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| RESEARCH ARTICLE

Triangulation in Research: Exploring Moroccan EFL University Graduate Students' Knowledge and Familiarity

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| ABSTRACT

Research methodology constitutes the stem of most empirical studies, ranging from qualitative, quantitative, to mixed methods. In the course of conducting any study, the extensive knowledge of these practices is prerequisite, especially for novice researchers. Be it the least conventional type, mixed methods or triangulation has been grounded in theory since 1970s. It has become widely accepted as a way to improve the analysis and interpretation of findings (Denzin, 2010), as well as increase the validity of the outcomes (Creswell, 2014). Bearing in mind the valuable interest guaranteed by this latter, the present paper aimed at exploring the extent to which graduate students are familiar with triangulation in research, as translated in their knowledge about its types along with its previous use. This was carried out on 20 Moroccan graduate students coming from different universities through an open-ended/ self- reported survey questionnaire done online. The results revealed 70% of the participants claimed familiarity with the concept of triangulation, while 30% reported no prior knowledge of it. Half of the participants reported prior use of triangulation in their theses/ articles, master's degree dominating, while 'methodological triangulation' was the type mostly adopted. These findings count as a great foundation for future research aiming to investigate the reasons behind each result obtained. The answers of which will help connect the bridge of theory and practice accounting for research methodology.

| KEYWORDS

Research Methodology, Triangulation; Mixed Methods; EFL; University Graduate Students

| ARTICLE INFORMATION

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1. Introduction

Research methodology represents an essential part of most if not all pieces of empirical research. In the course of applied or fundamental research, the concept of 'research methodology' immediately equates all of; the conceptual framework, research design, sampling, method of data collection, and method for data analysis (Phakiti, 2015). The nature of the following depends on the general ideological orientation underlying the study, and the credibility of the outcome relies on the consistency and accuracy of the methodology as a whole.

Among the best-known approaches in research are the qualitative and quantitative paradigms. Due to the dissimilar orientations of these two, a strict division was made, leading to a clear distinction between these latter, as the following quote illustrates:

> "*Quantitative research* involves data collection procedures that result primarily in numerical data which is then analysed primarily by statistical methods. Typical example: survey research using a questionnaire, analysed by statistical software such as SPSS…*Qualitative research* involves data collection procedures that result primarily in open-ended, non-numerical

> data which is then analysed primarily by non-statistical methods. Typical example: interview research, with the transcribed recordings analysed by qualitative content analysis." (Dörnyei, 2007, p. 24)

In other words, quantitative research methodology explores questions in an objective manner with the aim of minimizing any influence of researcher bias or prejudice. Qualitative research methodology, on the other hand, uncovers potential dynamics underlying an examined phenomenon or situation by taking the social and cultural context into consideration, as well as within individual variation Dörnyei (2007).

Nevertheless, both approaches did not escape the criticism. The qualitative approach was reproached for its lack of clear and distinct set of practices that are entirely its own. In fact, it was claimed that there is no agreed doctrine underlying qualitative research (Silverman, 1997), making its uniformity a rising issue. The quantitative perspective, conversely, was criticized of its inability to give justice to the subjective variety to the individual life. The decontextualized and reductionist nature of the quantitative research methodology in terms of its generalization and failure to capture meaning has been pointed out.

Consequently, a potential solution has been proposed. Basically, combining qualitative and quantitative research together, either at the data collection or at the analysis level. As the quote validated, "the two research methodologies can be beneficial to 'corroborate' (provide convergence in findings), or initiate (offer new interpretations) findings from the other method" (Dörnyei, 2007, p.30). The interface between these two traditions is said to lay a middle ground and provide a possible solution to each of their weaknesses. This is called 'triangulation'.

Triangulation has been proposed as a third approach in research methodology. It substantially refers to studies that use qualitative and quantitative methods in supplementary or complementary forms in a single research project. Although some believe that "qualitative and quantitative research are rooted in two strikingly different paradigms, and thus, by mixing them, we are likely to lose their very essence" (Dörnyei, 2007, p.29), others claimed that different research methods represent important critical perspectives and can offer possible solutions for one another problems. Denzin (1978) maintained, "methodological triangulation can help reduce the inherent weaknesses of individual methods by offsetting them by the strength of another" (p. 43). As a result, each method contributing in a way that only each can; the qualitative directing the quantitative and the quantitative feedbacking into the qualitative. This is mainly for the purpose of producing a more valid and reliable work.

