

A Criteria-Based Model for Selecting Design in Information Systems Research

Tiko Iyamu and Irja Shaanika

Faculty of Informatics and Design, Cape Peninsula University of Technology, Cape Town, South Africa

iyamut@cput.ac.za

inshaanika@gmail.com

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Abstract: Despite its essentiality, selecting the most appropriate research design is consistently challenging for many emerging researchers including postgraduate students, attributable to the lack of a formal approach. The process becomes more cumbersome and challenging when selecting more than one research design in a study. Consequently, many aspiring researchers sometimes select designs that do not align with the objectives of their studies. This study aims to propose a model that guides selecting the most appropriate research design for a study. The qualitative approach was employed, and it involved interviews with emerging researchers and postgraduates at a large public university of about thirty-five thousand students in South Africa. The findings reveal a three-step approach, based on which the criteria-based model (CBM) was developed. The study highlights the attributes of the CBM, which can be used to advance research methodology. The proposed CBM has significant implications for improving the selection of appropriate research design for a study. The implications include knowledgeability and alignment, from both theoretical and practical perspectives.

Keywords: Research design, Research methodology, Information systems studies, Selection guide, Research model

1. Introduction

Research design is one of the components of the research methodology. It provides a strategy for addressing a research problem and achieving objectives by integrating different aspects of the study coherently and logically. According to Cook and Cook (2016), research design provides the blueprint for conducting research, including shaping the outcome. The outcome can either be from a positivist perspective by testing theories or from a subjective position, which seeks to induce a deep understanding of why things happen the way they do. Indu and Vidhukumar (2019) asserted that a research design is determined by the research problem and can be either qualitative or quantitative or a combination of both referred to as a mixed method.

Based on its influence, the choice of research design is critical in any study (Iyamu, 2028). Data collection is one area of its influence. Odoh and Chinedum (2014) noted that research design ensures that data are collected in a way that is consistent with acceptable practice in the field of study. Also, the research design influences the structure, such as data collection, and data analysis of a study and binds them together to solve a problem. Thus, Asenahabi (2019) suggests that researchers must have a good understanding of research designs and their significance, to overcome the challenges of selecting methods and techniques in research. Consequently, when a researcher selects the less appropriate research designs, usually, the type of data collected is weak, the analysis is skewed, the conclusions drawn unconvincing, and fail to answer the research questions (Jongbo, 2014).

Researchers are aware of the challenges and potential pitfalls that can arise in IS research (Hevner & Storey, 2023; Müller et al., 2016). This includes selecting and applying designs. Applying or following a design becomes more complex and challenging if the selected design is not appropriate. Consequently, data collection is impacted, and results or findings are defective from the study's aims. At present, there is a lack of an agreed logical, systematic approach (Al-Emran et al., 2018; Suriadi et al., 2017). For IS emerging researchers, particularly postgraduate students, that can be challenging. Osuagwu (2020) affirms that research design is a challenge in institutions of higher learning. It is therefore necessary to find an approach that enables researchers to follow a logical, step-by-step process to arrive at a solution (Pappas & Woodside, 2021).

Selecting a research design is a challenging process for many researchers in IS, business sciences, and other fields of study. Cook and Cook (2016) identified a lack of a universally agreed approach and the use of various terms as some of the reasons why some researchers are consistently challenged with the selection of research designs. These challenges add to the complexity and confusion, which many aspiring researchers encounter. As a result, some postgraduate students select more than one design, which makes the process more challenging (Osuagwu, 2020; Scandura & Williams, 2000). Therefore, to achieve the study's objectives, the most appropriate design

must be selected (Cook & Cook, 2016). Literature details many research designs, and each has strengths and weaknesses (Reziggalla, 2020), which must be understood before selecting any of them.

Although much work has been done in the areas of research methods and methodology, the challenges identified herein, persist. According to Nayak and Singh (2021), many authors have explained that the design of research undergoes several changes and modifications due to a lack of formula. Primarily, because no work seems to provide a step-by-step guide as this paper does. As the study progresses and insights into it deepen, the impact and complexity of the design are felt (Nelson & Stolterman 2012).

