Theory-Based Approach to Research Question Formulation: Fundamentals for Postgraduate Students

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Abstract

Postgraduate students are required to undertake research projects as part of the requirements of the courses they take. In that regard, they need to understand how theories are applied in research work. The aim of this study was to document challenges postgraduate students encounter when applying social research theories in constructing research questions. The key objective was to determine the deficits postgraduate students have in applying theories in the formulation of research questions. The second objective was to identify appropriate strategies as proposed from the respondents in overcoming the deficits identified under the first objective. Thestudy was conducted in Kenya and Armenia in selected public universities. A Quasi-qualitative survey research design was used and target population consisted of lecturers and postgraduate students conveniently selected from the social sciences departments. Focused group discussions (FGD) were used to collect data through the online platform Zoom where one FGD consisted of 9 conveniently selected postgraduate supervisors and two consisted of 11 and 14 postgraduate students respectively. Internet-based research was used to get information from online sources. Thematic and contextual analyses were used and the results showed that students have inadequate skills, knowledge, and competencies suitable for helping them formulate research questions using theoretical constructs. The study recommends improving the content and approaches of teaching research methods, focusing on the application of theory in research studies. The study further proposes strategies for ensuring that the students can design, develop, and use theory in all aspects of conducting research. The study has value by proposing ways of overcoming inadequacies by improving postgraduate students' research competencies, by applying theoretical constructs in the development of research questions for their research studies.

Key Words: Research formulation, Research question, Theoretical frameworks, Research process, Cognition processing model

Introduction

Research questions function through the process of inquiry that is aimed at guiding scholarly investigations, towards extracting data from research respondents, documents or through observations in meeting the intents of the objectives of a study. Therefore, they serve as important base for springing an investigation focusing on locating the relevant answers that best inform the objectives of a study. While many appreciate the importance of research questions in research (Mehta et al., 2016; Barroga & Matanguihan, 2022a), postgraduate students need to have a structured and theoretical foundation upon which the questions are generated (van der Waldt, 2025). In this paper, we present a definition of question in research, its nature and how best to construct research questions guided by the theoretical frameworks applicable to a study. In this regard, the research

question seeks to interrogate a specific issue by asking why, what, and how in relation to the research problem that the research study is focusing on (Kozinetz, 1992; Beitz, 2006). In this way, the research question directs the focus of a study towards specific tasks that need to be accomplished and remains within the scope of the study.

Postgraduate students need to be aware that research questions must be constructed based on data typologies desired that the study is targeting to get in meeting the requirements of the research objectives. The researcher must be cognizant of the analytical procedures and hypothesis testing tools that determine what types of data they will collect (Halder, 2024). This is because there is an existing uncertainty manifested as a research problem which propels the need to investigate forward. For a research question to be effective, the researcher must bear in mind, that in designing the questions, they must be simple with high degree of clarity to avoid the element of ambiguity on how potential respondents may respond to them (Speight et al., 2021). The terminologies reflected in the questions must match the literacy levels of the people who will be the targeted respondents (Mack et al., 2013; Islam & Small, 2020). The aim of this is to ensure that the theoretical tenets guiding the study remain relevant even in the framing and developing of the research questions (Pryor, 2010; Goldschmidt & Matthews, 2022). One must remember that theories are used to demarcate the known from the unknown, and to communicate the question of the interrogation in seeking to uncover the unknown, there must be a connection between the question's terminologies (van der Waldt, 2025), and its probing of the hypothetical positions articulated from the questionnaire in a manner that communicates the desire to get the correct information (Waldt, 2021; Goldschmidt & Matthews, 2022), and lead to the collection of appropriate data in the data collection process.

The guidance of this present study was within the structure of Constructivist Grounded Theory (CGT). The primordial origin of this theory lies in the ideas proposed by Glaser and Straus, (1967). In this treatise, the two authors proposed that the people reinterpret what they experience simultaneously as they develop a meaning that describes their understanding of phenomena experienced. The theory was later refined by Charmaz who expanded its definition and scope by emphasizing on identification of a theory applicable to a specific qualitative research through iterative process that involves data collection and analysis (Charmaz, 2000). This requires the researcher to understand how the respondents develop their interpretations of the research questions and develop meaning in the way they understand them (Charmaz, 2006). This present study applied this theory since the theory is cognizant of the researcher's subjective perspectives which influence how a study is conducted (Lindqvist & Forsberg, 2023). This theory also is useful in developing theories that are constructed from qualitative studies (Clarke et al., 2023), making the study to be a tool in the process of generating a theory for formulation of research questions with constrained influence of theoretical models throughout the research process (Grant & Osanloo, 2015). The CGT facilitates the process of developing research questions based on the emergent data analysis outcomes and not within the rigid and preconceived ideas that act as the beacons of formulation of a qualitative research process (Mohajan & Mohajan, 2022). According to this theory, the formulation of research is emergent with its theoretical model development as it responds to the data and not pre-designed intents other than product of data analysis (Collins & Stockton, 2018). The data will inform the formulation of the research through the outcomes that are emergent in the findings. Secondly, since this present study could not identify an appropriate theory that would cover all the key aspects of trying to provide clear explanations, structures and variable relationships in the way research questions are to be designed and constructed, it allows for the assumption that the relevant theory applicable to the uniqueness of the study phenomenon is still in the developmental process (Delmas & Giles, 2023).

It is therefore, appropriate to use the CGT because it takes cognition of the fact that the researcher remains in continuous interrogation of the data, and emergent outputs of the analysis, that leads to formation of more effective

questions, which are also informed by the research participants collective experiences with either supervising research students or conducting their own researches (Locke, 2007). Technically, this theory presumes that research formulation and the development of theories are ongoing processes, where the lack of definite theory implies that more work needs to be done in developing the theories. The reason for using the CGT in guiding this study was premised on the fact that the theory prioritizes the formulation of theories from data analysis while, at the same time, values existing theories in a given field of study in framing research questions (Sebeelo, 2024). This paper also encourages students to formulate research through continuous research, re-evaluation of available literature and developing their research questions with emergent data that they access in the process of developing their research proposal through an iteration process, which is highly supported by this CGT postulate (Mills et al., 2006; Clarke et al., 2023)

Methodology

This present study used a quasi-qualitative survey design aimed at surveying the opinions of the respondents but did not include the quantitative aspects in the data collection process and analysis (Buchholtz & Vollstedt, 2024). The target population were universities lecturers and postgraduate students of social sciences and humanities. The lecturers and postgraduate students were conveniently selected. For the lecturers, they had to demonstrate that they were or have supervised to completion postgraduate students in undertaking their research projects. Focused Group Discussions (FGDs) were used to collect data through online platform Zoom where one FGD consisted of 8 doctorate supervisors and two consisted of 11 and 14 postgraduate students. Data was collected using interview schedules that guided the discussions, which did not last for more than an hour. Thereafter, the recordings of the FGDs were done and transcribed verbatim.

Data analysis involved assigning of codes to specific themes that were identified in the transcriptions and these were grouped using specific emergent patterns, where the researchers interrogated the patterns using thematic analysis to develop the key themes that were then grouped together. This allowed the researchers to develop context-specific picture and an in-depth understanding of the subject matter and developed well informed interpretations of the multiplicity of perspectives and diverse opinions of the respondents relating to the issue of applying theoretical frameworks to research question formulation. The research supervisors who were included in the study and discussion were purposively selected from Alupe University, Kenyatta University and Kaimosi University for the convenience of the study. In the above, the selection of universities was based on the fact that they were public universities, and non-response to online-based FGDs led to the decision of selecting supervisors from these three universities. Students involved in the study were from Kaimosi Friends University, Pwani University, Kenyatta University, and Laikipia University, all from Kenya and in addition, Yerevan State University in Armenia. Data analysis was done using thematic and contextual analyses.