Accordingly, many pieces of research have been done on this so-called third approach. In the context of applied research, which of our focal interest, 'triangulation' has been extensively studied as a concept and a notion that is in need of further elaboration. Most literature that dealt with it mainly focused either on identifying its categories, its ability to help with validity and reliability, or truly using it as a tool for collecting/ analyzing/interpreting the data (Ozturk, 2017., Veenman, et. al., 2006., Dörnyei, 2007., Denzin., 1978., Creswell, 2009). That is why, to contribute differently, the main objective of this study is to investigate triangulation as a variable in relation to a group of people, a sample of a larger population, namely Moroccan university graduates. Therefore, exploring Moroccan graduate students' familiarity with triangulation in research, and its use, by answering the following research questions:

1- How familiar are Moroccan university graduate students with triangulation?
2- How often was triangulation used by Moroccan graduate students?
3- What triangulation type is the most used by Moroccan graduate students?
4- What university degree holders recorded frequent use of triangulation?

2. Literature review

The concept of triangulation in research methodology makes the promise of bringing a respectable amount of benefits and confirmation to one's study (Anita, et.al., 2021). It is mainly used with the goal of offsetting and minimizing any kind of weaknesses that might emerge from the single use of one particular approach. However, a great deal of confusion in terms of its definition, labelling, and types was recorded. An overwhelming amount of research attempted on delimiting this latter into clear sets of classes. Eventually, an emerging pattern of conformity was registered, despite potential discrepancies.

Triangulation, also known as 'mixed methods', is often used to describe research where two or more methods are used, by combining both qualitative and quantitative methods to get a comprehensible understanding of a phenomenon (Heale, 2013). As this latter asserts, "triangulation in research is the use of more than one approach to researching a question. The objective is to increase confidence in the findings through the confirmation of a preposition using two or more independent measures." (p. 98).

Triangulation is typically associated with research methods and designs. This technique was originally introduced into qualitative research as a way to avoid any biases arising from the use of a single methodology (Heale, 2013). Nonetheless, although 'triangulation' and 'mixed methods' are used interchangeably, these two don't necessarily mean the same thing. Anita (2021) indicates that "mixed methods basically combine quantitative and qualitative research approaches in getting research answered; while triangulation describes how the researcher makes use of all multiple approaches in the study to extract the required information as well as critically analyzing findings; thus establishing validity and credibility" (p.1). Accordingly, we can say that 'mixed methods' describes the more general term, while 'triangulation' denotes the actual process undergone.

There are several other variations of the term. Triangulation may be the use of multiple theories, data sources, methods or investigations within the study of a single phenomenon (Roberta, 2013). Deniz (1978) and Patton (1999) identified four types of triangulation: theoretical triangulation, data triangulation, methodological triangulation, and investigator triangulation. Theoretical meaning the use of different theories to analyze and interpret data. These theories assist the researcher in supporting or refuting the findings (Nancy, 2014). Data triangulation "involves the collection of data from different types of people, including individuals, groups, families, and communities, to gain multiple perspectives and validation of data" (p.545). Methodological triangulation, being the most common type, indicates the use of multiple methods of data collection about the same phenomenon. This type of triangulation may include interviews, observations, and/ or field notes. Lastly, investigator triangulation "involves the participation of two or more researchers in the same study to provide multiple observations and conclusions. This type of triangulation can bring both confirmation of findings and different perspectives, adding breadth to the phenomenon of interest" (p.545).

Further classes were noted, namely "across- method" and "within-method" types. These two are said to be types of methodological triangulation. The former refers to studies that combine quantitative and qualitative data techniques (for instance; an open ended interview/ statistical analysis of questionnaire items collected by standardized scales and measures), and the latter concerns using two or more data collection procedures, either quantitative or qualitative, not both (for example; participants observation/ interviews, or survey questionnaire/ pre-existing data base) (Bethet, 2012).

