that researchers often lack the knowledge to better structure the review process and present review outcomes.

It is apparent that the challenges postgraduate students and early academic career academics face when engaging with the academic literature are linked to poor pedagogical practices and a lack of tools available to teachers of research methods, postgraduate supervisors and students to address these challenges (Badenhorst, 2019; Daniel, Kumar and Omar, 2018). Some postgraduate supervisors assume that their students can independently carry out a literature review without difficulties. However, this is not necessarily true for all students (Nylander and Hjort, 2020). Equally, some novice postgraduate supervisors lack the skills and knowledge to guide their students in performing effective literature reviews (Daniel, 2018). While there are several sets of rubrics for teachers to assess, the quality of published work may be domain-specific (Anderson and Jayaratne, 2015). Generic indicators that are not domain-specific or dependent on a particular methodology are still needed to guide postgraduate students and early career academics.

2. The context of the study and the researcher's background

The present article is part of a larger research-informed pedagogical initiative to improve the quality of research methods in higher education. The programme is offered to postgraduate students and early-career academics as workshops and one-to-one tutorials at a research-intensive public university in New Zealand. Drawing from over a decade of teaching research methods, the current research examined postgraduate students and early-career academics, understanding the purpose of undertaking a literature review and exploring common challenges faced with academic literature. Postgraduate students find it challenging to effectively engage with academic literature review, organise and present literature reports in a credible and critical manner, and assess the quality of their written literature reports. To address these challenges, the article proposed a systematic and tripartite model to help students and early career academics effectively perform literature reviews.

2.1 Research Questions (RQs)

- **QR1.** How do postgraduate students and early career academics understand the purpose of undertaking an academic literature review?
- **QR2.** What are the key challenges postgraduate students and early-career academics face when engaging with academic literature?

2.2 Research design and methods

The research employed an exploratory case study to collect qualitative self-reported data on participants' perceptions of issues they encountered when engaging in an academic literature review. Generally, a case design general facilitates rich, contextual, and unstructured data (Mason, 2002; Mason, Augustyn and Seakhoa-King, 2010). A qualitative exploratory case design was deemed appropriate since it provides a holistic view of a research problem. A convenient sampling approach was used, sending open-ended questions to participants (n=62) who registered to participate in several research methods workshops in a research-intensive public

university in New Zealand. The questions explored participants' understanding of the purpose of a literature review and the critical challenges they might have faced when reviewing the literature.

2.3 Data analysis

Responses to the open-ended questions were compiled and analysed using NVivo software. The analysis involved reading and re-reading participants' responses to each question and getting familiar with the data (Braun and Clarke, 2006). The goal was to identify and develop preliminary codes, discover meaningful patterns across the data and codes, combining or merging similar codes, develop a meaning framework, interpret the data, and cross-reference comments (Richardson, Grose, Nelmes, Parra and Linares, 2016). The initial codes were developed from responses to the open-ended questions. There were also closed-ended questions intended to gather demographic information about participants and their programmes of study. Data obtained from the closed-ended questions were quantitatively analysed and presented as frequencies and proportions.

2.4 Participants

The majority of participants (83%) identified as postgraduate students (doctoral and master's students), and a small proportion (25%) was staff, also generally referred to as early career academics (ECA). Typically, ECA individuals in the institution where this research was conducted have four or fewer years of experience in academic teaching or research or those transitioning from their PhD to an academic career. In addition, they include staff who were enrolled on PhD studies (see Table 1).

Table 1: Participants' demographics

Participants characteristics	**Frequency (%)**
Participants degree	
Postgraduate student	47(83)
Staff member	10(18)
A staff member and postgraduate student	4(7)
Undergraduate student	1(2)
Research stage	
I am planning my research	21(34)
I am doing my research	19(30)
I am writing up my thesis	16(25)
Waiting graduation	6(11)
Academic division	
Humanities	16(30)
Sciences	13(24)
Health Sciences	10(19)
Interdisciplinary	7(13)
Other	7(13)
Commerce	2(4)
Engineering	2(4)

While the postgraduate programmes at the University where this research was undertaken are predominantly research-focused (Masters by Research and PhD), some participants were enrolled on a coursework Masters, which requires the students to undertake a small research project.

3. Findings

Although there are several purposes for undertaking a literature review, the purpose of the review determines the approach, strategies and direction of the review (Terry and Terry, 2013). The inability to determine the purpose of a literature review and the appropriate approach needed can likely contribute to the challenges in undertaking an effective literature review. Participants revealed and described various purposes for undertaking an academic literature review—key themes identified are summarised and presented in Table 2. Participants regarded literature review as a requirement to understand previous research; some said engaging with the literature provides the background for framing a worthwhile "research gap". Others indicated that reviewing the literature can help researchers identify limitations in existing research, demonstrate research contribution; learn about methods and research design relevant to their research; inform the development of a theoretical framework; avoid duplicating research outcomes, and advance self-development in a field.

The research sought to understand how participants would approach reviewing the literature. Participants mentioned approaches to engaging with the literature. One participant indicated, *"literature review is a systematic process of identifying, retrieving and synthesising studies of certain topic or issue."* Some regarded a literature review as a systematic process of locating and retrieving information (43%). However, others (39%) argue that the task of undertaking a literature review is much more than learning research methods but rather a scholarly activity where postgraduate education students develop knowledge and skills to examine published work critically. More specifically, some participants stated that a literature review goes much beyond examining and summarising published work but engaging in a critical analysis of scholarly work, identifying a worthwhile research gap, and undertaking new research that can advance knowledge (12%).

For others (7%), gap analysis or identifying a research gap is the primary intent of undertaking a literature review. For instance, a participant said: "*to me, it is a part of the knowledge-making activity, which uncovers a gap in the existing body of knowledge and explains how one piece builds on another. Therefore, helpful literature review analyses and synthesises ideas in the literature, providing a firm foundation to one's research problem and method."*

Table 2: The purposes of undertaking a literature review

Purpose—Theme	Example(s) of quotation(s)
Understand previous research	*"Literature review is intended to provide a summary of what has been written on a topic and explain what it means for your research question. It should try to present diverse perspectives on a topic rather than serve your thesis….That said, each part of the review should be doing work for your research questions and thesis, with unnecessary diversions left out."*
Frame a "research gap."	*"The purpose of the academic literature review is to identify gaps in methods used to solve problems and come up with better ideas on how to solve such problems."*
Demonstrate research contribution	*"To situate and discuss research (question, methodology and finding) in a specific body of knowledge."*
Learn about methods and design	*"The literature helps to guide the entire direction and design of your research and to contextualise your findings, therefore, its relevance to all areas of your study most particularly question development and project design through to discussing your findings and future direction of your research."*
Inform a theoretical framework	*"To establish the intellectual context of your research, clarifying what kinds of definitions, assumptions, and theories will be at play so that readers can understand what you mean in the rest of your work."*
Avoid duplication of research	*"To have an understanding of the way forward in your research. Also, to know the extent people have gone in your area of research to know the knowledge gap to fill that it up."*
Self-development	*"To develop an understanding of your research area - what are the major themes, trends, problems, issues, recommendations, solutions…. "The purpose of the literature review is to equip you with up to date knowledge and enhance your understanding in your area of research, and ensure you are competent and up to date within your area of research."*

To some extent, the differences in understanding the purposes of undertaking a literature review reflect the diversity of participants' backgrounds and interests and the different stages in their research journey. Postgraduate students at the final stages of their postgraduate journey pointed out various stages in their research where support for literature review would be needed, as shown in Table 3. In particular, several participants (82%) reported they sought support for undertaking the literature at the research design stage, and others saw the need to engage with the literature when seeking support to frame a research problem (75%). Moreover, three-thirds indicated that support for a literature review would be needed at the theory development stage (67%).