Thus, this study poses the question: What criteria-based model can guide research design selection, in IS studies? By providing the guide, some of the challenges encountered in selecting designs at the methodology stage in IS research can be overcome. Through the model, the study contributes and advances research methodology. Thus, this paper will be a significantly useful material for emerging researchers including postgraduate students. Also, undergraduate students who are interested in research will benefit from it. However, the paper is not limited to IS discipline because the methodology is universal research.

The paper is organised into six main sections to ease understanding of the logical flow. It begins with the introduction of the study. Thereafter, the literature review covering the core aspects of the study is presented. In the third section, the methodology that was applied is discussed. The fourth section presents the criteria-based model proposed, which can be used to guide the selection of research design, in IS research. The attributes the study offers are discussed in the fifth section. In the sixth and seventh sections, the implications and limitations of the study are covered. Finally, the paper is concluded in the eighth section.

2. Literature Review

Research design represents the structure and planning for addressing a research problem (Odoh & Chinedum, 2024). It adds to the comprehension of the procedure followed, which includes showing the process undertaken to obtain results or findings in studies. Consequently, research design plays a critical role in shaping the outcome of a study. Flick (2022) explains that the choice of research design reflects decisions about the priority being given to a range of dimensions in the research process. According to Odoh and Chinedum (2024), a research design integrates data collection procedures, data analysis, and interpretation of the findings or results. Thus, the research design induces credibility on how and why results or findings are achieved in a study. Additionally, Flick (2022) asserted that a research design is a way of acknowledging the underlying theoretical assumptions that have shaped perspectives and understandings of the research focus and processes.

There are many research designs, as covered in the literature (Frost, 2020; Flick, 2022). In information systems (IS) research, the most common designs include action research (McNiff, 2013), case study (Schoch, 2020; Yin, 2017), ethnography (Denzin, 2017), grounded theory (Seidel & Urquhart, 2013; Strauss & Corbin, 1997), phenomenology (Van Manen, 2017), and survey (Zhang et al., 2017). These research designs vary in their focus and purpose and influence data collection approaches (Leslie, Fleischmann & Fadaak, 2025; Cook & Cook, 2016). Each design has its strengths and weaknesses, which makes the selection crucial, in any study. Thus, the study's objectives remain the most acute and appropriate set of criteria that guide the selection of research design.

One of the strengths of grounded theory is that it can be used for both collection and analysis of data (Leggio, 2022). The survey technique enables broad coverage for data collection and allows the researcher to administer standardized questionnaires to the respondents (Odoh & Chinedum, 2024). Phenomenology focuses on the shared meaning of multiple people's lived experiences with a phenomenon. Leslie, Fleischmann and Fadaak (2025) explain how the ethnography technique enables the researcher to explore patterns of activities, behaviours, and languages of a specific cultural group within their natural setting over time. The case study design enables an in-depth analysis of an event, program, process, activity, or common experience with a person or group of people (Leslie, Fleischmann & Fadaak, 2025). Leggio (2022) discussed how the case study technique provides an opportunity, to gain a deeper understanding of contemporary phenomena within a real-life context.

However, selecting a research design is not always straightforward because it is influenced by various factors, such as the objective and focus of the study. Cypress (2019), many emerging researchers are often challenged when selecting research designs, which sometimes contributes to a delay in completing their studies. Verschuren (2003) reported that for many young researchers, there is ambiguity about the different research designs. From the grounded theory perspective, Timonen, Foley & Conlon (2018) argued that postgraduates and emerging researchers are often concerned or confused about how to apply the design. Rashid et al. (2019) asserted that researchers often opt for the case study design without a substantive understating of the implications of how and where to apply the approach in a study.

An issue that adds to the selection complexity is that many postgraduate students understand the different designs from a theoretical standpoint. An empirical study by Iyamu and Shaanika (2018) revealed that many postgraduate students are theoretically knowledgeable about the methods and approaches but are practically challenged in their applications. With limited knowledge about the application of a design, researchers find themselves selecting designs that are not suitable for addressing their study objectives. Cypress (2018) explained that an understanding of research design is critical as it influences the basis for how data collection and analysis activities are conducted and the outcome of the study. Rashid et al. (2019) recommended that researchers should gain a deeper understanding of the research design, to select the most appropriate one, which makes it easier to justify alignment with the research methods.