Nonetheless, triangulation should be well planned and excellently executed by researchers who know exactly what they are looking for (Anita, 2021). Mixing methods, at any of the levels of research inquiry, allows for different perspectives that may otherwise be overlooked (Nancy, 2014). The use of triangulation helps researchers to minimize the weaknesses of the use of one research method with the strengths of the other, confirm findings, provide more insights, quickly notice and eliminate inconsistent data, and increases credibility of the study (Anita, 2021). Heale (2013) advocates claiming that "the combination of the findings from two or more rigorous approaches provides a more comprehensive picture of the results than either approach could be alone" (p.98).

An important reason is considered when using triangulation. It is that of increasing the validity of study findings through collecting data from participants using both methods (Nancy, 2012). According to Anita (2021), "validity basically establishes how correctly a particular approach measures something and how closely findings are to actual values or concepts being examined. It indicates whether findings from a particular research can be trusted. Achieving validity is very important to ensure that findings from a research can be correctly used and interpreted…validity is also very critical in ensuring that findings from a particular study can be generated to other geographical… populations, settings, conditions, and times." (p.1). In fact, it is in the quest to achieve validity and credibility in research that researchers make use of triangulation (Anita, 2021). Through, for instance, the use of multiple data sources, research bias as well as procedural bias in sampling can be reduced, hence, increasing both validity and credibility. In the same vein, converging results can highlight different aspects of the phenomenon in addition to resulting in new or better explanations for the phenomenon under investigation (Heale, 2013).

However, "although regarded as a means to add richness and depth to a research inquiry, there are several criticisms of the use of triangulation in research" (Roberta, 2013, p.98). Triangulation assumes that there must be caution in interpretation, researchers have to know effectively how to use it. The researcher must consider the issues, analyze the data separately, synthesize and identify similarities and differences, and be aware of how the different methods affect the results (Nancy, 2014). In fact, merging the two approaches/ methods together, the 'how', articulating the use correctly, constitutes one of the major determiners of whether triangulation is of benefit or disadvantage. If any step of the process is flawed, the results are affected too. For this, young researchers may require some guidance from expert researchers to ensure the right thing is done thus achieving the expected results (Anita, 2021). Another challenge is that all types of triangulation require more sources in the form of time, energy, and finances from the researcher. Still, in spite the criticisms, triangulation is generally considered to promote more comprehensive understanding of the phenomenon under study and to enhance the rigour of research study. Although adopting it requires more resources from the researchers, there are invaluable benefits which out weights the difficulties it presents, as confirmed by Anita (2021).

Building on what has been said, and stressing how much value knowledge about the use of triangulation is in successfully carrying it out, the present paper aims at investigating Moroccan graduate students' level of familiarity and use of triangulation, as translated in their responses in the survey questionnaire undergone. This is in alignment with its importance as a third approach in research methodology that guarantees benefits the use of a single method can't assure. In the fact of, two or more rigorous approaches provide…results that either approach could be alone (Heale, 2013).

3. Methodology

This article is purely qualitative in its approach. The descriptive exploratory design was the one adopted, alongside the convenient sampling method for data collection. This latter was conducted asynchronously, through an open- ended survey questionnaire. Graduate students from the whole cities of Morocco were eligible. Detailed information about the participants, instrument, and data analysis procedure will be covered in the sections to follow.

3.1 Participants

The participants of the study were 20 university graduates in Morocco. The mean age was (M =28,95), ages range from 24 to 50, with males dominating in number than females. These participants were EFL graduates with either a B.A, M.A, or a PhD. Most of them were majors of English, specializing in 'applied linguistics', 'psycholinguistics', 'TEFL', or 'linguistics'. Only one participant was a 'psychology' graduate. 'Ibn Tofail University' recorded the highest number of participating subjects. This pattern is largely due to the snowball sampling adopted, making the population confined to students majoring in English.