Table 3: Stages in the research process where the support for literature review is critical

Stage of research	Frequency (%)
Research design	50(82)
Problem development(gap)	46(75)
Theory development	41(67)
Discussion	34(56)
Data analysis	28(46)
Conclusion	20(33)

Participants who mentioned they needed more support with the literature review during the problem development stage said:

> *"I find it hard to develop a clear research question and concisely situate it in the existing literature (both providing the background/ context to the research question and discussing how the findings from a study respond to the literature)."*

Others appealed for more specific guidance in framing a problem, prospectively arguing for a need to use the outcome of the literature review to identify where a research project can contribute new knowledge.

> *"We should know what problems are already addressed and how to identify a gap. We should be aware of various research designs and choose one that suits the issue. In the discussion of results, we could compare our results to other works."*

Those who said they wanted support with the literature review of the project's design: "I was not sure about the design or methodology to choose, and in the discussion, I had to search again to compare my results with other studies." Others also elaborated that learning from the literature would help them articulate a study's direction, direction, and design. As one participant said:

> *"The literature helps to guide the entire direction and design of your research and to contextualise your findings. Therefore, it is relevant to all areas of your study, particularly question development and project design, and discussing your results and future research direction."*

Participants acknowledged the literature review's various roles in the process and quality of research outcomes. However, they reported several challenges when engaging with the academic literature.

4. Challenges of engaging with the academic literature

The research identified several challenges participants face when engaging with the literature (figure 1); these include difficulties in identifying approaches and techniques for engaging with the literature; inability to develop an efficient search strategy; not able to locate relevant and valuable literature in a timely manner; difficulties in determining the scope of a review; problems managing the growing volume of studies; problems conducting practical synthesis and critique of the literature; challenges in organising the literature in a meaningful manner; inability to write a clear and helpful report and determining better ways of assessing the quality of literature resources and reports. Each one of the challenges is elaborated on in detail in the proceeding section.

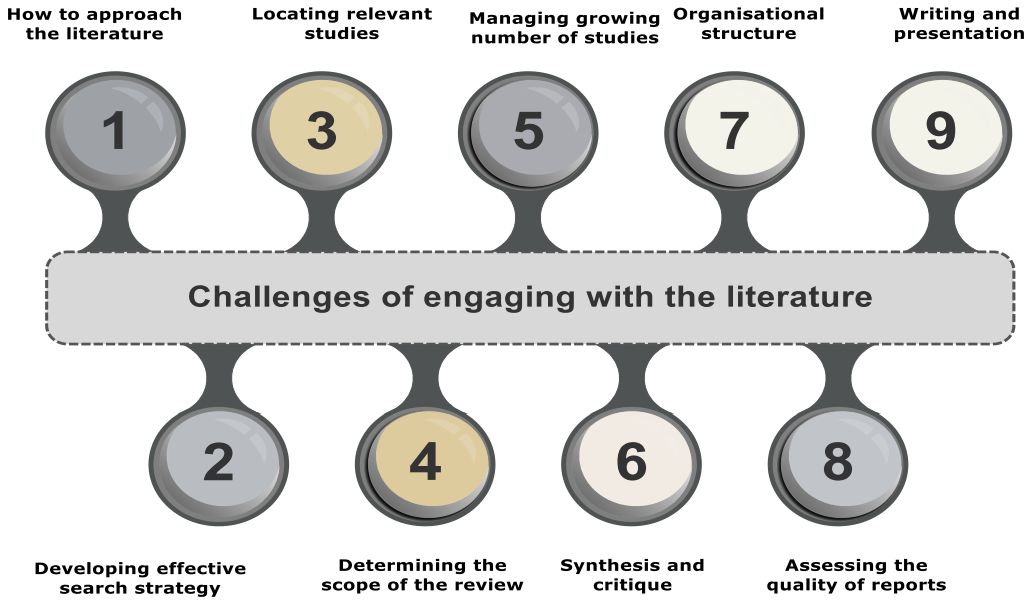

Figure 1: Nine challenges of engaging with the academic literature

4.1 Challenge 1: Identifying effective strategies and techniques for engaging with the literature

Several participants reported the lack of practical strategies and techniques to help them effectively navigate the complexity of engaging with the academic literature and integrate various sources of information coherently and consistently:

> *"There are no useful tools and techniques to organise the literature review process and how to integrate various sources of the literature into one's work". Others mentioned the need to learn strategies that help them read the literature and write reports. For example, one participant said, "I would like to learn how to read literature efficiently and fast (I am a slow reader)."*

Although these are genuine concerns, some students are unaware of the growing number of strategies and approaches available to assist in navigating scholarly literature's complexity.

4.2 Challenge 2: Developing an efficient search strategy

Formulating an efficient search strategy is essential in the literature review process. A search strategy is a well-thought-out plan for searching for relevant information (Cooper et al., 2018). The researcher can clearly define the review question and develop inclusion or exclusion criteria (Aromataris and Riitano, 2014). Also, a well-defined search strategy entails using information sources in a consistently structured manner that will save you time. Some postgraduate students often find it challenging to develop a comprehensive search strategy, systematically examine the literature, and extract valuable insights from the reviews. Some participants reported difficulties framing an efficient search strategy that covers all the possible and relevant studies in the literature. As one participant reported: one participant mentioned: *"Finding correct searching words for your area" and getting lost in the mountain of literature with difficulty in identifying what to include and exclude."*

Others said it takes a long time to search and locate relevant studies:

> *"it takes time…..searching for articles, conducting the review systematically." Some participants mentioned that navigating a body of literature and extracting the essential insights is challenging, yet others struggled to search databases systematically. "It is difficult to be consistent or systematic in how to search and organise the literature review."*

4.3 Challenge 3: Efficiently locating relevant and valuable literature

Participants reported difficulties searching through a database to locate relevant studies for review. Some said they often get overwhelmed with the amount of information they go through or struggle to find an adequate number of studies for a review:

> *"finding too much information on the subject or not finding enough studies already published. How to find out what is most important and relevant."*

Others mentioned that undertaking literature is complicated, especially when going through volumes of published materials. With limited guidance, they tend to spend a significant amount of time. In the process, time is lost, and vital studies are missed.

> *"Things get too complicated when the literature review requires engaging with several works from different fields, but somehow I might miss some good stuff when I read too quickly."*

In addition, some participants said locating resources for review is difficult to identify relevant from irrelevant studies. Accessing the correct database and the skills needed to query and retrieve studies are also issues.

> *"The enormous amount of literature out there, especially. Sifting through it to sort out what is relevant and what is not, then sort out what is 'academic' and not. It is also challenging to determine if a paper is 'academic' - what I mean is, is it something I can quote? Much of the literature I use does not appear in google scholar searches. How is 'much' literature adequate? How many sources constitute a thorough review?"*

4.4 Challenge 4: Determining the scope of the review

The purpose of determining the scope of the review is to provide an initial indication of the extant literature (Paré and Kitsiou, 2017). Scoping needs to determine a review's extent, range, and nature, often requiring considerable conceptual knowledge that some novice researchers might not possess. Choosing the relevant studies to be included is one thing; delineating the scope is quite another. While a scoping review is a research methodology in its own right, there are emerging methods to help researchers determine a value scope (Pham

et al., 2014). However, some participants in the present study said determining the general scope of any literature review is not an uneasy task. One participant pointed out that "deciding on the right scope is difficult - knowing when you are reading too widely or too narrowly, time management. Knowing an effective way to engage with the literature."