Results

Theme 1: Incompetence of Students in Applying Theories to Research Question Formulation

This present study established that the challenges faced by students was due to the fact that they lacked the required skills to use theories appropriately in their formulation of research questions. This problem was evidenced by some of the students manifesting lack of enough knowledge in understanding and interpreting the essential issues and tenets of theories they use in guiding their studies. This further demonstrates another problem, a disconnect subsisting between the conceptualization of a research and constructing a research study, with the theoretical structures that clearly determine how the variable relationships should be defined in the conceptual framework. This was a factor that led to many respondents involved in the study lacking the scholastic competencies to associate the research gaps with the theoretical

frameworks they adopted to guide their studies. In so doing, they diluted the role of the theory as a beacon for determining how and what their research questions should be framed to develop its content as constructed for the research tool measurements and data collection. The postgraduate students clearly showed that they had no idea that the theory they use can be important beacons in forming research questions for research studies. Supervisors on their part, were aware of this fact and sometimes actually do the formulation of research questions for their students. The question on how well they understand theories in applying them to research had the following responses:

> Statement 1: "*In my study, I had issues with the research questions, however, I never knew that theory I used forms a good grounding for me to develop my research questions*"

> Statement 2: "*Theories are just statements to color a research, I do not see how they play a role in research question formulation, but I know somehow it helps me structure my whole research in a meaningful way*"

> Statement 3: "*Some of my students have no idea how to use theories to guide their research question formulation. Sometimes, I do the formulation of the research questions to avoid poorly constructed research questions from hindering collection of quality data*"

Theme 2: Inadequate Training in Understanding and Interpreting Theories

The respondents, both the supervisors and the students, were in concurrence that training offered in both undergraduate and postgraduate levels on social theories and research undertaking were not at par with the demands of postgraduate research requirements. The respondents observed that both postgraduate and undergraduate training were not adequate in providing students with theoretical tools and research skills that allow them to make use of the theoretical frameworks adequately in the formulation of research questions. As content validators of student researchers, supervisors

stated that this had compelled some of them to literally frame the research questions for their students because they lacked the capacity to competently achieve that. What this means is that students exhibit difficulties in applying theories as beacons that help them formulate and construct research questions when formulating their research tools for social science researches. Some of the feedbacks respondents gave on how they perceive their theory classes at undergraduate levels in relation to research undertaking were as follows.

> Statement 4: "*These students are exhibiting academic laziness. When you task them to do an assignment based on using a specific theory, they retort to unorthodox means of completing that task, come exam time, they fail*"

> Statement 5: "*Honestly, I do not think the aspect of theory is well taught in undergraduate classes. Pursuing the advanced theory unit at master's level is hectic, it is like trying to catch and hold the wind in my hands*"

> Statement 6: "*I had always assumed that theories are academic stories, I do not even know how I passed social theory exam, I cannot remember anything substantial*"

Theme 3: Nature of Well-Framed Research Questions

The respondents were also asked to give opinions of what constitutes a good research question. While some of the student respondents were not able to satisfactorily give a conclusive feedback, all the supervisors noted that good research questions, when well-grounded within the theoretical framework guiding a study, ends up being precise and straight to the point, helping target respondents to provide clear answers because the questions are not ambiguous. Secondly, questions that are premised within the dictates of a theory guiding a research study tend to be objective in the sense that target respondents tend to have a similar derivation of meaning from the similar interpretations they end up having in the analysis of the questions. In

relation to research questions and ethical considerations, the respondents were of the view that theoretical frameworks have a minimal role to play in application of ethical values in formulation of research questions, however, based on the fact that previous researches have tended to follow ethical issues, then it follows that theories are innately embedded with ethical considerations if they are to be effective, elicit the correct response, develop and build trust, transparency and accountability from the researcher to the participants for effective data collection.

Questions that are ill-framed from the research theoretical context may lead to inherent bias in the data collected. One respondent was of the view that research theories help define the limit of a research question which helps determine the nature of the required data needed in meeting the objectives of a research. Furthermore, it helps enhance the protection of privacy and confidentiality of the respondents by informing the researcher on the extent of the theory, which helps avoid collecting unnecessary data that may be excessive to the demands of the study. Finally, the study established that well-framed research questions accurately reflect the intents of the research objectives. Therefore, according to many of the respondents, the consensus at the end of the FGDs was that theories help establish the qualities of a research question which contributes to establishing the benchmark that thereafter guides the formulation of research questions in a study. When asked on how they relate the qualities of a good research question to the theoretical framework guiding a study, the following were sample responses:

> Statement 7: "*That question is something I have never anticipated. I need to know more how theories are related to good research questions*"

> Statement 8: "*That is Latin to me, I have no idea. I know theories guide studies, yes, but I have never narrowed down theories to research questions*"

Theme 4: Emergent Challenges

This present study identified five key challenges that students faced in applying theories to the formulation of research concepts. The first one is the issue of having inadequate grasp of theoretical constructs which makes it problematic for students to apply the key tenets of theories to their research works. Because of these shortcomings, many students demonstrated limitations in their understanding and correctly interpreting theories, therefore they fail to use them appropriately in their theories. Secondly, due to this problem, the next issue that emerges is that they have challenges in connecting research gaps within the meaning of the theories they purport to guide their studies, which makes them misconstrue the scope of their research questions within theories therefore, weakening the theory in their application to the studies they undertake. This creates a misalignment of research gaps with the relevant theoretical constructs they apply to their studies, leading to formulation of questions that are not anchored within the structure of the theoretical frameworks. When asked about the specific challenges they faced, some of the responses were as follows:

> Statement 9: "*I wonder how I can use a given tool for a certain job when I have no idea what that tool is or how it works.*"

> Statement 10: "*These theories are strange concepts for students, even for some at postgraduate level. It takes ages to explain for them to understand how it applies to research*"

> Statement 11: "*Lack of proper theoretical frameworks understanding generates weak research designs, which can mean the questions are flawed*"

The third challenge is the issue of lacking the capacity to reflect on theories and use them as reference points when constructing the research questions. This either weakens or eliminates the nexus between the research questions and the theoretical frameworks when they are in the process of formulating research questions. This means that the resultant questions therefore, become inadequately anchored to the research

designs creating a flaw in the methodology because the procedure of collecting the correct and accurate data becomes impossible or jeopardized due to the framing of the research questions. This finding was traced to statements made by the participants as stated below.

> Statement 12: "*Poor research questions generated by students lack good theoretical grounding, hence they become inappropriate in meeting the objectives of the study*"

What the above problems signify is what leads to the fourth problem, a challenge that emanates from poor theoretical training in the development of the scholarly abilities of the students both at undergraduate and post graduate levels. Students, in many instances, demonstrated that they were not competent enough to grasp the theories they use in guiding their studies due to poor theoretical grounding which results in poor practical skills of theory analysis for research purposes and its use due to inadequate research skills that cumulatively disempowers them from formulating research questions from within a theoretical framework. Some of the responses from the respondents exemplify this theme as follows.