3. Research Methodology

Based on the aim of the study which is to develop a criteria-based model that would aid researchers in selecting the most appropriate research designs, the qualitative approach was followed. The Qualitative approach allows the researcher to identify issues from the participant's perspective and understand the meanings and interpretations that are given to events (Hennink, Hutter & Bailey, 2020). Qualitative studies are conducted in their natural environments to gain a deeper understanding of the participant's experiences and realities (Renjith, 2021). Thus, the qualitative approach is suitable for this study, to gain a better understanding of how and why postgraduate and emerging researchers select research design.

Within the qualitative paradigm, the case study was selected as the design for this study. A group of postgraduate students from a South African university was used as the case in the study. Schoch (2020) refers to the case study approach as an in-depth investigation of a contemporary phenomenon within a real-life context. The focus of this paper is more of an academic phenomenon. Thus, an academic institution is inevitably, best to be used as a case for the study. The following criteria were applied in selecting the case: (1) access to the university, (2) the university has post-graduate students enrolled for master's and doctoral programs in the IS Department. Based on the criteria, a university in the Western part of South Africa was selected to partake in the study. For ethical reasons, a pseudo-name, CapeVarsity is used to represent the institution.

Although students from one academic institution participated in the study, the data was satisfactory and rich. This is based on three significant reasons. Firstly, research design and methodology, in general, are universal. This means that no academic institution or research body has a unique definition or coverage of research design or methodology. Secondly, the participants spread across the target audience, from postdoctoral fellows to doctoral programs, including master's students, as shown in Table 1. Thirdly, the participants were at the time of data collection in their various studies. The practical experiences of the participants were fundamentally useful to the richness of the data. According to Iyamu (2024: 59), the usefulness and relevance of qualitative data are not determined by size or volume but by depth and richness.

The qualitative methods were the focus of the group that participated in the study. As shown in Table 1, a total of 15 post-graduate students participated in the study. The group constitutes one postdoctoral fellow, seven doctoral, and seven master students. At the time of this study, the participants were enrolled with the IS Department of the institution, CapeVarsity. The students were in different stages of their studies ranging from first to final years, as shown in Table 1. The table below shows the details of the focus group including the methodology focus of their studies. Having all students from one domain of study allowed for familiarity and ease of translations of meanings and understanding during discussions. The students willingly participated in the study.

Data was collected using the focus group discussion technique. This technique is useful for bringing together homogeneous groups of participants with relevant expertise and experience on a given topic on which they can share detailed information (Busetto, Wick & Gumbinger, 2020). According to Gill and Baillie (2018), a focus group can yield rich, in-depth data and illuminate agreement and inconsistencies. Data was collected in a research seminar, in which the participants were in attendance. During the seminar, the participants presented the progress of their studies. From the presentations, the designs of their studies were confirmed. Each presentation was engulfed with discussions and probing by other participants. The probing focused on "why" and "how" certain research designs were or were not selected by the students in their various studies. This enabled robust discussions due to the level of knowledge and exposure of each student, about research designs, from which, rich data was gathered.

Table 1: Focus group Participants

Program	Participants	Level	Codename	Methodology Focus
Postdoctoral fellow	1	1 st	P0D_01	Qualitative methods, Case study
Doctoral students	7	2 nd	DoS_01	Qualitative methods, Case study
		2 nd	DoS_02	Qualitative methods, Case study
		2 nd	DoS_03	Qualitative methods, Case study
		3 rd	DoS_04	Mixed methods, Case study
		3 rd	DoS_05	Mixed methods, Case study
		3 rd	DoS_06	Qualitative methods, Case study
		4 th	DoS_07	Qualitative methods, Case study
Master students	7	1 st	MoS-01	Qualitative methods, Case study
		1 st	MoS-02	Mixed methods, Case study
		1 st	MoS-03	Qualitative methods, Case study
		2 nd	MoS-04	Qualitative methods, Case study
		3 rd	MoS-05	Qualitative methods, Case study
		3 rd	MoS-06	Qualitative methods, Case study
		4 th	MoS-07	Qualitative methods, Case study
Total	15			

One of CapeVarsity's Professors who also played a supervisory role helped facilitate the discussion with the focus group. During the discussion, the supervisor managed the questions and answers section including maintaining focus on the discourse and keeping track of time. Additionally, clarifications were sought, which enriched the data. Unanimously, the group agreed for the conversation to be recorded.