Further, due to the increasing volume of the literature, some participants struggled to determine what would constitute a relevant and adequate literature review:

> *"When do I know I have enough? If it seems like there has been little written on a topic, how do I know I have done enough searching to be able to say so? The best methods for citing and explaining unusual kinds of literature, such as organisational reports, promotional materials, political speeches, or out-of-publication essays that are only available in pieces cited by others."*

4.5 Challenge 5: Managing the growing volume of studies

Most literature review tasks involve searching, retrieving, and screening a large volume of studies creating management issues. Participants said that managing a large amount of information and reading the literature requires some students' particular skills and knowledge.

> *"Managing and organising a large amount of literature for easy retrieval and critiquing weakness and strengths of the research are problems I face."*

> *"…. I struggle to manage the paper trail—I would like tips on searching multiple databases simultaneously (if possible)."*

There were also issues associated with linking and integrating divergent views from the literature and identifying outstanding future research areas or questions.

> *"Sometimes, I find it hard to link two divergent views. I also face difficulty in identifying knowledge gaps, and the biggest problem is not knowing when to stop with the review."*

4.6 Challenge 6: Conducting useful synthesis and critique of the literature

One of the most challenging problems of engaging with the literature is defining patterns of thinking in current research and critically evaluating its strengths and weaknesses. Participants said synthesis and critiques are the two most complex tasks when engaging with the literature: *"it is difficult to critique or evaluate the ideas."* Coherently integrating divergent ideas and excluding irrelevant information are some of the issues some participants struggled with.

> *"Sometimes, I find it hard to understand how to link two divergent views in the literature."*

> *Whenever I engage with the literature, I am certain of getting lost in the mountain of literature with difficulty identifying what to include and exclude…" I find it hard to critique weakness and strengths of the research and build an argument".*

Other students reported issues concerned with critiquing studies and building an argument: *"critiquing weakness and strengths of the research and building the argument."*

4.7 Challenge 7: Organising the literature in a meaningful manner

Participants mentioned that organising the literature into a meaningful form poses a significant problem for them as one participant noted: "*being consistent or systematic in how I organise the literature review is the biggest challenge".* While there is no single way of organising the literature, the literature can be organised along with a logical, sequential or chronological structure. It might also follow well-established reporting domain protocols, standardised in the natural sciences but not in the humanities and the business domains, especially in interdisciplinary work with different definitions, assumptions, and theories.

4.8 Challenge 8: Writing a clear and helpful report

Writing a literature review report varies according to the review's objectives and the type of review undertaken. It may consist of merely a summary of key themes or a combination of summaries and synthesis. Participants reported challenges in writing literature review reports; of particular concern is the issue of presenting a review report in a coherent and integrated manner: *"problems in writing in terms of coherence and linking paragraphs and doing critical analysis".*

While writing my literature review (the area replete with competing theories and various notations), I faced the following: What to include/exclude. What is the implications of an article, etc., for my research problem? How to write a responsible critical appraisal.

4.9 Challenge 9: Assessing the quality of literature resources and reports

While assessing the quality of studies used in a review is essential, the appraisal of the written report and the rigour of the methods used is equally important. Writing useful literature reports requires a clear, logical, sequential flow of thoughts, with key themes and topics presented convincingly and meaningfully. Reports also need to trigger a further engaging debate in the field. Participants reported difficulty in evaluating the quality of literature reports.

"I struggle with evaluating what I have written and if I have successfully reviewed enough literature and presented enough to the reader without going overboard."

"I want to improve my confidence in organising and structuring literature reviews. How to deal with unusual, out-of-publication, or professional sources, especially in the weight I give them, how I frame them, and how to deal with their citations."

Though there is a need to determine the quality of studies selected for review, the methodology's rigour and the report's quality is equally important. For example, systematic reviews and meta-analyses might emphasise assessment rubrics that are statistically stable and demonstrate the review process' reproducibility and steps. These particular review methodologies require a comprehensive and auditable description of the processes and methods used to review.

5. General strategies for addressing the challenges of engaging with the literature

The challenges identified in this research are further conceptualised to provide concrete strategies and a framework for addressing the challenges (see Table 4). The strategies are derived from conducting systematic reviews and teaching research methodology.

Table 4: Strategies for addressing the critical challenges of engaging with the literature

Key challenge	Conceptualisation	Strategies
1. Identifying approaches and techniques for engaging with the literature	A systematic literature review includes narrative review, systematic, scoping, semi-systematic, critical, and integrative.	Approaches: Cochrane, Prisma, Systematic and tripartite. Tools: Zotero, XCalibar, Word, Text Mining, Scopus, Google Scholar, ResearchGate, NVivo and Mendeley.
2. Developing an efficient search strategy	A search strategy involves formulating the research goals for a review and developing inclusion and exclusion criteria.	Developing search skills and understanding Boolean logic, AND OR, NOT, choosing relevant keywords, phrase searching, proximity operators, truncation, wildcards, and fields.
3. Efficiently locate relevant and helpful literature.	An appropriate database for retrieving resources for review and articles published in journals with a high impact factor.	Available databases include Google Scholar, JSTOR, EBSCO, Project Muse, Medline EconLit, PubMed, CINAHL, Cochrane Library, ERIC, PsycINFO, MEDLINE, Web of Science, IEEE library, ACM, etc. To determine the quality of materials for review, located journals with high impact factors—Social Sciences Citation Index (e.g. Academy of Management Annals, Review of Financial Studies, etc.)
4. Determining the scope of the review	Scoping a review means deciding on the size, nature and extant literature. Also, it entails framing and defining the boundaries of a research area for the study.	Determining the scope of a review can be guided by the following questions: what are the study's purpose and goals? How much is known about the area? How many years will the review cover? Will the review cover methods, techniques, and sample size?
5. Managing the growing volume of studies	Ability to filter relevant articles, books, book chapters, etc., from irrelevant ones	The review might be restricted to extracting articles from specific journals with a higher impact.
6. Conducting useful synthesis and critique of the literature	Describing the review's main findings, categorising, aggregating, organising, comparing, and	Utilising the tripartite model focuses on describing, synthesising, and critiquing. Critique can focus on arguments/rhetoric, the logic of arguments, methods

Key challenge	Conceptualisation	Strategies
	contrasting the evidence extracted from the studies reviewed.	used in the studies, theories and concepts, established beliefs, values, etc.
7. Organising the literature in a meaningful manner	Aligning the literature's purpose and the review's objective shows relationships between previous studies, themes, and theories.	Reports can be organised in a logical, sequential or chronological manner. It might also follow well-established domain protocols of reporting common in any particular domain (e.g. Business).
8. Writing a clear and helpful report	Organise reports by looking for patterns and by developing key themes and subthemes.	The literature review report leads to developing new knowledge or identifying essential research questions or theoretical frameworks.
9. Assessing the quality of literature resources and reports	Assess the selected studies, determine the research design's rigour methods, and align findings with research questions. At least two coders can carry out an assessment using inter-coder reliability.	Harvesting and extracting articles from credible sources published in higher-impact journals. Following a well-established set of rubrics can be applied to judge the quality of the written report. Mitigating inherent selection biases in the process.