> Statement 13: "*I do not know where I was when social theories were taught at undergraduate level, I must have missed it yet I have a good grade. I do now understand something is wrong with the approach of teaching social theories at that level*"

> Statement 14: "*As a lecturer, I realize we teach theory for the sake of it, with no practical application to research for undergraduate students*"

Poor Integration of Theory in Curriculum and Teaching Methods

Having looked at the emergent challenges, this present study advances several solutions to these problems based on the responses of the respondents. According to the supervisors, when asked the role of curriculum in this issue, they were of the view that the curriculum used for teaching theories need to be re-evaluated to enhance theoretical instruction. Institutions need to offer both students and lecturers targeted workshops that will improve their knowledge and skills related to theoretical applications to research studies. For students, it will be more prudent to establish mentorship programs designed to enhance practical application of theories to research studies in all its aspects. According to the lecturers, they stated that some of the best approaches for supporting the formulation of research questions may use one or a combination of refined survey design process, the cognitive processing model, and the total survey error frameworks. These structured approaches are perceived to be reliable mechanisms which are tools that can assist students to have the competencies to use theories guiding research studies to formulate valid and reliable questions derived from research objectives as discussed in this paper within the framework of specific theories. This requires the formulation of curriculum in the social sciences subjects that focusses on teaching and learning of theories and mentoring students on how to apply theories to their research studies effectively as pointed out below:

> Statement 15: "*We have a problem with our curricula designs for social science subjects, they generally are ill-developed to link the teaching of theory to practical application in research*"

This present study argues out that there is a strong need to ensure that the application of theory in research is highly consolidated in the training of undergraduate and postgraduate students through enhanced curricula in their research and theory training. By achieving this goal, the postgraduate students will be better placed to apply research in their studies and will have the competencies to use the theories as beacons guiding and structuring their research questions formulation. In this way the methodologies they use for data collection are sustained by quality questions contained in the research questionnaires or interview guides. Regardless of the mode of application, the data collection will be more robust in ensuring the data fits the prescriptions of the study objective/s.

The results of this present study showed that postgraduate students rarely invoke the theoretical constructs guiding their studies in the formulation of research questions. Secondly, this present study determined that postgraduates need to understand the tenets of the theories they purport to use. Also this study observed a disconnect between the conceptualization of research studies and how they are premised within the theoretical structures in defining variable relationships. Many postgraduate students involved in this present study did not associate the theoretical constructs to the research gaps which negates the theory from being the guiding factor in formulating research questions that reflect the gaps based on the proposed theories. Lastly, the this present study identified some of the qualities of a good research question such as brevity, clarity, precision, non-biased, ethical considerations, reliability and validity and relevant to the study, where the intents of the research objectives are apparent from the way all the research questions of the study are framed. Finally, this present study identified some approaches that may be considered when formulating research questions. These approaches were advanced as possible ways of ensuring that the research questions remain reliable and valid. The approaches that were identified were the survey design process, cognition processing model, and total survey error framework

The study interrogated students and their research supervisors in identifying the challenges they faced in using theories in guiding their research projects with a special focus on making reference to the theoretical frameworks. Some of the challenges were related to the problem of having inadequate skills and knowledge for the application of theories into studies for purposes of formulating and constructing research questions. This was evidenced by issues related to poor training and orientation to theory use in research development, poor curriculum that does not integrate practical skills with theoretical frameworks at both undergraduate and postgraduate levels, and lacking the capacity to identify and maximize on the nexus between theory linkage to research gaps and the subsequent formulation and construction of research questions. Ultimately, these series of problems end up generating poorly conceptualized theoretical foundations that are applied to research designing phase and execution of the study leading to incorrect or poor-quality data collection that does not satisfy the needs of the research objectives.

This current study found out that students believed research units taught to them in undergraduate classes were not adequately undertaken to equip them with the theoretical and practical foundation in conducting research. Secondly, the theoretical aspects taught at both undergraduate and postgraduate levels do not inculcate the skills and knowledge of applying theoretical frameworks effectively in their research studies, which leads to difficulties in using theories to formulate research topics, objectives and research questions. The results in students not well equipped to use the theoretical constructs they propose to guide their studies in the designing, formulation and development of reliable and valid questions in the research process.

Discussions

Theoretical Frameworks and their Contribution to Research Questions Construction

A good theory must be specific and relevant to the study. In designing the questions that probe respondents for feedbacks, relevance and specificity must be projected from the questionnaire (Bolarinwa, 2015). According to the results of the present study, some students may not be adequately prepared to apply theories in their research question formulation. The findings also show that a good grasp of theories students use in research positively influences the construction of research questions. The idea behind this is that the questionnaire should accurately reflect what is derived from the research topic, informing the research objectives which must be correctly constructed from the theoretical gaps the study has identified. This is in accordance with Hoseini et al. (2024) who state that "formulating a research question is a crucial step in directing any scientific study." From this statement one can opine that the linear continuum emanating from the theory is based on what is already known, can account for the

missing link in current knowledge, to justify the research gap upon which the research question is premised. Without this link being present, the research questions contained in the questionnaire may be rendered impotent in the sense that they may not lead to producing results of data that are relevant to the study because of a rising disconnect (Kuphanga, 2024). This disconnect is what constitutes the 'irrelevant data' that does not fit the study. It arises from the fact that a student may lack the competencies to correctly apply theories to research construction as emphasized by Hosseini et al., (2024) and Goldschmidt and Matthews, (2022).

To eliminate this, questionnaires must have questions that are specifically probing the unknown aspect that is of interest to the study. In the results of this present study, it was emergent that student's lack of proper theoretical understanding provides a loophole in the way they frame their research questions, which may be ambiguous, lack precision and may not reflect the objectives of the study. In that case, being specific accrues the benefit of having a sense of scholarly direction, straight to the point, and destroys aspects of ambiguity in the way the questions are phrased (Barroga & Matanguihan, 2022a). The specificity of the research questions, when guided by the research theory in their construction and formulation, produces quality raw data that meets the intents of the research objectives. Where this so happens, the research, as anchored in each theory, allows for the derivation of the research questions that are not open to unnecessary multiplicity of interpretations, which makes the analytical part of data analysis difficult. This problem is even further compounded in qualitative questions if the interpretation of the data is amenable to two or more contradicting interpretations, since the subjective nature of qualitative studies may not lead to high confidence levels in the generalizations arrived at after the analysis of data is done.

Positive Elements of Research Questions and Theoretical Arrangement

As one develops the research questions for their research, this must be done with reference to the logical arrangement of the variable relationships as defined by the theory guiding the study. The order in which the theory predicts the variable arrangement should also predict the sequencing of the questions to reflect the theory. It follows that, construction of this questionnaire must follow some logical structure. This is not possible with the issue of inadequate training on research processes as envisioned by the specific research theories guiding a student's research work, where reference is made to the finding that the training of students on aspects of theory and research process is not well done both at undergraduate and postgraduate levels. When researchers propose to use a given theory to guide and explain the variable relationships in their studies, they have inadvertently chosen to obey the structure of the theory's prescription of the relationships in accordance with Lindqvist & Forsberg (2023) and Giri (2006). In the same way, theories have a linear continuum, the questionnaires must also follow a direction that logically explains and maps out priority areas of interest, from simple to complex dimensions of the study. How variables are measured is a subject that can never converge on a common consensus amongst scholars. This is due to the nature of differences between the philosophy of social sciences and natural sciences, between qualitative and quantitative techniques (Giri, 2006), and to the subjective reasoning that creates this constant debate between the two philosophical approaches in social sciences.