4. A Criteria-Based Model for Selecting Research Design

This study aims to develop a criteria-based model (CBM) for selecting research design in IS studies. The CBM is a three-step approach. The first step cohorts the components that must be aligned, towards selecting the most appropriate design. In the second step, the focuses of the most common research designs are described, for understanding purposes. The third step is the methodological approach towards selection. The three steps are discussed below and should be read in conjunction with one another, for ease of understanding.

Step #1: Components alignment

The core aspects of research are usually the problem, objectives, and questions, as shown in Figure 1. Thus, the focus of the research depends on the alignment of the core components: problem, objectives, and questions being investigated. Bougie and Sekaran (2019) argued that the research problem, objectives, and questions must be strongly aligned, to avoid deviation. It is therefore critical to ensure that there is no disparity between the components. The alignment promotes synergy among the three components, primarily directing the study towards the defined aim. Coe et. al (2021) explained how the alignment of components situates the problem, logically, in conducting the investigation. Bottomline, the components are interdependent and, therefore, should not be developed in isolation from each other.

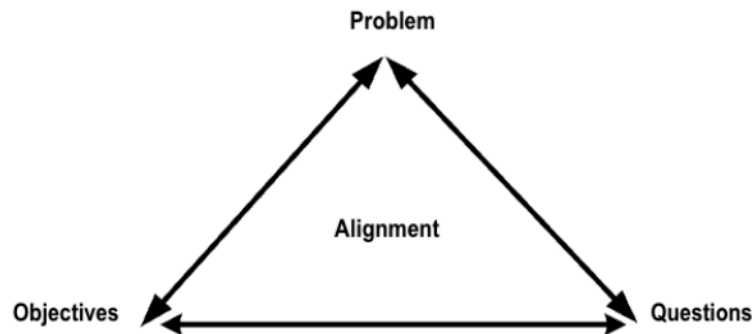


Figure 1: Alignment Components

Despite its criticality, the alignment between the three components can be challenging, especially for emerging researchers. Complementarily with the objective, this paper intends to ease this challenge. For example, once the alignment is achieved, it becomes easier to determine the next step. It thus, influences the methodology applied in the research. The methodology articulates the logic and flow of the systematic processes followed in conducting a research project, to gain knowledge about the phenomenon being studied (Khatri, 2020).

Step #2: Research Design

There are different types of research designs a researcher can choose from. Significantly, some of the designs constitute similar attributes. This makes it difficult for some researchers to select the most appropriate design. When selecting a research design the researcher must have a good understanding of its primary focus. A design focus represents components that uniquely identify and set it apart from other designs. Table 2 describes some of the most common designs in IS research.

Table 2: Design focus

Design	Focus	Descriptions
Action Research	Cyclical, participative and collaborative	Action research follows a systematic and cyclical pattern of reflection, planning, action, observation, and data collection, evaluation that repeats in an iterative and ongoing manner (Johnson, 2020).
Archivary and documentary	Documentary of historical events	Focuses on documentaries that historical actors leave behind. The archives comprise documentation that an organisation has accumulated over time (Tennent & Gillett, 2023).
Case Study	In-depth inquiry into real life-context	In a case study, an object is studied exhaustively from multiple perspectives of complexity and uniqueness in a real context (Bondía & Gracia, 2022).
Ethnography	Historical events, cultural context	Investigate intact cultural or social groups to find and describe beliefs, values, and attitudes that structure the behaviour, language, and interactions of the group (Hancock et al., 2021)
Experiments	Numeric, manipulate variable, test hypothesis	Experiments take the form of altering the environment and observing subsequent reactions (May & Perry, 2022).
Grounded Theory	Theory development data grounded.	Grounded Theory aims to generate theory that is grounded in data according to the views of the participants (Turner & Astin, 2021).
Phenomenology	Phenomenon lived experience	Explore the meaning of several people's lived experiences around a specific issue or phenomenon (Hancock et al., 2021).
Survey	Standardised wider coverage	The survey design allows for questions to be presented in a fixed and standard order to a larger and more diverse population (Braun et al., 2021).