6. Summary and conclusion

A literature review is an essential part of any scholarly work; it establishes a foundation for theorisation and sets the stage for asking new research questions. Engaging with academic literature provides insights into what is known about a topic from previous research and the opportunity the new research can seize to make a worthwhile contribution. The outcome of the literature review serves to explain the research's contribution and develop a clear rationale for the problem studied and the need for additional research.

Though literature review constitutes a significant part of postgraduate education, several postgraduate students and early career academics still face difficulties conducting literature reviews (Badenhorst, 2018; Chen, Wang and Lee, 2016), and there are limited tools are developed to help students overcome such challenges (Cumming, Lai and Cho, 2016; Graham, 2015). This article identified nine common challenges postgraduate students and early career academics face when engaging with the literature:

- difficulties in choosing a practical approach to reviewing the literature,
- inability to design an efficient search strategy to locate materials for review,
- problems locating relevant literature,
- inability to determine the appropriate scope of a review,
- issues in choosing quality and relevant materials and managing the growing volume of published work,
- problems in effectively synthesising and critiquing the literature,
- inability to organise and write clear reports,
- and lack of indicators for assessing the quality of written literature reports.

The key challenges relating to engagement with academic literature presented in the article were based on perceptions of a small self-selected sample of participants who participated in several workshops on research methods at a public university in New Zealand; hence, the findings cannot be generalised. Moreover, the causes of the nine challenges of engaging with the literature presented in the research are unknown. Examining each challenge in the future, especially its severity relative to a group of postgraduate students and early career academics, is necessary.

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Knowledge-Intensive Business Services and Business Models: a Qualitative Comparative Analysis of Small Private Healthcare Providers

Guillermo Navarro Sanfelix and Francisco Puig
Universitat de Valencia, Spain
guinasan@alumni.uv.es
francisco.puig@uv.es

Abstract: In recent years, companies operating in activities such as dentistry, optometry, physiotherapy, or veterinary have seen the demand for their services grow. Their customers do not require their services only for health reasons but also for aesthetics and welfare issues. As a result, these companies compete in expanding and profitable markets. However, this business context has been detected by many professional entrepreneurs who decided to run their activity in healthcare and set up a firm without the necessary assets and knowledge. To overcome these liabilities, some seek partners who provide them with the resources they do not have by entering into different alliances. In contrast, others choose to compete under an independent business model. This paper sheds light on the factors influencing the decisions about the implemented business model in small knowledge-intensive firms by examining the association between the perception of the institutional environment variables and the dotation of intangible resources. For that purpose, a qualitative comparative analysis (QCA) was performed. Due to government regulations in force in these sectors, and methodological reasons, the study sample consisted of 88 small Spanish firms (less than 15 employees). The data were collected by a questionnaire distributed in 2017. We find that the choice to remain self-governing or to enter into a partnership (e.g., franchising) is heterogeneously motivated by the evaluations that entrepreneurs have about the role of institutions concerning their activities and how high they consider their intellectual capital compared to their main competitors. In terms of institutional capital, these entrepreneurs refuse to implement patient loyalty policies and strive to have high-quality human capital in terms of the training and experience of their professionals. Moreover, the results also showed that independent business models pay little attention to market influences and view a certain level of regulation favorably, suggesting vocational and conservative behavior. This means that a myriad of different business model configurations is possible in that industry and the reasons for it, issues that have thus far been neglected by researchers.

Keywords: Entrepreneurship, knowledge-intensive services, business models, intellectual capital, institutions, QCA

1. Introduction

Associative and cooperative entrepreneurship, in the form of alliances between small businesses, is a reality in the current economic and business environment (Barnir and Smith, 2002). Many entrepreneurs pursue alliances when they start their business ventures. By joining with other people, organizations or groups, entrepreneurs hope to benefit from specific and valuable skills, resources, and capabilities that can help them to carry out their activities and take advantage of business opportunities that are the most favorable for their success (Burgelman and Hitt, 2007).

Participating in associated business models (ABMs) such as franchising chains, cooperative societies, or purchasing centers is a quick way of creating these opportunities. Although there are some disadvantages, such as higher levels of investment or the need for proper coordination mechanisms, there are also plenty of benefits. For example, small companies can enjoy better access to resources (Castrogiovanni and Justis, 1998), a recognizable brand image and an existing customer base (Salar and Salar, 2014); they can avail of synergies, share their experience with other entrepreneurs (Miron, 2014; Bontis et al., 2018), and benefit from economies of scale (Boccatonda, Banchieri and Planas, 2018; Golovina, Antonova and Abilova, 2020).

The advent of these business models has been highly visible in activities such as catering (Alon, Ni and Wang, 2012; Ketchen, Combs and Upson, 2006), agriculture (Pedrosa Ortega et al., 2019), or in food stores (Fuentes et al., 2013). Nowadays, these ABMs are becoming knowledge intensive-based services (KIBS). An example of this can be found in clinics that provide private healthcare services (e.g., opticians, veterinary surgeons, physiotherapists, dentists) or other fields that require compulsory membership of a professional body (e.g., lawyers, solicitors, or engineers).

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However, this feature calls our attention to other characteristics: these companies tend to be highly resistant to change (Chandler, 2013), and their activities reflect social contracts (Masella, 2007), which, in addition to other issues, create high entry barriers (Arcas, Peñas and Sacristán, 2016). In short, we are currently in a situation wherein traditional and independent firms (IBMs) that provide healthcare services are coexisting with new organizations under ABMs. This reality leads us to ask: what characterizes firms that defy logic in terms of their size, and compete independently? Do their resources affect the configuration of their business model? Or can it be explained by the environmental pressures they are subjected to by external agents?

The research on these firms is interesting for many reasons. For example, most studies have focused on hospitals or large public organizations (e.g., Tongur and Engwall, 2014), or on so-called 'T-KIBS' (technology development-based activities), although there is a lack of research on other intensive activities, such as the development of new technologies (Abrahamsson, Maga and Nicol, 2019; Baden-Fuller and Haefliger, 2013; Vaillant et al., 2021), leaving aside other non-technological knowledge-intensive activities (Freel, 2006).

Therefore, this research aimed to determine which factors are associated with business model configurations by studying small private healthcare providers. This article will also serve as a guide for future entrepreneurs, and help them to determine which business model to implement.

This article has several contributions. First, it elaborates upon extant literature with respect to the configuration of existing business models in KIBS. Second, it focuses on micro-firms, which represent the vast majority of firms. (Armstrong, Boardman and Vining, 1999; Henry, Rushton and Baillie, 2016). Third, this article elucidates the role of the institutions closest to these firms, given their influence on these activities. Finally, it also expands upon literature related to the firms' intellectual capital (IC), in which these firms invest heavily.

This paper is structured as follows: first, we define healthcare services as KIBS activities, and justify the importance of institutions and IC within the context of these activities. We then outline some research propositions. The next section explains the methodology used, the sample under study, the operationalization of the variables, and the choice of the technique used to carry out the study. We then present the main results and the discussion section, and finally, the main conclusions.