However, theories provide a way in which inferences and deductions can be made based on past experiences of observed phenomena in research studies (Glaser, 2002). It follows that research questions should lend credibility to these two processes by collecting the right typology of data (Stapley et al., 2022). We argue that the typology of data is not dictated by the questionnaire, but the demands of the nature of the scientific inquiry. A research study that is heavily reliant on quantitative techniques will seek to quantify the data and make it manipulatable to statistical procedures while qualitative data may not lend itself easily to empirical approaches of statistical procedures. When students are incompetent at integrating theory in curricula with teaching methods in social science subjects, as evidenced from the study results, it creates a void that makes it

difficult for students to effectively apply theories to research studies. This raises the question of how students need to be well trained on theories and research process to connect the relevance of theories to their research studies. This ends up creating a need to ground the operationalization of a given research theory in a study, it should be considered that contrary to the prominence of the various typological pooling of data in research, the questions formulated and contained in the questionnaire must communicate to the respondents effectively to elicit meaningful feedback (Stapley et al., 2022).

The question of eliminating bias and ensuring that findings are representative of the population frame of study is critical in undertaking research studies where randomization is very critical (Stewart, 2024). Furthermore, the element of eliminating bias is not a question of sampling techniques and sample size determination only, it must be done in a manner that evokes neutrality and does not lead the interviewee in a predetermined direction. This connects satisfactorily with the finding that poorly framed questions may lead to generating inherent bias in the research questions and therefore the responses may not accurately reflect the actual picture in the proper testing of research hypotheses. Theoretically speaking, this is akin to force-fitting a theory into a research where it has no bearing on the expected variable relationships and predictions. The designing of the questions should follow a line of inquiry that represents a given theory correctly. While research instruments have ways of checking for reliability, the question of content validity is often overlooked. Content validity is a way of ensuring the questions as reflected on a questionnaire capture the entirety of their subjects (Rusticus, 2014; Dinh & Nguyen, 2024). This present study established that this issue of force-fitting may arise where research supervisors are forced to ensure that questions are aligned to the objectives which may not be informed by the relevant research theory. Where qualitative data is being targeted, the content validation of the research tool involves a critical examination of the research questions usually by an expert in that field (Dinh & Nguyen, 2024). For many postgraduate students, this is usually by using the research supervisors assigned to guide the

student undertake the study and therefore, are the presumed experts who the student must refer in validating the questions on their research instruments.

During the development of research questions, before even contemplating pilot studies, it is important to subject the questions to some form of evaluation to determine the logicality of the questions, ability to be interpreted by the potential respondents in a manner compatible with the researcher's intentions and ability to lead to a positive feedback. The results of this present study point out inadequacies in using theories as reference points in the research question formulation contributes to poorly constructed research questions, and therefore, it is only through pilot studies that content validity can be properly tested in ascertaining the questions are well structured, framed and worded with language that are easy to be understood by the targeted audience. This is important in weeding out unnecessary questions. While the pilot phase of a study is responsible for testing the efficacy of the questionnaire and how reliable the questions are, one needs to be prudent in scrutinizing the questionnaires independently and continuously, right from the time the construction of questionnaire is done to the end when it has been used to collect the actual data. Secondly, there are measuring scales which may not be universal in their nature, and the concepts they measure may be abstract. This calls for ensuring that there is consistency in the way questions are formulated and articulated to the respondents. The researcher must strive to ensure that a similar interpretation of questions is bound to occur in all the respondents. The fact that there is no way to assure that the interpretation is the same in all individuals is impossible due to the diverse ways in which every person's cognition of phenomena may not be accurately measured against another, but their high levels of similarity in the interpretation of the questions, which is a measure guaranteeing consistency levels are secured.

Finally, questions must be bound within the premises of ethical considerations. The questions should not be constructed in a manner that they elicit more information than is necessary, for the protection of individual's privacy and

confidentiality. The questions must not be misleading or directing the respondents to a predetermined direction other than the objective of end of the research goals. When designing questions, they must be based on the understanding that their answers are solicited from the precincts of informed consent and respect to privacy. This issue of privacy and confidentiality can only be guaranteed when transparency permeates the research study, and the researcher is accountable to the respondents, the research ethics, institutional rules and national legislation concerning undertaking of research studies. It is only by observing the various research issues, aligning one's research to basic principle of research, that ethical issues and theoretical frameworks help a researcher develop research questions that are effective for the study. Effective and ethical questions as so contained in research questionnaires have a higher chance of producing dependable, consistent, reliable and valid data for the quality analytical procedures. Inappropriate questions, which may be unethical, may not yield the desired results of a study.

Frameworks for Formulating Research Questions: Suggested Approaches

Solutions are pegged on the use of several strategies such as the survey design process approach. In terms of framing research questions, the respondents were of the view that they need to learn how to use theories for the purposes of identifying key research gaps that inform the objectives and the succeeding research questions that are contained in the research instruments by mapping out key topics to avoid ambiguities, collection of unnecessary data, for clarity and precision in the construction of the research questions. Issues such as knowing the target audience characteristics were also identified as key to formulation of effective research questions, and this discussion shades light on how it can be done. Theories provide a good framework that leads to the iterative refinement of research questions for some studies that use ethnographic or FGD in data collection and the study identified pilot studies as key avenues that help in refining research questions. The cognitive processing model is identified as a good framework for helping students undertake the

process of theory formulation within the context of specific theories. This discussion is also constructed within the structure of CGT which is the theoretical model used in guiding this present study.

There are several structured approaches that guide the formulation of research questions (Bouchrika, 2022). While this study only discusses three of them because they were advanced as possible solutions to the problem of applying research theories to the formulation of research questions. However, there are many proposed frameworks that are good approaches that may guide the novice postgraduate researcher in formulating research questions. There are several approaches which can govern the research questions formulation processes. This formulation of how research questions should be constructed, as discussed here, is developed from the responses of the research supervisors on the suggestions they advanced as ways of helping postgraduate students formulate research questions. The approaches to be covered in this paper are as follows:

The Survey Design Process Approach

As Ratan et al. (2019) puts it, the formulation of research questions does not begin in-between the research process *per se*, but commences inherently with the formulation of the research concept. However, it is after the objectives have been crafted that the research questions specifically emerge. The broad research questions according to Farrugia et al. (2010) are derived from the objectives and the wording must reflect the objective in a question form. This is the reason we argue that the formulation of all the research questions emanate from the research topic, must be premised within a theoretical construct guiding the study, and reflect the gaps identified in the study. Therefore, the first step is to understand the research objectives and why they are justified as research gaps. A student researcher must define the research objectives with clarity, and ambiguities in the research objectives must be avoided because it will lead to formulation poor quality research questions (Barroga & Matanguihan, 2022b). A well formulated research objective that is clearly defining the variables of interest and what ought

to be achieved provides a clear and easy avenue for alignment of the research objectives to the boundaries of the research goals. By aligning to the boundaries of the research goals, the student researcher avoids formulating unnecessary questions that may lack significance to the findings because the information may not be of quality to assist in the generalization to be made from the analytical outputs of the study (Khan et al., 2023a). It is critical that the objective be well defined as they will determine what data is to be sourced by the research. Well defined objectives result in production of research questions that are relevant to the study, which are precise, concise, full of clarity and straight to the point (Sileyew, 2019).

Identification of Key Research Themes and Relevant Topics

What many student researchers may be oblivious of is that a research topic can generate myriads of questions that are so diverse yet reflecting the same research topic as a broad aim of the study. It is therefore, critical that the background information in a study establishes the key concepts of the study and situate the study within the known information of a study (Luft et al., 2022). This is what is called the background information. The background information aids the student researcher to narrow down to statement of the problem which creates the stage for the actual formulation of the objectives. Theories assist researchers develop the introduction and background information that are critical in creating a foundation for the literature review. Inadequate training of students in theory application may create this problem where there is no connection between the theoretical framework, the research theory used, the objectives and the derived research questions for data collection. The background information must align the research idea to existing knowledge frameworks and sets the backdrop for others to place the study topic, objectives, hypotheses and research questions into context of identified key research gaps (Vasileiou et al., 2018). Without a properly elucidated background section, the study may run into difficulties in formulating the research questions effectively.