Figure 1

Gender Distribution

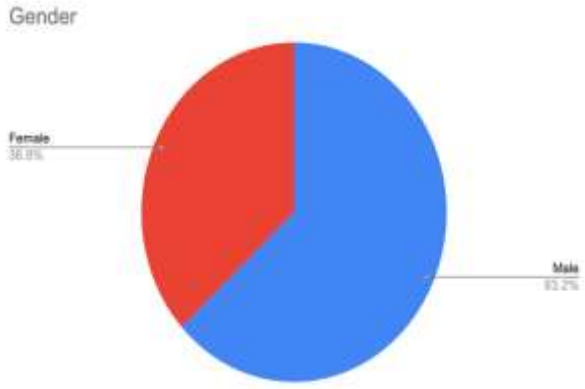
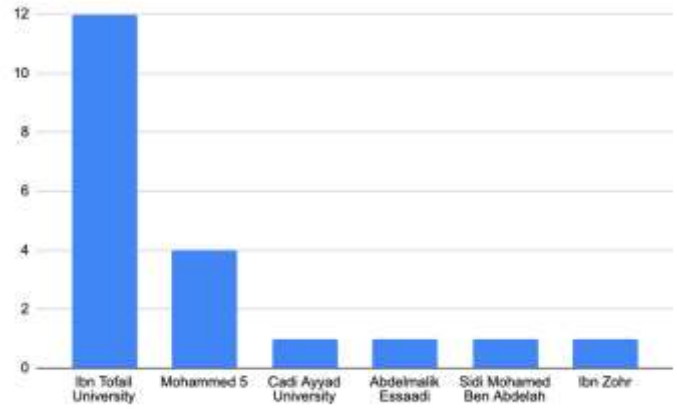


Figure 2

Participants' University Affiliation



3.2 Procedure

Having the goal of collecting authentic data responses that directly but implicitly describe the participants' knowledge and familiarity, an online researcher-made survey questionnaire with 10 open- end/ self- report items targeting each of the research questions was used. Demographical information was requested primarily for the open-end questions (Gender, university name, major, field…). All items were restricted so to ensure that we get both sides of possible responses, be it knowledge or lack of familiarity. Anonymity was highlighted to anyone who visited the survey link. The data collection took a period of one month and a half until 'data saturation' has been achieved, be it the guiding principle in qualitative research. For comprehensiveness, the items included simple and to the point questions that were easy to respond to. MS Excel was used to record and organize the data generated from the google form. This is to make it easier in generating the results and in interpreting them. To establish validity, the survey questionnaire as well as the study was pre- reviewed and moderated by a university professor expert in the field, to avoid any personal bias by the corresponding researcher. The items were also formulated in a way that does not give off the purpose of the study, baring in mind the data collection procedure was done online restricting the amount of information that could have been shared with the respondents if done face to face.

The present paper followed the 'thematic analysis' in going about the data. Taking into consideration the nature of the data generated (nominal data), and be it the best fit for the data collected and the objectives of the study. MS Excel was used again to produce visual presentations describing the subjects' responses, hence, the results obtained. 'Inductive coding' was the technique utilized, by first reading the data thoroughly and letting the codes emerge from the data itself, otherwise known as 'initial coding'. With the aim of grouping the data into potential classifications, a close examination was carried resulting in the emergence of some elements, themes, patterns that were consequently derived, and compared. Communalities and differences were also

highlighted. Each theme was clustered into a category describing only those participants who belong to it. A reflection was performed on what can be inferred from the data and what could be a suggestion for future research. This is in alignment with the focal purpose of qualitative research; that of answering the research questions and inducing any valuable implications or suggestions about the phenomenon investigated.