2. Theoretical Framework.

2.1 Knowledge-intensive services. Definition and characteristics.

Private healthcare services, such as providers of physiotherapy, dentistry, veterinary, optics and similar activities, can be regarded as KIBS (Chung and Tseng, 2019). Windrum and Tomlinson defined KIBS as "*those activities based on the knowledge and experience of professionals in relation to a specific technical field or a specific function*." (DiMaggio and Powell, 1983, p. 148). This definition includes activities with complex information, developing new technologies, or training those technologies (Li, Gagliardi and Miles, 2019; Miles et al., 1995).

Private healthcare service providers also have distinctive features that differentiate them from other service providers. On the one hand, they require a relevant academic degree in addition to compulsory membership of a professional association[1]. On the other hand, these activities necessitate high levels of investment in training and education, as well as in specific tools and machinery (Arcas, Peñas and Sacristán, 2016).

Independent clinics dominate in the healthcare services sector, being led by entrepreneurs who have relevant technical training (e.g., physicians, opticians, dentists, physiotherapists, veterinarians, etc.). The entrepreneur assumes all of the roles proposed by Lumpkin and Dess (1996): a) they assume all of the risk arising from the entrepreneurial initiative; b) they contribute innovative thinking; and c) they have total autonomy over the development of their activities.

However, the assumption of all entrepreneurial functions may lead to inefficiencies in the performance of tasks and work overloads (Gerber, 1997). However, some authors (e.g., Peris-Ortiz et al., 2012) have pointed out that tasks should be delegated if they require in-depth and detailed knowledge, and are impossible to delegate to higher organizational levels. In this way, although coordination problems may arise between firm members,

[1] Art. 3 of Law 2/1974, of February 13, about Professional Associations.

other much higher costs arising from inefficiencies are eliminated. In response to these problems, the introduction of franchising chains, cooperatives, and purchasing centers have been identified as some examples of business models that follow this trend of task delegation.

2.2 Definition and typology of business models in private healthcare services.

Many business models have emerged in the healthcare services sector over the past number of years. For this reason, it is important to identify and examine important trends and problems that have arisen since the emergence of these business models. Although many definitions exist (Chesbrough, 2010; Zott, Amit and Massa, 2011), authors such as Chesbrough (2010) have emphasized that it is important, in the case of business models, to determine the functions that they aim to serve. In the words of this author, a business model must: a) articulate how value is to be created; b) identify the market segment and specify the chosen sales mechanisms; c) define the value chain structure that is required to create and distribute the assets used; d) estimate the cost structure and potential profit; e) identify the position that best allows the firm to connect with its customers and suppliers; and f) design a competitive strategy that aims to secure an advantageous position.

Independent micro-clinics represent a large proportion of the firms that operate in the healthcare services sector, given the organizational culture of the professions in this field, existing traditions, and the strength of relevant professional associations (Chandler, 2013). According to Masella (2007), entrepreneurs in this domain share certain characteristics; that is, they have all undergone training to work in their relevant field, and decided to take this step after they have acquired a certain level of experience working for other clinics. Although they are familiar with new technologies, they encounter limitations in terms of certain tasks that arise from their entrepreneurial endeavors, such as management of the clinic, bureaucracy, and access to financing.

Conversely, ABMs are widespread in non-knowledge-intensive activities (Bartels, 2021) such as catering or retail (Alon, Ni and Wang, 2012), agriculture (Medina-Albaladejo, 2013), or food (Fuentes et al., 2013). Nowadays, examples of this type of business model can be found in the private healthcare companies, such as *Zas visión*, *Multiópticas*, *General Óptica*, *Vitaldent* or *Fisi-On*! According to Dorobantu (2016), these alliances provide benefits derived from bargaining power and transaction costs in the absence of greater dependence on the network of clinics.

In summary, it can be suggested that IBMs and ABMs co-exist in a competitive environment in which small healthcare services providers operate. However, why is there such a variety of independent and associated clinics? It is easy to imagine that certain factors influence the configuration of a business model in this sector, such as the option to select different strategies, perceptions of the environment, or the importance given to intangible resources.

2.3 Different configurations that lead to the same business model.

According to the principle of equifinality (Fiss, 2007, 2011), there is no single way of configuring a business model. The literature review conducted by Morris (2005) highlighted how many variables influence this, including technology, the market segment, relationships with customers, the range of products offered, and distribution channels, etc.

While considering the theoretical approach underlying business model configurations, the decision will be based on the level of intensity of each variable corresponding to the environment and the entrepreneurs' IC. More specifically, it is interesting to examine the following points: the role of professional associations and leading firms in the business environment; the care taken by entrepreneurs to monitor the behavior of their customers and suppliers; efforts to improve human capital, which can be understood in terms of the acquisition of skills and experience, so as to enhance the firm's organizational capabilities; and efforts to improve the firm's loyalty and reputation. For all of these reasons, we developed the last research proposition:
Research proposition 1*: In micro-businesses that provide private healthcare services, there are several combinations that entrepreneurs can adopt to construct their business model.*

2.4 The role of institutions in the business model.

It is well-known in the community that the companies are affected by their environment. Private healthcare service providers are affiliated with institutions that legitimize or disregard the policies developed by their members. Therefore, we believe that institutions play a significant role in the healthcare sector.

Institutions can be defined as "*social structures based fundamentally on a shared reality created by the social interaction of their members*" (Scott, 1987, p. 495). In the words of DiMaggio and Powell (1983, p. 148), institutions are established for four purposes: a) to increase interaction among organizations in the same field; b) to establish structures and patterns that are acceptable to society; c) to increase the amount of information communicated among their members; and d) to develop mechanisms for the mutual protection and monitoring of members. Some examples of these institutions include organizations or persons legitimized by society, such as organizations, governments, and individuals (Zucker, 1987).

The importance conferred on institutions is based on the ability of these institutions to legitimize themselves (Meyer and Scott, 1983) to attain status (Washington and Zajac, 2005) and authority within society (Deephouse and Suchman, 2008). From an institutional perspective, two types of institutions emerge (Zucker, 1987). First, those of legal origin, to which professional associations (PA) belong; and second, those of market origin, including leading firms that are recognized by both the members of the profession in which they operate and the rest of society.

According to Meyer and Rowan (1977, p. 343), the institutional environment is constituted by "*positions, policies, programs, and procedures of organizations enforced by society, including public opinion, laws, the educational system, and by the definitions of negligence and prudence used by judges*." In the health services sector, professional associations include organizations that bring together the claims of society. According to Rusaw, these organizations emerged as "*societies that emerged out of a social desire for interaction among members in the same profession, to protect their members and to establish collective solutions to common problems"* (1995, p. 217). Therefore, it can also be affirmed that they are organizations that are created to mitigate certain risks stemming from the environment, such as ambiguity or uncertainty (Greenwood, Suddaby and Hinings, 2002)[2].

In short, it can be affirmed that professional associations aim to defend professionals that fall within the scope of their influence; they actively provide training programs for their members, job search services, documentation archiving services, and other auxiliary services. However, some professionals have also noted that these professional bodies have certain shortcomings, such as a lack of transparency or hidden interests with respect to the activities that they carry out (Arruñada, 1992; Jacobson et al., 2005). Given these weaknesses, some clinic networks have emerged as organizations with reputation that have become leading firms.