When identifying the various broad themes of a study in the background, it provides the researcher with lenses to later focus on identifying the central gaps of the study that informs the objectives. This nexus between objectives, background literature and the research questions are also governed by the theoretical constructs applicable to the study. The theoretical framework is a means of anchoring the study within the aggregation of known facts of the study phenomenon (Salawu et al., 2023). Consequently, by being informed by the relevant information, the research questions formulated from the objectives can now be used to derive the key research questions for the study. This helps to counter the challenge identified in the findings that they face when in linking theory to their research formulation and in the identification of research gaps. The next effect of this is that the main research study themes provide the relevant frame of reference upon which the formulation of the research questions can be undertaken and generate specific questions that are pinpointing and highlighting the focus of interest as identified study gaps (Khan et al., 2023a).

Target Population Characteristics and Insights

The formulation of research questions must not be done in isolation considering the characteristics of the target population. This is because the questions contained in the questionnaires as Taherdoost (2022) mentioned, should elicit quality responses that are beneficial for purposes of meeting the research objectives. Questions that are geared towards experts can have specific vocabularies that are pertinent to that field, but where the same questions are to be directed to non-experts, these terminologies may have to terminate and simple construction of the question using simple plain language needs to be achieved for purposes of effective communication between the research study and the respondent. Furtherance to that, an understanding of the target population provides clues such as knowledge levels of the respondents, their experiences and observations that are pertinent to the interest of the study as encapsulated in the research objectives, and ability to extract relevant and rich data from the respondents (Martínez-Mesa et al., 2016). The finality of understanding the characteristics of

the potential respondents provides a quality avenue for designing of research questions that are full of clarity, relevant and offer value of the entire research process.

Iterative Refinement and Feasibility Checks (Pilot Testing)

After having a clear understanding of the target population, what follows is the iterative refinement in the process of formulating research questions. This is a matter of having 'situational awareness' of the research and the study phenomenon. This is due to undertaking re-evaluation of the research questions repeatedly and taking into account emergent factors like how potential respondents will interpret the questions. When designing the questions, Viswanath et al., (2019) postulates that the continuous process of re-evaluation must be done within an effective feedback loop that allows for the new considerations to be factored in the re-adjustments that occur in improving the quality of the questions. From the feedbacks related to the content, nature and framing of the questions, the researcher must be sensitive to the new emergent considerations from the conceptualization of the research questions to applying the questions in the actual data collection phase of the study. The critical stage in this iteration stage particularly lies at the pilot stage where the various issues of reliability and validity are tested to determine the quality of the research tools (specifically the questions contained therein). Scholars argue that unearthing the ambiguities is a constant outcome of the iteration process that arises from the chance for re-evaluation of the structure, wording and sense-making of the questions in the refinement of the questionnaire content (Karekar, 2024). The aim of this process is to guarantee that final questions as products of the refinement are precise, concise and have high sense of clarity that are compatible with, and convey the content, and intent of the objectives and general aim of the study.

Determination of Research Questions and from Desired Data Typologies

In research, the designing stage of the questions elicits considerations being made on the typology of data required. Quantitative research studies and qualitative research designs pursue different set of questions in terms of the way they are designed (Barroga & Matanguihan, 2022b). Quantitative questions are usually structured, aimed at finding statistical descriptions and usually have specific answers that are desired. Quantitative aspects have no room for capturing subjective data of a research phenomenon such as perceptions, ideas and opinions of the respondents (Timonera, 2024). On the other end, the wording of the qualitative questions encourages critical dialogues that offer insights into a subject matter. Therefore, when addressing the issue of data typologies for the study, the researcher must design their questions in a manner that generates the right data typology that is commensurate to the dictates of the research questions aimed at satisfying the demands of the research topic and the resultant objectives. The measurability of the designed questions as Khan et al. (2023) fronted, constructed for purposes of that research is intended to foster and enhance positively issues related to the reliability of the questionnaire.

The Cognitive Processing Model Approach

The Cognitive Processing Model (CPM) is constructed on understanding that research questions are designed and formulated based on the individual's unique way of information processing (Sampson et al., 2020). The postulate strongly underpins the significance of factors like context, presence of cognitive biases in the determination of the inquiry, clarity and precision of the investigation.

Basis of Respondent's Cognition

This approach requires that framing of questions must be compatible with the intellectual competence of the respondents in terms of matching their cognitive development and methodological thought structures. The approach plays a significant role in increasing the respondent's engagement with the researcher while mitigating and/or reducing the occurrence of misunderstanding between the study and the respondent as a source of information. By eliminating or minimizing the chances of misunderstanding between the two parties, i.e.,

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the researcher and the respondent, the production of data results in high-value data. This model takes into account the mental frameworks the study sample elements construe the meaning of the questions which informs how and what they will respond as feedback. In this case, the researcher must frame the questions in a manner reflecting the accurate experiences and way of perceiving the study phenomena for the recipient (Englander & Morley, 2023). This approach is more suitable for framing questions that seek to understand and explore the subjective feelings, opinions and perceptions of the study phenomena for the recipients. By having a good grasp of how people perceive and think about the research phenomena, it creates a good chance for the researcher to design and advance forward questions that are easily grasped and positively interpreted which makes it easier to elicit high quality responses from them.

Clarity and Precision of Questions

The cognitive model when properly applied to the formulation of a research question leaves little room to impugn on the idea that the questions do not elicit the correct information (Ratan et al., 2019). This is because the language used is simple, very clear and avoids complex sentences and vocabularies that are bound to generate confusion and misunderstanding for the recipient in terms of the intent of the questions, the depth of feedback desired and common comprehension strategies of the subject matter of the questions advanced. Gold (2021) asserts that cognitive approach also plays a critical role in ensuring that the elements of a good question such as specificity, clarity, engagement and constructiveness *et cetera* are observed when the question is being formulated.

Cognitive Load Capacity of Respondents

This model leads to cautious approach in developing the research questions by requiring the researcher to the cognitive load reference of the respondents. In this approach, the need to avoid complex jargon and sentences in formulation of the research questions needs to avoided. The mere fact of having too many questions, coupled with complexities in their

formulation may result in a cognitive load for the recipients and may not lead to collection of quality data from them. Cognitive capacity is defined by the limitations in the cognitive processing abilities of an individual and the outcome of that cognitive process that are defined by the intrinsic limitation inherent to them (Kleinsorge, 2021). The extent to which a person can engage their mental faculties in interpreting and assessing the research question is fundamentally important in the responses that are to be realized from them. Consequently, the questions formulated should not be demanding in terms of efforts to be used in undertaking the cognitive processes in generating the feedback by the respondents. Where the researcher manifests a high degree of aversion to subjecting the respondents to cognitive overloads, it is possible to develop and generate accurate answers from the responses which increases the efficacy of the formulated research questions in collecting the relevant quality data meeting the intents of the research objectives (Saunders & Kulchitsky, 2021).