Step #3: Methodological approach development

Step #3 consists of two tables: Tables 3 and 4. The two tables should be applied, linearly. In Table 3, there are three columns and three rows. The first column contains the focus of the objectives. Usually in IS, the focus of an objective is either to conduct an experiment, empirical study or a combination of both. In the second column, the types of methods that can be employed are presented. There are three types of methods: quantitative, qualitative, and mixed methods (Taherdoost, 2022; Flick, 2022). In the third column, the three most common approaches in IS research, which are deductive, inductive, and abductive, are presented. When following a

deductive approach, the researcher begins with a theory and then collects data that either supports or refutes the theory. In contrast, inductive research involves gathering data and building a theory based on the analysis of the data (Jones & McCrickard, 2021). Abduction represents a combination or synthesis of both deduction and induction and can be considered an equally important approach to research (Karlsen, Hillestad & Dysvik, 2021). As shown in Table 3, depending on the type of study, any of the approaches can be selected.

The three components of Table 3, objectives, method, and approach are interdependent, which means that one determines or influences the other, starting from the objective to the approach stages. For example, a research objective which is experimentally driven compels the researcher to collect quantitative data using a deductive approach. Khatri (2020) explains that if the researched phenomenon is about the relationship between different variables and testing of the hypothesis, it leads towards deductive whereas if the phenomena to be researched are about the human experiences and social-cultural processes, the focus is on multiple realities following the inductive approach. Therefore, research objectives, inherently influence the types of data and the approach to be applied in the study.

The rows in Table 3 are assigned codes, BA, BB, and BC. The codes are determinants and enable ease of reference. Code BA indicates studies that have objectives that are required to be solved by following the objectivism process. Code BB signifies that a study requires a subjective technique, which entails empirical evidence. Code BC infers that the research requires both quantitative and qualitative to resolve the problem being studied.

Table 3: Method selection

Code	Objectives/problem	Method	Approach
BA	Experiment	Quantitative	Deductive
BB	Empirical	Qualitative	Inductive
BC	Experiment and empirical	Mixed	Abductive

The latter part of Step #3 is Table 4. The Table consists of a list of the commonly used designs in IS research. The designs are grouped into three categories, Groups A, B, and C. Group A, Group B, and Group C contain qualitative, quantitative, and mixed methods, respectively.

Table 4: Research designs grouping

Group	Design				
Group A	Case study	Ethnography	Grounded theory	Phenomenology	Archivary and documentary
Group B	Action research	Survey	Simulation	Experiments	
Group C	Select at least one from each Group				

To select a research design, the codes presented in Table 3 should be aligned with the groupings in Table 4, thereafter, a conditional statement or approach should be applied as follows:

- If the code is equal to BA, then select a design from Group B.

When the selected code is equal to BA, the study objectives focus is quantitative. In a quantitative study, researchers study phenomena objectively using natural sciences approaches to measure and quantify dependent and independent variables. Kandel (2020) explains that quantitative approaches are for testing theories by examining the relationship among variables. Thus, this code applies to studies that do not require personal attachment that comes with a deep immersion in the social environment but rather objectivity where there is a distance between the researcher and the subjects.

- If the code is equal to BB, then select a design from Group A.

If 'BB' is selected, it means that the study seeks to examine actors' actions and gain a better understanding of their experiences in a natural environment. It therefore relies on qualitative research designs. Research designs with a qualitative focus, allow researchers to study phenomena by observing and asking questions such as "why" and "how" things happen in the way that they do. Qualitative techniques aim to understand, describe, and interpret social phenomena as perceived by individuals and groups (Holloway & Galvin, 2023).

- If the code is equal to BC, then select at least one design, each from both Group A and B.