Zucker (1987) pointed out that there are also other organizations and firms which, without the support of public authorities, can be regarded as institutions. These types of institutions can be identified by certain features, such as their innovative character or recognized by other firms of their same activity. For example, Gorovaia, Navarro and Puig (2019) highlighted how some franchising firms introduced changes to certain KIBS. The following table provides a rough summary of the basic principles governing this type of clinical network**:**

Table 1: Guiding principles of the associated work networks

	Franchisors	**Cooperatives**	**Purchasing centers**
Branding	Owned by the franchisor and leased to the franchisee.	Owned by the cooperative, and shared by their members.	There must be a spirit of cooperation among the associates.
Initial and ongoing training	Franchisors provide initial training, and technical and commercial assistance for the duration of the business relationship.	Cooperatives provide education and training to their members, managers, and employees to encourage business growth and success.	Although not established in the guiding principles, they must provide some support to its partners with regard to specific regulations for production activities, and ensure adequate communication mechanisms.

[2] In Spain, the activities of professional associations are fall within the remit of Law 2/1974. It specifies the functions granted (Art. 5) and some of the powers transferred from public organizations (Art. 9). Regional laws develop their legitimacy. For the Valencian Community, Law 1/2000 and 2/2000 of March 30th have been developed to regulate physiotherapy and dentistry, respectively. In addition, Law 2/2007, of February 5, 2007, regulates optics in this Spanish region.

Table 1: Guiding principles of the associated work networks (continuation).

	Franchisors	Cooperatives	Purchasing centers
Contractual relationship	Franchisors and franchisees are independent entrepreneurs.	Members are autonomous. There is no membership obligation.	The PA and their associates have legal personalities.
Dependence partnership/entrepreneur	The franchisor provides a proven and successful production system.	Cooperatives should serve their members as effectively as possible and strengthen the cooperative movement by working together through local, national, regional, and international structures.	Purchasing centers must guarantee better prices for their members and ensure adequate communication mechanisms.
Orientation	Mainly economic	Economic and social.	Search for better prices on supplies.
Similarities			
• Members accept that, to a certain extent, they are dependent on the franchising chain, the bargain center and the cooperative. • All of these enterprises carry out retraining activities. • All alliances establish some levels of quality control for their products and services. • Coordination is necessary between the network and their members.			

These networks have a legal entity, and they make entrepreneurs dependent on the network in which they operate. Training activities are broad and varied, and franchising chains are the most active. Cooperatives and purchasing centers also carry out training activities. Another common feature of the networks is the image provided. Although purchasing groups are not obliged to ensure homogeneity among their members, there have been examples of ABMs with highly similar clinics, following the guidelines set out by many cooperatives and franchising chains.

Therefore, it can be affirmed that the different forms of association imply a delegation of tasks and necessary coordination between the associations to which a micro-clinic is affiliated. This network structure is very different to more traditional independent clinics that operate mostly isolated in the healthcare services sector.

In short, we think that the different business models are more attentive to some institutions than others, depending on whether they have adopted an IBM (wherein they will pay greater attention to professional associations and the legal environment) or an ABM (wherein they will pay greater attention to the guidelines and recommendations of the network of clinics to which they belong). Therefore, the following proposition is put forward:

***Research proposition 2**: In the case of micro-firms that provide private healthcare services, differences in the impact of environmental institutions will depend on the business model adopted.*

2.5 The role of intellectual capital in the business model.

The role of the IC in the healthcare services sector is critical, given the high level of expertise that is required to carry out such activities (Kühn et al., 2016) and the need to secure specific personnel and skills to these professions (Bontis et al., 2018). Moreover, the degree of the influence exerted by different dimensions of IC (i.e., mainly human capital and relational capital) can affect the business model configuration (Ujwary-Gil, 2017).

IC represents "*the stock of knowledge that exists in an organization for a given time, and includes all knowledge-based resources that create value, but are not included in the accounting books*" (Ordóñez De Pablos, 2004, p. 636). Many different authors (Bontis and Fitz-End, 2002; Claver-Cortés, Zaragoza-Sáez and González-Illescas, 2018; Watson and Stanworth, 2006) have classified IC into three types to include human, structural and relational[3] capital.

[3] Some studies (e.g., Nagy, 2013; White, 2017) have pointed out that the provision of advanced technology equipment and other specialized machinery is necessary for any clinic that wishes to be competitive. Since structural capital is a present condition, the discussion focuses on analyzing human and relational capital.

Human capital (HC) refers to the skills, experiences, attitudes, ideas, values, and competencies of a firm, including its members' knowledge, talent, and experience (Bontis and Fitz-End, 2002; Watson and Stanworth, 2006). Relational capital (RC) refers to "*knowledge of distribution channels, relationships between customers and suppliers, as well as the ability to understand public administrations and the role of industry associations"* (Bontis, 1999, p. 448).

HC and RC are essential for the provision of these types of services. As such, different combinations of IC's perceptions may be associated with the business model configuration. This is pointed out by Ujwary-Gil (2017), who stated that IC includes intangible resources and establishes the best channels for knowledge distribution and management. Therefore, it is reasonable to assume that the choice of network is largely determined by the particular dimension of IC on which the entrepreneur chooses to focus their efforts:

Research Proposition 3*: In the case of micro-firms that provide private healthcare services, differences in the influence of intellectual capital will depend on the business model adopted.*

3. Research methodology

The sample was collected between July and September, 2017. The main professional associations that operate within the physiotherapy, dentistry, and optics sectors in Spain were contacted. A link to the online survey was distributed on the "*LimeSurvey*" platform. The responses were sent directly to the researchers in order to safeguard the anonymity of the respondents' answers. Incomplete questionnaires, and those that concerned public hospitals, retired professionals, and medium- and large-sized companies were excluded.

The European Union defines micro-firms as companies that have less than 10 employees and a turnover of less than €2m per year. However, moonlighting and part-time jobs are traditional practices in the health services (Coren, 2007; Gatsura et al., 2015). According to DentalDoctors report[4], an average-sized dental clinic in Spain consists of five qualified dentists plus four to five additional employees, including assistants, owners, and managers. Therefore, we decided to include companies with up to 15 employees. In the end, the final sample consisted of 88 valid cases.

3.1 Analysis technique: QCA (Qualitative Comparative Analysis).

Given that one of the aims of our work was to study the presence or absence of some of the variables defined in the adopted business model (outcome), and to observe the different combinations chosen by the entrepreneurs, we chose to employ Qualitative Comparative Analysis (QCA) (Ragin, 1987; Misangyi et al., 2017; Javed and Batool, 2020):

1. to determine whether the expected outcome (or its absence) arises from the presence or absence of a causal condition, or the combination of conditions;
2. to analyze whether there are several combinations of causal factors (*paths*) by which the exact result or outcome is obtained; and
3. that the presence of a condition in the occurrence of an outcome does not imply that its absence is related to the non-occurrence of the outcome.

The QCA technique is presented as a case-comparative technique. It is based on two principles (Legewie, 2013). The first is complex causality which assumes that events occur from a combination of factors. The second principle involves a comparison of cases of interest. It is assumed that researchers can choose the most interesting cases to study to reveal patterns of association between cases and observe causal relationships between cases.

The QCA also has to accomplish some quality standards we have followed in our research design, including a) the generation of outcomes and conditions from an empirical basis, b) the use of other complementary statistical techniques, c) the publication of negative results, d) The interpretation of results from cases studied, or e) calibrating the data according to the purpose of the study among others proposed by (Schneider and Wagemann, 2010). In the same line, studies like Greckhamer, Misangyi, and Fiss (2013) or Finn (2022) suggest using QCA in studies where the sample does not represent more than a hundred cases.