Response Format Consideration

The way a researcher frames the questions requires them to explicitly set up the response format for getting responses from the respondents. It should be noted that the response format chosen such as open-ended questions, Likert scales, and/or multiple-choice question options, according to Weijters et al. (2021) have a bearing on the way the respondents will process their answers. This process is a cognitive process where the comprehension of the question, the way the respondents dissect the contents of the question, and makes sense out of them, is a function of the way the researcher has conceived and framed the questions for the benefit of eliciting quality responses from them. The conception of the question involves all the stages stated herein in this section. Having an overview of the question's effects is a great mechanism in appreciating the potential effects of these questions, and it will help the researcher adopt a format, that best explores the research goals with a greater promise of yielding superior levels of accuracy of the feedbacks from the respondents (Ahmad et al., 2019).

Framing and Contextualization of Research Questions

The framing of research questions and contextualizing them is hinged on factors such as having the questions being very specific, direct, and aversive to ambiguities. This helps in having clarity in the research questions, where the interpretation of the questions by the respondents yields the right responses that are defined by the needs of the research's objectives. It should also be noted that the significance of the question in the context of the study objectives, can only be ascertained by thoroughly undertaken literature review in identifying the research gaps, which culminates orienting the questions to real-world points of discussion and reflecting that research gap in existing literature that the question explores (Mueller-Bloch & Kranz, 2015).

Where the question of literature review is involved in social sciences research, the theoretical framework should inform the establishing of the research concepts from where the research questions are formulated. This helps in ensuring that the research questions are grounded in some theoretical constructs which establishes a beneficial platform upon which the foundation for the data analysis can be done. The questions should reverberate with other researchers and scholars in the same field of study. It is only if this is achieved can the questions can be said to be relevant to the study because it addresses the concerns of the relevant stakeholders involved in the study process. The context of the study should align positively with the questions in terms of ethical considerations. Ethical factors as Bos, (2020) mentions, addresses the subject of defending and sustaining the dignity of the participants involved in the study through upholding their rights to informed consent, voluntary participation, privacy and confidentiality, and respect for the research participants and the entire research process. The concept requires the researcher to be cognizant of the way the context of the research questions have a bearing in the way responses will be generated. If the questions are not well contextualized to the studies research subject, they will not yield the appropriate responses because of the issue of how respondents interpret the questions in generating their responses will not be well grounded to their cognition, situation, milieu and contextualization of the study to their experiences and observation that influences the parameters and style of interpretations (Priya, 2021).

Pilot Testing Insights

The iteration process of assessing the questionnaire and how it elicits responses needs to be undertaken continuously in the research question formulation process (Ratan et al., 2019). However, the arena where this is a specialty is the pilot stage of conducting a research study and evaluating the reliability and validity of the research tools. During the pilot stage, the researcher needs to focus their attention on how the respondents navigate the questionnaire landscape in giving feedback (Abdul et al., 2017). Having a good understanding of what challenges them from adequately interpreting the questions in tandem with the theoretical framework's dictates facilitates appreciating how they interpret the questions. Corrective action can then be initiated where the interpretations fall short of expectations. This will necessitate a re-evaluation of the questions will thereafter lead to reconstitution of the questions to a manner that is easily understood and acted upon positively by the respondents. Pilot studies according to Daymon & Holloway, (2011) allow for the iteration process to incorporate adjustments to the questions solidifying their cognitive appeal to the respondents and ensuring that they are well suited for the administration of the improved questionnaire for the final survey that will be conducted thereafter.

As appertaining to the CPM, it has a higher chance of improving the efficacy of the questions and generate quality feedback from the respondents. It allows for the design, formulation and development of questionnaires that have questions that are clear, straight to the point and observe the element of brevity. Furthermore, by taking into account the cognitive literacy of the potential respondents, Houichi and Sarnou, (2020) argues that the researcher can account for cognitive load and ensuring that it is minimized in the way the questions are constructed. Other factors such as the response formats helps in

designing questions that reflect the data typology desired for the study, for example, qualitative questions will require more of the open-ended approach while quantitative questions are more amenable to multiple-choices, or questions that are rigid from the perspective that they do not give room for subjective issues such as opinions and perceptions. The central function of the CPM is to develop questions that are within the purview of understanding of the respondents and where the questions are understood correctly, they generate well-thought-out responses that are of high value to the study due to the resultant high quality data prospects (Atin & Lubis, 2019).

Conclusions and Recommendations

The study goes a long way in identifying the deficiencies in the delivery of social research theories classes to undergraduate and postgraduate students at university levels in the selected universities covered in the study. With this inadequacy in the foundational courses of research, this present study was able to identify the various challenges that students face when inculcating theories to their research question formulation within the sphere of conceptualizing research questions in research, and developing reliable and valid questions that effectively address the intents of the research objectives. The students covered in the study portrayed inadequacies of knowledge content and practical skills that facilitate the effective deployment of theoretical models in the designing reliable and valid questions for their research projects. The negative effects of this outcome lie in the production of low-quality research projects and research outputs. It is critical that students be made conscious of the fact that theories play a significant role in facilitating students identify and map out the relevant variables of a study and the relationships that exist in between them based on some theoretical construct guiding their study. A deficiency in the ability creates a quagmire for them in the sense that they lack the ability to interrogate intricate, multifaceted, and multidimensional research topics, which may be detrimental to the quality of the research process and outputs.

The FGD undertaken in this present study, alongside the research supervisors and postgraduate students, elaborated on the significance of incorporating theoretical models in social sciences studies. These theories provide a scope for the formulation of research questions that defines the limits research questions can reach in remaining relevant to the study. In this, it helps researchers avoid coming with irrelevant questions that have no relationship with the research topics. Furthermore, the theoretical models used in a research define and justify the context of research they are undertaking. It is evident from the findings of the study that in the absence of pragmatic exposure, practice and adequate knowledge of the theoretical construct, students face serious obstacles in being competent in applying theoretical constructs to the studies and ensuring that the questions they formulate are congruent with the theoretical constructs guiding their studies. The failure to achieve this will lead to students not being competent witnessed by their lack of relevant knowledge, skills, and competencies that will allow them to achieve that task with ease. This presents the gap in which the missing link fails to generate research questions that are unable to qualify and be justified as appropriate when subjected to rigorous academic interrogation and testing.

This present study went ahead and sought to propose strategies that are intended to help upcoming researchers and postgraduate students have the ability in terms of competency, knowledge, and skills that will empower them to develop research questions that are developed from the consideration of theoretical constructs. This study advances the idea of infusing the teaching of the application of theoretical frameworks explicitly in the research theory and research methods for both graduate and undergraduate students. The training of social scientists should enrich the research methodology courses in addressing this deficit in the students. Different approaches of training and practice need to be explored in attempts to equip the students with the prerequisite skills, knowledge and competencies that will allow then generate appropriate questions for their research studies through practicing and referencing to theoretical models.

This present study has been able to identify deficiencies in the current pedagogical approaches and content of curriculum used in developing the theoretical competencies of university students in public universities. This study proposes that the subject of theoretical application in the analysis of course content in various fields of social sciences and humanities needs to be considered. This will aid in the administration of theoretical courses subjected to students in preparing them early to appreciate the value of theory in research, and equip them with the relevant skills and technical knowledge of appropriating theories into research projects. By focusing on reducing the skills and intellectual deficit, tutors and lecturers can help their students to be empowered with the ability to undertake high quality researches through formulation of appropriate, relevant, reliable and valid questions that produce high quality data using theory. Finally, this study provides a clarion call for institutions of higher learning particularly universities to examine the course research methodology content and theory classes for purposes of coming up with instructional strategies and new curriculum, if possible, for adequately training students and imparting them research skills and knowledge that anchor research studies to theoretical constructs as an avenue of ensuring the students are competent to undertake structured academic inquiries in the form of research studies.