Depending on the study's objectives, more than one research design may be required to resolve the defined problem. In such a case, the study employs designs from both qualitative and quantitative resulting in a mixed-method approach. Creswell (2014) suggests that mixed methods research is an approach in which the researcher collects analyses and interprets both quantitative and qualitative data, integrates the two approaches in various ways and frames the study within a specific design.

The CBM provides a predefined control set, which eradicates or reduces the challenges often encountered in selecting research design. Thus, the selection of the research design is neither by an individual's preference nor lack of know-how. Selecting a research design is guided and controlled using the proposed three-step approach.

5. Discussion

This discussion focuses on the attributes of the study. The attributes are fundamental potential aids of the criteria-based model (CBM) presented in this paper, which include clarity, systematic, and precision. The CBM introduces a pattern for selecting designs in IS research. Affirmatively, Nayak and Singh (2021) argued that the essential challenge for researchers is to build better and more comprehensive theories than existing ones. This requires the vehicle's appropriateness, making the selected design a critical part of the research process. Mastering the CBM imbibes simplifications through clarity, systematic approach, and precision in selecting research design.

Clarity - the three-step approach of the CBM clarifies how the decision to select a design was reached in research. The clarity induced by the CBM can lead to a stream of rich data, which is an important aspect of research. Such clarity helps to identify stakeholders, adds to the rigour, and appropriateness of the research. Osuagwu (2020) suggests that these attributes are additions to relevance associated with the research results. The result can lead to a significant lack of clarity (Alter, 2008). *According to one of the participants, it is always tricky to distinguish between the research design, the case study and ethnography are an example (DoS_02)*. Additionally, the CBM provides clarity that is clear and explicitly procedural steps in selecting research designs. This is to avoid complexity and guide postgraduates in selecting research design. Collins et al. (2021) emphasise that lack of clarity creates a gap, which must be closed even if it means redefining. Von Nordenflycht (2023) explains how clarity is valuable in research design research towards achieving results.

Systematic approach – the three-step approach makes the CBM systematic. The approach encores a procedural in resolving the challenges of selecting designs in IS research. *Without the supervisors' guidance, we sometimes do guesswork, which works for some of us (MoS-02; MoS-03). However, with time, some of us got better at gaining a better understanding of the strengths and distinctions between the research designs (DoS_05);*. The approach enacts a rules-based in selecting a design in IS research. In its systematic approach, the CBM stimulates a repeatable-based process, for both emerging researchers and postgraduates. Steininger (2019) postulates how the systematic approach allows patterns within disciplines. The pattern forms a knowledge repository facilitating a routinised assurance of a process (Samtani et al., 2023; Suriadi et al., 2017). It enables applying a set of precise rules to select designs, towards gaining a better understanding of complexity and avoiding overly simplification of reality.

Precision – as studies progress, some students including emerging researchers sometimes realise that they have not been acute in selecting design. *One of the challenges is that there is no formula to determine the precise or most appropriate approach selected for our studies until the research supervisors approve (DoS_06; MoS-04)*. The CBM provides a concise and precise way to represent relationships and dependence between variables (methods and designs). The preciseness enables navigating between the methods, to determine the most appropriate designs. It steers towards granularity by grouping the methods. Thus, precision helps to trail between criteria in conformance checking (Leemans & Polyvyanyy, 2023). Fantinato, Peres & Reijers (2023) explained that precision allows using the CBM to assess and ensure that unrelated variables do not mix. Precision holds the characteristics of strengthening a formulaic approach by ensuring the relevance and appropriateness of variables.

6. Implications for Research Design Practice

- Order of Use – A study is not always underpinned by one research design. Depending on the objectives, more than one design can be selected. By employing more than one research design, it brings more complexity to the study, especially in terms of order of use. When more than one design is required, there is a need to determine the designs' order of use, to have coherence towards the

integration of different approaches. What is even more challenging is when the selected designs are of different paradigms (qualitative and quantitative). According to Johnson and Onwuegbuzie (2004), when a researcher employs the mixed method there is a need to determine the dominance and time of implementation of the methods. Thus, the researcher must be clear about the research output and how each design contributes to such.