[4] https://dentaldoctorsinstitute.com/

3.2 Operationalization of variables.

Appendix I summarizes the questionnaire that was distributed, which was based on previous studies of institutions (Ang and Cummings, 1997) with respect to the valuation of institutional capital (Sveiby, 1997; Dewhurst and Cegarra-Navarro, 2004; Ordóñez De Pablos, 2004). The variables were measured according to a seven-point Likert-type scale.

The dependent variable or outcome was dichotomized according to the role of the clinic's stakeholders. **IBMs** represented clinics that had not entered into any type of contractual relationship with any network of clinics, wherein decision-making was centralized, and delegation of tasks was minimal. Examples of these firms include traditional clinics. **ABMs** consisted of clinics that were associated with networks of firms with whom they had some form of contractual relationship. These entrepreneurs delegate some activities and coordinate tasks with other clinics in the same network. Examples include clinics that belong to franchise chains, cooperatives, and purchasing centers.

To operationalize the independent variables from the institutional theory, this study referred to the results obtained in a previous factor analysis, and reduced the number to two differentiating factors (Table 2). The highest values refer to dimensions that were perceived by the professionals surveyed in their daily lives. **PA influence** refers to what extent professionals follow Professional Association recommendations and guidelines. **Market influences** consisted of three questionnaire items: consumer trends, attention to competitors, and successful competitors are associated to clinic networks.

Table 2: Factor analysis

	Descriptive		Components	
	M	SD	Market influences	PA influence
Consumer trends	4,50	1,83	**,805**	,020
Attention to competitors	5,06	1,65	**,765**	-,029
Successful associate competitors	3,64	2,14	**,508**	-,615
Influence of PA	4,47	1,94	,150	**,900**
Total variance explained (sum)			37,83 %	29,76% (67,59%)

Extraction method: analysis of main components.
Rotation method: Varimax with Kaiser normalization.
The rotation converged in 3 iterations.

Source: Own elaboration.

In respect to the IC variables, this study chose to adopt the grouping proposed by previous literature (Claver-Cortés, Zaragoza-Sáez and González-Illescas, 2018; Watson and Stanworth, 2006). The highest values indicate the importance that the professionals assigned to each of the dimensions. **Human capital (HC)** grouped three items, namely, autonomy, experience, and HR management, so as to assess the knowledge possessed by professionals which is difficult to share. The **Relational capital (RC)** group consisted of items related to the professionals' loyalty and reputation. It outlines the measures taken by the clinics to maintain a good image with their patients and other professionals.

3.3 Calibration, analysis of necessity and sufficiency.

The QCA technique involves three steps (Schneider, Schulze-Bentrop and Paunescu, 2010; Tutistar Rosero and Pinazo Dallenbach, 2019): data calibration, necessity analysis, and sufficiency analysis. The last two steps indicate the results of existing combinations for the occurrence of the event (*outcome*) or its absence (~outcome), calibration of the data involves operationalizing the data to group the cases according to the requirements of the research. Calibration aims to determine the thresholds of maximum interest (membership) and those of null interest (non-membership) in addition to the midpoint (maximum ambiguity) of the cases (Basurto and Speer, 2012). This study chose to calibrate the causal conditions in accordance with prior relevant literature (Rey-Martí, Felício and Rodrigues, 2017). Therefore, only 10% of the most extreme threshold values were included. To determine the point of maximum ambiguity, the median was used (Skaaning, 2011). The outcome is also represented by dichotomous values, where IBM = 0, and ABM = 1. Table 3 shows all information related to descriptive results and data calibration.

The second step of the QCA technique involved conducting a necessity analysis using the FsQCA software (Table 4). According to Schneider and Eggert (2014), a condition is necessary when the presence or absence is tied to

the absence or presence of the outcome. Given the difficulty in identifying purely necessary conditions for the outcome, we considered those that had a consistency higher than 0.90, representing more than 60% of the cases (Glaesser, 2008; Molina-Morales, Martínez-Cháfer and Valiente-Bordanova, 2019; Skaaning, 2011), or even 80% in other articles (Cassar, Bezzina and Fabri, 2021).

Table 3: Descriptive data and data calibration

	Min	Max	M	SD	Threshold of membership (% cases)	Cross-over	Threshold of non-membership (% cases)
					Outcome		
Business Model	0	1	0,2	0,41	1 (ABM, 20%)	n/d	0 (IBM, 80%)
					Conditions		
PA influence	1	7	4,47	1,94	2 (22,1)	5	7 (18,9)
Market influence	1	7	4,40	1,36	3,33 (24,2)	4,67	5,67 (22,1)
HC	1	7	5,37	1,16	4,33 (20,0)	5,33	6,33 (26,3)
RC	1	7	4,76	1,29	3,50 (22,1)	4,50	6 (23,2)
Cases					88		

Source: Own elaboration.

Table 4: Analysis of necessity

Conditions	**ABM**		**IBM**	
	Consistency	Coverage	Consistency	Coverage
PA Influence	0.55	0.22	0.47	0.78
~PA Influence.	0.48	0.17	0.52	0.83
Market Inf.	0.74	0.28	0.46	0.72
~Market Inf.	0.27	0.11	0.54	0.89
HC	0.60	0.21	0.55	0.79
~HC	0.40	0.18	0.45	0.82
RC	0.67	0.26	0.47	0.74
~RC	0.33	0.13	0.53	0.90

Source: Own elaboration

The necessity analysis did not identify any condition that could be deemed necessary for an ABM or IBM. Therefore, none of the conditions analyzed were directly linked to either business model.

4. Analysis and discussion of results.

4.1 Results obtained

As a preliminary step, the descriptive data of the sample were studied following the suggestions proposed by Schneider and Wagemann (2010). For this purpose, a Mann-Whitney U test was performed, in addition to cross-tabulations (Table 5). The tests highlighted the differences between both business models in terms of institutional influences and intellectual capital. ABMs pay significantly greater attention to both consumer trends (ABM = 64.25; IBM = 39,42; Sig. < 0.001) and developing loyalty policies with their customers (ABM = 56.28; IBM = 41.47; Sig. = 0.03).

Table 5: Non-parametric Mann-Whitney U test

		N	U	Mean Rank	Sig.
PA influence	IBM	70	583	43,84	0,63
	ABM	18		47,08	
Market influences	IBM	70	274	39,42	0,00
	ABM	18		64,25	
Human capital	IBM	70	584	43,85	0,64
	ABM	18		47,03	
Relational capital	IBM	70	418	41,47	0,03
	ABM	18		56,28	

Source: Own elaboration.

Table 6 shows the results obtained from the QCA sufficiency analysis. Two different paths associated with the IBM configuration were obtained (Coverage = 0.52; Consistency = 0.91). The absence of market influences characterizes both combinations. The first path associates the creation of IBMs with the absence of both market pressures and concern for improving their RC (~Market*~RC). This combination represented 14% of the cases studied, and produced a high consistency value (0.91). The second combination also forgoes market influences but was concerned with improving HC (~Market*HC). This combination was significant and included 10% of the cases, and was characterized also by a high consistency value (0.89).