Acknowledgements

References

Abdul Majid, M. A., Othman, M., Mohamad, S. F., Lim, S., & Yusof, A. (2017). Piloting for Interviews in Qualitative Research: Operationalization and Lessons Learnt. *International Journal of Academic Research in Business and Social Sciences*, *7*(4), 1073–1080. https://doi.org/10.6007/IJARBSS/v7-i4/2916

Ahmad, S., Wasim, S., Irfan, S., Gogoi, S., Srivastava, A., & Farheen, Z. (2019). *Qualitative v/s Quantitative Research*. *6*(43), 2828–2832. https://doi.org/10.18410/jebmh/2019/587

Atin, S., & Lubis, R. (2019). Implementation of Critical Path Method in Project Planning and Scheduling. *IOP Conference Series: Materials Science and Engineering*, *662*(2), 022031. https://doi.org/10.1088/1757-899X/662/2/022031

Barroga, E., & Matanguihan, G. J. (2022a). A Practical Guide to Writing Quantitative and Qualitative Research Questions and Hypotheses in Scholarly Articles. *Journal of Korean Medical Science*, *37*(16), e121. https://doi.org/10.3346/jkms.2022.37.e121

Barroga, E., & Matanguihan, G. J. (2022b). A Practical Guide to Writing Quantitative and Qualitative Research Questions and Hypotheses in Scholarly Articles. *Journal of Korean Medical Science*, *37*(16), e121. https://doi.org/10.3346/jkms.2022.37.e121

Beitz, J. M. (2006). Writing the researchable question. *Journal of Wound, Ostomy, and Continence Nursing: Official Publication of The Wound, Ostomy and Continence Nurses Society*, *33*(2), 122–124. https://doi.org/10.1097/00152192-200603000-00003

Bolarinwa, O. A. (2015). Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Nigeria Post-Graduate Medical Journal*, *22*, 195–201

Bos, J. (2020). *Research Ethics for Students in the Social Sciences*. (1st ed) https://doi.org/10.1007/978-3-030-48415-6. Springer Cham.

Bouchrika, I. (2022, May 4). How to Write a Research Question in 2024: Types, Steps, and Examples. *Research.Com*. https://research.com/research/how-to-write-a-research-question

Charmaz, K. (2000). Grounded theory: Objectivist and constructivist methods. In *N.K. Denzin & Y.S. Lincoln (eds) Handbook of Qualitative Research* (2nd ed., pp. 509–535). SAGE

Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. SAGE Publications.

Clarke, A., Healy, K., Lynch, D., & Featherstone, G. (2023). The Use of a Constructivist Grounded Theory Method — A Good Fit for Social Work Research. *International Journal of Qualitative Methods*, *22*, 16094069231186257. https://doi.org/10.1177/16094069231186257

Collins, C. S., & Stockton, C. M. (2018). The Central Role of Theory in Qualitative Research. *International Journal of Qualitative Methods*, *17*(1), 1609406918797475. https://doi.org/10.1177/1609406918797475

Daymon, C., & Holloway, I. (2011). *Qualitative Research Methods in Public Relations and Marketing Communications* (2nd ed). Routledge.

Dinh, V. S., & Nguyen, N. (2024). A typology of validity: Content, face, convergent, discriminant, nomological and predictive validity | Emerald Insight. *Journal of Trade Science*, *12*(Editorial-3), 153–154. https://doi.org/10.1108/JTS-09-2024-038

Delmas, P. M., & Giles, R. L. (2023). Qualitative research approaches and their application in education. In *Robert J Tierney, Fazal Rizvi, and Kadriye Ercikan (Editors). International Encyclopedia of Education (Fourth Edition)* (pp. 24–32).

Elsevier. https://doi.org/10.1016/B978-0-12-818630-5.11003-6

Dinh, V. S., & Nguyen, N. (2024). A typology of validity: Content, face, convergent, discriminant, nomological and predictive validity | Emerald Insight. *Journal of Trade Science*, *12*(Editorial-3), 153–154. https://doi.org/10.1108/JTS-09-2024-038

Englander, M., & Morley, J. (2023). Phenomenological psychology and qualitative research. *Phenomenology and the Cognitive Sciences*, *22*(1), 25–53. https://doi.org/10.1007/s11097-021-09781-8

Farrugia, P., Petrisor, B. A., Farrokhyar, F., & Bhandari, M. (2010). Research questions, hypotheses and objectives. *Canadian Journal of Surgery*, *53*(4), 278–281

Giri, A. K. (2006). Creative Social Research: Rethinking Theories and Methods and the Calling of an Ontological Epistemology of Participation. *Dialectical Anthropology*, 30(3/4), 227–271

Glaser, B. G. (2002). Conceptualization: On Theory and Theorizing Using Grounded Theory. *International Journal of Qualitative Methods*, *1*(2), 23–38. https://doi.org/10.1177/160940690200100203

Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine Publishing.

Gold, J. D. (2021). Cognitive and Sociocultural Perspectives: Approaches and Implications for Learning, Teaching and Assessment. *The European Journal of Social & Behavioural Sciences*, *Issue 3*. https://doi.org/10.15405/ejsbs.301

Goldschmidt, G., & Matthews, B. (2022). Formulating design research questions: A framework. *Design Studies*, *78*, 101062. https://doi.org/10.1016/j.destud.2021.101062

Grant, C., & Osanloo, A. (2015). Understanding, selecting, and integrating a theoretical framework in dissertation research: Developing a "blueprint" for your 'house.' *Administrative Issues Journal*, *4*. https://doi.org/10.5929/2014.4.2.9

Halder, N. (2024, January 11). Mastering Hypothesis Testing: A Comprehensive Guide for Researchers, Data Analysts and Data Scientists. *Analysts's Corner*. https://medium.com/analysts-corner/mastering-hypothesis-testing-a-comprehensive-guide-for-researchers-data-analysts-and-data-3c4c1d66b930

Hosseini, M.-S., Jahanshahlou, F., Akbarzadeh, M. A., Zarei, M., & Vaez-Gharamaleki, Y. (2024). Formulating research questions for evidence-based studies. *Journal of Medicine, Surgery, and Public Health*, *2*, 100046. https://doi.org/10.1016/j.glmedi.2023.100046

Houichi, A., & Sarnou, D. (2020). Cognitive Load Theory and its Relation to Instructional Design: Perspectives of Some Algerian University Teachers of English. *Arab World English Journal*, *11*(4), 110–127. https://doi.org/10.24093/awej/vol11no4.8

Islam, S., & Small, N. (2020). An annotated and critical glossary of the terminology of inclusion in healthcare and health research. *Research Involvement and Engagement*, *6*(1), 14. https://doi.org/10.1186/s40900-020-00186-6

Karekar, H. (2024). *An empirical investigation of the relationship between agile mindset and agile transformation outcomes* [PhD Thesis, Swiss School of Business and Management Geneva]. https://doi.org/10.13140/RG.2.2.36660.05767

Khan, J., Raman, A., Sambamoorthy, N., & Prashanth, K. (2023a). *Research Methodology (Methods, Approaches and Techniques)*. San International Scientific Publications. https://doi.org/10.59646/rmmethods/040

Khan, J., Raman, A., Sambamoorthy, N., & Prashanth, K. (2023b). *Research Methodology (Methods, Approaches And Techniques)*. https://doi.org/10.59646/rmmethods/040

Kleinsorge, T. (2021). Cognitive Capacity, Representation, and Instruction. *Frontiers in Psychology*, *12*, 701687. https://doi.org/10.3389/fpsyg.2021.701687

Kozinetz, C. A. (1992). From research question to analysis: The importance of data collection form design. *Family Practice Research Journal*, *12*(1), 17–25