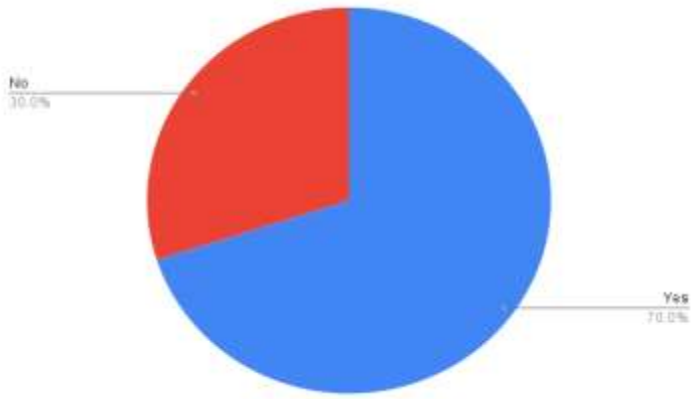
4. Results/ Findings

Most studies carried out on 'Triangulation' failed to see it as a living tool beyond theory, an actual apparatus that is used on a frequent basis by researchers around the world, similar to any other methodological type, rather than an abstract concept stranded in theory. The present paper, making a special contribution, aimed at detaching the concept from theory by exploring how familiar Moroccan graduate university students are with triangulation and the extent to which it was used in the course of their research journey, answering the following research questions.

4.1 How familiar are Moroccan university graduates with triangulation?

The self- reported responses revealed 70% of the participants claimed familiarity with the concept of triangulation, while 30% reported no prior knowledge of it.

Figure 3: *Moroccan Graduate Students' Familiarity with Triangulation*



Concrete support for the subjects' claims, be it familiarity or lack of familiarity, was translated in the definitions requested. The extracts below show the participants words and the extent to which they are familiar with triangulation. While some provided a general scope of the concept, others went to the extent of mentioning it's immediate relation with validity and reliability.

> *"…triangulation allows the researcher to deal with the topic from different angles, using multiple methods, theories. Sometimes the researcher uses investigators in different places and throughout different periods of time to address their research questions." Participant 2*

> *"Yes, I am somewhat familiar with it. Triangulation in research is the use of a variety of research methods to answer a set of research questions." Participant 6*

> *"It is the use of more than one data collection instrument. it is usually used to make research findings more credible and trustworthy." Participant 16*

> *"Yes, I am quite familiar with triangulation. It is basically when the researcher employs multiple research methodologies to conduct their study, data from different populations or time, different theoretical perspectives, or different experts/ researchers in collecting and analyzing the research data generally, it can be used to improve the validity and reliability of the findings." Participant 8*

Despite the great number of participants who claimed familiarity, a reasonable amount claimed the contrast as well. The following quotes clearly show some graduate students' lack of previous notice of the concept in their academic journey.

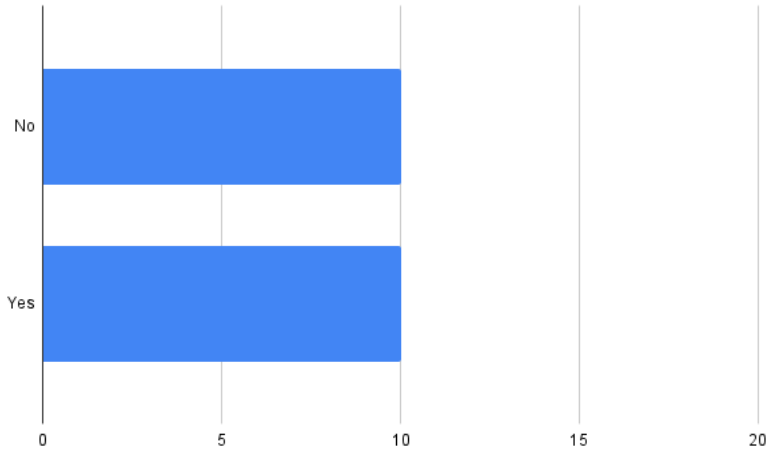
"I have heard about it but honestly never studied it." Participant 20

"No, it's a new concept." Participant 12

4.2 How often was triangulation used by Moroccan graduates?

The results showed half of the participants (n=10) claimed previous use of triangulation in their pieces of research before, and the rest (n=10) have not.