Table 6: Analysis of sufficiency

Outcome: IBM							
Path	PA Influence	Market Influence	HC	RC	Coverage Raw	Coverage Unique	Consistency
1		◯		○	0.42	0.14	0.91
2		◯	●		0.38	0.10	0.89
Solution coverage: 0.52 Solution consistency: 0.91							
Outcome: ABM							
Path	PA influence	Market Influence	HC	RC	Coverage Raw	Coverage Unique	Consistency
1	○	○	●		0.10	0	0.10
2		○	●	●	0.16	0.06	0.15
Solution coverage: 0.16 Solution consistency: 0.12							

a) according to Fiss (2011), *core conditions* (large circles) are considered when a condition appears in both the intermediate and parsimonious solutions. Small circles are considered *peripheral conditions* since they only appear in the intermediate solution.
b) Algorithm: Quine-McCluskey

Source: Own elaboration.

To complete the analysis, some combinations associated with the ABMs were obtained. However, the coverage and consistency values were insufficient to validate the results (0.16; 0.12). It is possible that the lack of interesting combinations could be attributed to the number of responses obtained from the survey from associated clinics, with only 18 of the 88 cases.

4.2 Discussion of results

The QCA analysis demonstrated the main organizational characteristics that are associated with existing IBMs in private health services. Two paths were obtained. Both have in common the absence of market pressures. Therefore, the first research proposal was achieved: In the private health services sector, entrepreneurs can select several combinations of IBM. However, we observed some homogeneity in IBM private health service firms: The first path involves entrepreneurs that are reluctant to apply disruptive innovations, especially if they are related to market issues. From Jayawarna, Rouse and Kitching's perspective (2013), these entrepreneurs are primarily concerned with clinic's prestige and control, whereas the second path is associated with entrepreneurs who are focused on learning and earnings. Their main goal is to improve human capital, although they are not especially interested in collaborating with their professional community.

The second research proposition focused on the extent to which the role of institutions affects the choice of business model. The results showed that IBMs were characterized by an absence of market influences, while the role of professional associations was not strong enough to influence path obtained. In other words, entrepreneurs who choose this configuration rely on other environmental influences as opposed to the opportunities provided by the markets in which they compete. One feasible interpretation of this result is given some entrepreneurs' negative marketing perspectives (Guido, Marcati and Peluso, 2011). That is, in terms of their choice of business model, some environmental variables were influenced by factors such as working conditions, workloads, working hours, and the level of income associated with these professions, as well as by other inhibiting factors, such as a rejection of highly disruptive innovations, given the fact that they may be regarded as threatening actions by the rest of the professional community (Peluso, 2015).

The third research proposition addressed the influence of intellectual capital (i.e., human and relational capital) on the decision to establish a business model. The results identified two types of entrepreneurs who established an IBM. The first consisted of entrepreneurs who rejected relational capital (e.g., taking measures to ensure that their patients remain loyal or measures to enhance the clinic's reputation). It is reasonable to assume that, for this group of entrepreneurs, maintaining loyalty among their patients and improving their clinic's reputation are measures that are regarded as detrimental to their profession, as they do not have the time or skills to implement these types of actions in an effective manner. Moreover, they have a solid understanding of their profession and do not need to acquire a better understanding of the activities that they carry out (Hamm, 2002). The second path is formed by entrepreneurs who do not refuse to take strategic measures to enhance their patients' loyalty and the clinic's reputation; rather, they place an emphasis on improving their clinic's human capital (i.e., employees' personal experience and improving working conditions). This type of entrepreneur adopts a slightly more innovative approach, and regards human capital as a key component in their business model, which focuses on improving coordination with qualified personnel, as well as the acquisition of new skills and experiences (He and Wong, 2009; Ramadan et al., 2017).

5. Conclusions

This study analyzed the association between the business model configuration of small firms operating in the healthcare services sector and their perception of environmental institutions and their intellectual capital endowment. In line with the research propositions, the QCA technique was applied to identify different configurational patterns in the business models adopted. To complete the analysis, we also developed other more traditional techniques like the non-parametric Mann-Whitney U test, providing a better consistency in our results. Our analysis revealed some interesting findings related to the presence of different business models and the role of institutions and intellectual capital in the business model configuration.

The main finding was that 80% of the cases (70 firms) adopted an IBM, whereas only 20% operated under an ABM (18 cases). This finding is interesting because it contradicts networking trends, which show that other service companies are usually co-created (Bartels, 2021). Firms that provide healthcare services still prefer IBMs, although the influence of ABMs is growing.

The analysis of the business models showed that IBMs were characterized by a lack of concern about market influences. The QCA identified two different paths to configure these firms. The first path revealed that healthcare professionals tend to reject disruptive innovations. In contrast, the second configuration highlighted the importance placed on improving the human capital of these firms by focusing on the acquisition of skills, experience, and better procedures in the clinic.

Beyond the business model configuration, this paper also contributes to society at an institutional and professional level. First, professional associations need to have a more significant presence in their community of members. Their actions are not perceived as profitable for their members and cannot influence their entrepreneurs positively. Therefore, they must adopt more active policies to gain influence in their community. Their situation is even more concerning, given the period of change in which we find ourselves at present. There are opportunities in the healthcare services sector for innovative entrepreneurs who do not hesitate to improve their intellectual capital, invest in better marketing tools and relations, obtaining some potential advantages after their effort (Trathen and Gallagher, 2009).

Second, at the professional level, this work also provides insights into different combinations of factors for firms operating in private healthcare services. This study evaluated the role of institutions and found a generalized absence of market pressure in this regard. It is reasonable to assume that this absence of market pressure is related to other more intrinsic motivations than the economic viability of these healthcare clinics. A critical attitude is also perceived about professional associations' role, which did not influence the decision to adopt their members' business model. Regarding perceptions regarding intellectual capital, there are significant differences in the importance placed on training and knowledge improvement.

This work is not without its limitations. The first shortcoming is related to the definition of a dichotomous business model because it failed to consider the different realities found in franchise chains, cooperatives, and purchasing centers in terms of governance, contractual relationships, and the strategic approach adopted. Second, other interesting KIBS were not included in the study. Therefore, future research should try to resolve

these issues by incorporating cases from similar types of KIBS (e.g., veterinarians, economists, lawyers, or other professions) requiring compulsory membership. Finally, data were collected before the emergence of COVID-19. Therefore, new measures were not considered. This is important because, contrary to many other KIBS (Andrei, 2021), people who work in the healthcare services sector cannot work remotely, as they are generally required to be physically present to provide services to their patients. However, this also represents a research opportunity for future studies.

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Appendix i. Questionnaire.

	Item	Description
Dependent Variables /Outcome		
	Business Model	0 = Independent business model (IBM). 1= Associated business model (ABM).
Independent Variables/Causal Conditions (7-point Likert scale).		
Institutional Influences	**Consumption Trends**	We ask groups in our environment (i.e., suppliers, governments, workers or distributors) about consumption trends.
	Attention To Competitors	We pay attention to the services provided by our competitors.
	Successful Competitors Are Partners	In our business sector, the most successful competitors are part of a network of clinics; that is, franchises, cooperatives, and licenses, etc.
	Professional Association Influence.	The professional association actively works to protect and improve our profession.
Intellectual Capital	**Autonomy**	The clinic where I carry out my professional activity allows me to organize my work freely.
	Experience	Compared to our competitors, the professionals at the clinic where I work are much more experienced.
	HR Management	In the clinic I work in, HR management is carried out by the entrepreneur or manager of the clinic.
	Loyalty	We take commercial measures to ensure that our patients remain loyal.
	Reputation	Our firm's reputation is higher than that of our competitors.