- Knowledgeability - There is a need for post-graduate students and other researchers to understand the different designs that exist. Choosing a design without understanding other designs limits the researchers from selecting the most appropriate, for the defined research problem. Şahin and Ozturk (2019), asserted that researchers who do not fully understand the philosophy and purpose of specific research designs end up conducting studies, which are not compatible with the purpose of that design. However, having a good knowledge of the different research designs requires comprehending the strengths and weaknesses including how and when to apply each design. This can be a complex process in practice. Thus, knowledgeability ensures a researcher selects the design based on its potency for addressing the research objectives and not because of its ease of use, popularity in the literature or familiarity.
- Alignment – Alignment is the other implication in practice. The implication requires researchers to understand how to align the different components (problem, objectives, questions) of the study. *The core aspects of our study, as we know it, include the research problem and the objectives, which must be understood in depth because they determine the direction and outcome (MoS-05; DoS-05; DoS-07).* The components are interdependent and should not be developed in isolation. Many researchers are unaware of the research components' alignment. Consequently, misalignment between these components (problem statement, research objectives and questions) is one of the major contributing factors to why theses and proposals get rejected upon submission. The disjoint between these components often complicates the design selection process leading to researchers opting for designs that might not be suitable and cannot justify their applications towards resolving the defined problem.

7. The Limitations of the Study

Despite the comprehensiveness and contribution of the study, it carries typical limitations of an exploratory study. We identify two limitations: narrow focus on the quantitative and empirical evidence expansion. The study focuses only on qualitative research. It excludes those focused on quantitative research who could have participated in the study. Including both qualitative and quantitative (mixed methods) researchers could add more value and contribution, from theoretical and practice perspectives. Significantly, the mixed methods allow a more holistic view of both social and natural, in IS research (Reis, Maier & Weitzel, 2022; Ågerfalk, 2013).

The empirical evidence should be extended beyond IS, to cover other fields of study. This will enrich theoretical and practical knowledge because it represents a real-life experience and know-how. Also, the extension is vital because empirical evidence is consistently viewed as an essential part of research. Another rationale is that it is a central aspect of research, in gaining a more detailed, understandable, and enriched outcome from both the social and scientific world (Collins et al., 2021; Mithas et al., 2012). Despite the limitations, the study is a huge step toward practical, theoretical, and methodological contributions to research methodology. Following the three-step approach, the proposed CBM can be evaluated and validated in future IS research, in the future.

8. Conclusion

Applying the criteria-based model (CBM) proposed in this paper in selecting a research design, enables researchers including postgraduates to increase appropriateness and improve rigour in their studies. This study highlights the critical challenges such as the difficulty in finding studies where and opportunities faced by postgraduates and researchers in the IS field due to the lack of a formal approach or method to selecting research design. We argue that our CBM contributes to the advancement of research methodology, from practical, theoretical, and methodological perspectives on the basis that (i) clarity is an essential step towards selecting a more appropriate design, (ii) the systematic approach provides guidelines for synthesizing the process of selecting designs in IS research, and (iii) the precision enhances the appropriateness of the selected research design in a study.

The formulaic aspect of the CBM makes it practical for researchers including postgraduates. This makes the CBM a powerful way of simplifying complexity and increasing the chances of selecting the most appropriate design in IS research. More importantly, the CBM allows repetition across the various studies of IS. Also, it transparently draws the relationships between the methods and designs and, therefore, makes the trends visible through the

clarity, systematic and precise approaches that it provides. The CBM is a systematically structured three-step approach that imbibes methodological clarity towards preciseness in selecting research design in IS research. It is thus rich in contextual information, for both postgraduate students and emerging researchers. Although the study was conducted in the IS environment, it can be applied in other fields of study. Also, the CBM sets the foundation for selecting theories to underpin the study.

Theoretically, the study therefore provides a solution, which is a typical concern of many emerging researchers and postgraduates in research methodology. From a pragmatic viewpoint, we recognise that researchers have different levels of scholarly expertise and implicit or explicit types of knowledge, in selecting research design. How the knowledge is applied varies because there is no formula or guide for selecting research design. This is another powerful aspect of the CBM, it is flexibility, which allows modification or transformation, arbitrarily.

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