Figure 4: *Moroccan Graduate Students' Previous Use of Triangulation*



4.3 What triangulation type is the most used by Moroccan graduate students?

Despite the report of other types (investigator triangulation), 'methodological triangulation' was the most frequently recurring one, as demonstrated in the instruments listed by each participant answering *item 9* in the survey questionnaire (*9- What did you use as research instrument(s)?)*. The following quotes are the reported words of some participants:

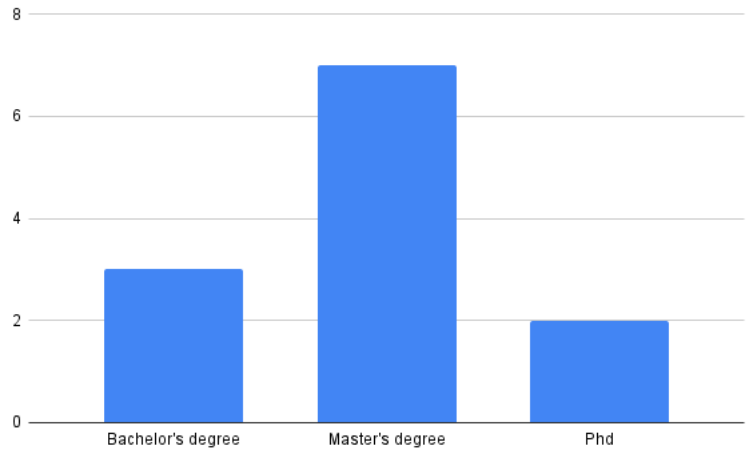
Table 1: *Instrument used as reported by participants*

Participants' Responses	Participants' Identifier Number
Interviews, observations	Participant 2
observation, interview	Participant 3
questionnaire, interview, digit span test	Participant 4
questionnaire, experiment	Participant 5
questionnaire, field work observation	Participant 7
interviews, tests, questionnaires, classroom observation	Participant 9
interviews, observation, document analysis	Participant 13
questionnaire and interview	Participant 15
interview, observation, survey, class recordings	Participant 18
essays, questionnaire, free discussion	Participant 19

4.4 What university degree holders recorded frequent use of triangulation?

The university degrees with the highest rate of use of triangulation were, consequently, master's degree, B.A degree, and PhD.

Figure 5: *Participants' Use of Triangulation by Degree*



Looking at the data collected, and the results generated, three main categories seemed to surface. Graduate students who 'know about triangulation and have used it', graduate students who 'know about triangulation and haven't used it', and graduate students who 'don't know about triangulation and haven't used it'. An image of this categorization is portrayed above in the quotes cited and the figures/ charts produced. What we can infer from this is how knowledge does not always translate into actual use. Assuming that the absence of use is an indicator of a lack of knowledge can be debated, considering the second sub- group who exhibited a fair knowledge of triangulation in research, despite no prior use. It's something that contradicts the logic of "Knowledge-in-use"; meaning how the ability to apply what one has learned as a major indicator of a successful transfer of knowledge (Kubsch et al., 2020). Reasons behind such divergence is relative to each and every individual and can only be identified by doing empirical research on it. Same applies for graduate students who reported no prior knowledge nor use of triangulation, third sub-category. This is with relevance to how of a positive impact triangulation can have on one's research, especially in validating its results. In fact, this is something that appeared in the participants responses answering *item 8 (Why did you choose triangulatio*n?), showing their awareness of such fact.

"…to enhance the validity and credibility of the findings…triangulation offered me more objectivity." Participant 2.

"It gave my findings more validity." Participant 3.

"…the researcher uses different sources and compares and contrasts them to increase the validity and reliability of the research."

Drawing on the quotes, and the data generated, 'methodological triangulation' was the type dominating despite the appearance of multiple types in the participants' definitions answering *item 5* (*Are you familiar with triangulation in research? if yes, could you provide a brief definition*)* compared to *item 9 (What did you use as research instrument(s)?)*. Variation in knowledge but consistency in using the methodological triangulation type across different participants is an added suggestion in need of investigation. The master's degree holders recorded the highest use of such triangulation type. This conflicts the view that higher degree holders might show larger possibility of adopting such intricate methodological approach. Reasons behind such results might stem from the fewer number of participants who actually hold a PhD, as master holders were dominating the sample generated. In point of fact, it's a limitation of adopting the snow-ball sampling technique.