Kuphanga, D. (2024). *Questionnaires in Research: Their Role, Advantages, and Main Aspects*. https://doi.org/10.13140/RG.2.2.15334.64325

Lindqvist, H., & Forsberg, C. (2023). Constructivist grounded theory and educational research: Constructing theories about teachers' work when analysing relationships between codes. *International Journal of Research & Method in Education*, *46*(2), 200–210. https://doi.org/10.1080/1743727X.2022.2095998

Locke, E. (2007). The Case for Inductive Theory Building. *Journal of Management*, *33*, 867–890. https://doi.org/10.1177/0149206307307636

Luft, J. A., Jeong, S., Idsardi, R., & Gardner, G. (2022). Literature Reviews, Theoretical Frameworks, and Conceptual Frameworks: An Introduction for New Biology Education Researchers. *CBE Life Sciences Education*, *21*(3), rm33. https://doi.org/10.1187/cbe.21-05-0134

Mack, N., Ramirez, C. B., Friedland, B., & Nnko, S. (2013). Lost in Translation: Assessing Effectiveness of Focus Group Questioning Techniques to Develop Improved Translation of Terminology Used in HIV Prevention Clinical Trials. *PLoS ONE*, *8*(9), e73799. https://doi.org/10.1371/journal.pone.0073799

Martínez-Mesa, J., González-Chica, D. A., Duquia, R. P., Bonamigo, R. R., & Bastos, J. L. (2016). Sampling: How to select participants in my research study? *Anais Brasileiros de Dermatologia*, *91*(3), 326–330. https://doi.org/10.1590/abd1806-4841.20165254

Mehta, A., Malley, B., & Walkey, A. (2016). Formulating the Research Question. In MIT Critical Data (Ed.), *Secondary Analysis of Electronic Health Records*. Springer. http://www.ncbi.nlm.nih.gov/books/NBK543624/

Mills, J., Bonner, A., & Francis, K. (2006). Adopting a constructivist approach to grounded theory: Implications for research design. *International Journal of Nursing Practice*, *12*, 8–13. https://doi.org/10.1111/j.1440-172X.2006.00543.x

Mohajan, D., & Mohajan, H. K. (2022). Constructivist Grounded Theory: A New Research Approach in Social Science. *Research and Advances in Education*, *1*(4), 8–16. https://doi.org/10.56397/RAE.2022.10.02

Mueller-Bloch, C., & Kranz, J. (2015, December 13). *A Framework for Rigorously Identifying Research Gaps in Qualitative Literature Reviews*. 36th International Conference on Information Systems, Fort Worth 2015, Fort Worth

Priya, A. (2021). Case Study Methodology of Qualitative Research: Key Attributes and Navigating the Conundrums in Its Application. *Sociological Bulletin*, *70*(1), 94–110. https://doi.org/10.1177/0038022920970318

Pryor, J. (2010). Constructing research questions: Focus, methodology and theorisation. In *The Routledge Doctoral Student's Companion* (1st Ed.). Routledge

Ratan, S. K., Anand, T., & Ratan, J. (2019). Formulation of Research Question – Stepwise Approach. *Journal of Indian Association of Pediatric Surgeons*, *24*(1), 15–20. https://doi.org/10.4103/jiaps.JIAPS_76_18

Rusticus, S. (2014). Content Validity. In A. C. Michalos (Ed.), *Encyclopedia of Quality of Life and Well-Being Research* (pp. 1261–1262). Springer Netherlands. https://doi.org/10.1007/978-94-007-0753-5_553

Salawu, R., Shamsuddin, A. O., Bolatitio, S., & Masibo, S. (2023). Theoretical and Conceptual Frameworks in Research: Conceptual Clarification. *European Chemical Bulletin*, *12*(12), 2103–2117. https://doi.org/10.48047/ecb/2023.12.12.139

Sampson, J. P., Osborn, D. S., Bullock-Yowell, E., Lenz, J. G., Peterson, G. W., Reardon, R. C., Dozier, V. C., Leierer, S. J., Hayden, S. C. W., & Saunders, D. E. (2020). *An Introduction to Cognitive Information Processing Theory, Research, and Practice*. Florida State University Libraries. https://doi.org/10.33009/fsu.1593091156

Saunders, C., & Kulchitsky, J. (2021). Enhancing Self-Administered Questionnaire Response Quality Using Code of Conduct Reminders. *International Journal of Market Research*, *63*(6), 715–737. https://doi.org/10.1177/14707853211055060

Sebeelo, T. B. (2024). Methodological confluence: Weaving Constructivist Grounded Theory (CGT) and Indigenous research methods. *Methodological Innovations*, *17*(2), 88–97. https://doi.org/10.1177/2059799124125 6794

Sileyew, K. J. (2019). Research Design and Methodology. In E. Abu-Taieh, A. E. Mouatasim, & I. H. Al Hadid (Eds.), *Cyberspace*. IntechOpen. https://doi.org/10.5772/intechopen.85 731

Speight, C. D., Gregor, C., Ko, Y.-A., Kraft, S. A., Mitchell, A. R., Niyibizi, N. K., Phillips, B. G., Porter, K. M., Shah, S. K., Sugarman, J., Wilfond, B. S., & Dickert, N. W. (2021). Reframing Recruitment: Evaluating Framing in Authorization for Research Contact Programs. *AJOB Empirical Bioethics*, *12*(3), 206–213. https://doi.org/10.1080/23294515.2021. 1887962

Stapley, E., O'Keeffe, S., & Midgley, N. (2022). Developing Typologies in Qualitative Research: The Use of Ideal-type Analysis. *International Journal of Qualitative Methods*, *21*, 16094069221100633. https://doi.org/10.1177/1609406922110 0633

Stewart. (2024). *How to Avoid Sampling Bias | Causes, Types & Examples*. ATLAS.Ti. Accessed on 13/11/2024 from https://atlasti.com/research-hub/sampling-bias

Taherdoost, H. (2022). Designing a Questionnaire for a Research Paper: A Comprehensive Guide to Design and Develop an Effective Questionnaire. *Asian Journal of Managerial Science*, *11*(1), 8–16.

https://doi.org/10.51983/ajms-2022.11.1.3087

Timonera, K. (2024). Qualitative vs. Quantitative Data: Understanding Key Differences. *Datamation*. https://www.datamation.com/big-data/qualitative-vs-quantitative-data/

van der Waldt, G. (2025). Formulating research questions in social sciences. *Journal for Transdisciplinary Research in Southern Africa*, *21*(1), 53–80. https://doi.org/10.4102/td.v21i1.1526

Vasileiou, K., Barnett, J., Thorpe, S., & Young, T. (2018). Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15-year period. *BMC Medical Research Methodology*, *18*(1), 148. https://doi.org/10.1186/s12874-018-0594-7

Viswanath, K., Synowiec, C., & Agha, S. (2019). Responsive feedback: Towards a new paradigm to enhance intervention effectiveness. *Gates Open Research*, *3*, 781. https://doi.org/10.12688/gatesopenres. 12937.2

Waldt, G. van der. (2021). The judicious use of theory in social science research. *The Journal for Transdisciplinary Research in Southern Africa*, *17*(1), Article 1. https://doi.org/10.4102/td.v17i1.1039

Weijters, B., Millet, K., & Cabooter, E. (2021). Extremity in horizontal and vertical Likert scale format responses. Some evidence on how visual distance between response categories influences extreme responding. *International Journal of Research in Marketing*, *38*(1), 85–103. https://doi.org/10.1016/j.ijresmar.2020. 04.002