5. Conclusion

Triangulation has been found to be beneficial in providing confirmation of findings, more comprehensive data, increased validity and enhanced understanding of the studied phenomenon (Bethet, 2012). With the use of triangulation, researchers can in a sense strengthen the outcome of their study as well as decrease weaknesses, making knowledge about this latter crucial, as is that of research methodology as a whole, in conducting research in general. The present paper aims at exploring Moroccan EFL university graduate students' knowledge and familiarity of triangulation. The thematic analysis revealed three distinctive types classifying graduate students' knowledge and familiarity. Methodological triangulation was the most recuring type, and master's degree graduates being the highest to record the use of triangulation in general. Still, the present study has some limitations. The sample-size was relatively small, limiting its generalizability. This could be a consequence of the nature of the instrument used. Some participants might have hesitated to participate because of the open-ended questions they had to answer, in the view of the fact

that it can be time consuming. Another limitation of this study is perhaps the online aspect of it. One cannot be one completely sure that the so called 'self-reported' familiarity is one hundred percent accurate, since the time limit of the response wasn't specified. Finally, the overall aims of the study were purely descriptive leaving this piece of research restricted at that. For this, suggestions for future research are evidently concurrent. The first suggestion would be to find potential reasons behind the 'lack of familiarity' of triangulation for graduate students who claim no prior knowledge of it. One more recommendation concerns finding explanations for the rationale behind why some graduate students, who claimed familiarity, refrained from using triangulation in any of their research work. Lastly, future researchers can also work on the underlying essence regarding the pattern of using 'methodological triangulation' by graduate students, despite familiarity with other types of triangulation. As an ending note, being the aim of graduation is the production of a piece of research that would add a valuable contribution to the theory and practice, knowing the 'what', 'why' and 'how' is of much more significant than the end product.

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References

[1] Bans-Akutey, A., & Tiimub, B. M. (2021). Triangulation in research. *Academia Letters*, *2*.

[2] Bekhet, A. K., & Zauszniewski, J. A. (2012). Methodological triangulation: An approach to understanding data. *Nurse researcher*, *20*(2).

[3] Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation in qualitative research. *Oncology Nursing Forum, 41*(5), 545–547.

[4] Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods* Approaches (3rd ed.). Thousand Oaks, CA: Sage Publications.

[5] Creswell, J. W. (2014). Research Design: Qualitative, Quantitative and Mixed Methods Approaches (4th ed.). Thousand Oaks, CA: Sage.

[6] Cuthbert, C. A., & Nancy Moules, R. N. (2014, November). The application of qualitative research findings to oncology nursing practice. In *Oncology Nursing Forum*

[7] Deniz, V. C. (1978). *A new consistent definition of the homogenized diffusion coefficient of a lattice, limitations of the homogenization concept, and discussion of previously defined coefficients*

[8] Denzin, N. (2010). The fundamentals. *An Introduction to Triangulation, D. Rugg, editor. UNAIDS Monitoring and Evaluation Fundamentals, Geneva, Switzerland*, 12.

[9] Dornyei, Z. (2007). Research Methods in Applied Linguistics. Oxford: Oxford University Press.

[10] Heale, R., & Forbes, D. (2013). Understanding triangulation in research. *Evidence-based nursing*, *16*(4), 98-98.

[11] Heale, R., & Forbes, D. (2013). Understanding triangulation in research. *Evidence-based nursing*, *16*(4).

[12] Kubsch, M., Touitou, I., Nordine, J., Fortus, D., Neumann, K., & Krajcik, J. (2020). Transferring knowledge in a knowledge-in-use task—investigating the role of knowledge organization. *Education Sciences*, *10*(1), 20.

[13] Ozturk, N. (2017). Assessing metacognition: Theory and practices. *International Journal of Assessment Tools in Education*, *4*(2)

[14] Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health services research*

[15] Phakiti, A. (2015). Quantitative research and analysis. *Research methods in applied linguistics: A practical resource.*

[16] Silverman, D. (1997). Qualitative research: Theory, method and practice. London: Sage.

[17] Veenman, M. V., Van Hout-Wolters, B. H., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and learning*