Cognitive Development: Rethinking the Concept of Doing Postgraduate Research

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Abstract

Universities are seeking to play a key role in the research and development process. Starting their first step towards post-graduate studies, students struggle to be active researchers. They find it difficult to do their postgraduate studies. This study investigates the beliefs, and perceptions of students in the process of getting well-developed postgraduate research and the steps they should follow in thinking and performance. This article seeks to gain more details about knowledge, skills, attitudes, values, and ethics that should be found in the process of doing research. A twofold survey was developed to get links between both students and supervisors and results are statically analyzed. Results indicate that researchers can build information literacy in a different way than if they know if they are aware of the academic identity of postgraduate work and change the thinking and working processes. They must follow certain strategies to build their knowledge and some techniques to safely develop their critical thinking skills. Specific ethics must also be followed to keep productive relationships with their supervisors. In the same vein, supervisors are required to follow some specific rules to keep them on track and guide their cognitive development. results show that the chi-square is significant at 0.01 or 0.05. The findings indicate that students often struggle with critical thinking skills, data analysis, and the ability to synthesize information. They also express a need for more structured support from supervisors, highlighting a gap between student expectations and supervisor availability. The study provides valuable insights into the dynamics of the student-supervisor relationship and the importance of guidance in developing research skills.

Keywords: cognitive development, academic knowledge building, research skills, critical thinking skills.

Introduction

In recent years, universities have started paying greater attention to research, by developing appropriate policies, making funds and facilities available for research, and encouraging their staff and students to do research. Universities are making larger allocations for research and the rank of university is based on their research outputs. Faculty members are also required to do research themselves, take on more postgraduate students, and are assessed based on the outputs of their research. Researchers now can get more online materials at no or low cost and are more confident in accessing online resources. Building on knowledge in the graduate stage and seeking development in potential can be the main reasons for thinking about doing a postgraduate study. However, one should ask do all graduates seek to go on this experience and build on potential and develop skills? If so, do they know what they are supposed to do? And what they should have before they start this experience. More questions can be raised about this topic. Doing postgraduate enables anyone to have more knowledge about what they like and may provide more employment opportunities and enhance their life well-being. How to do this is more important than doing it. There must be certain steps to start and end in an appropriate end. That's why this Article is in hand. Mentoring skills of a supervising professor are extremely important in educating postgraduate students. In general life affairs, mentoring as quoted by John Crosby is a brain to pick, an ear to listen, and a push in the right direction. It is used to advise on personal, organizational, and professional levels. It is the relation between two independent individuals in a management structure where a mentor guides a mentee towards a common goal through a change process. In education it is a bit different; it is guiding through knowledge to build a critical brain that is responsible for developing, solving, and creating the other's well-being before his satisfaction in one area of study (Ketter, 2009).

The education system of any country is intimately linked with its national culture (Ballard & Clanchy, 1997). Different cultural traditions embody different attitudes to knowledge where the most significant difference may not be the language but the education system. The educational system is responsible for building the brain and features of humanities as in general it creates habits and thoughts towards life. Till a certain age, individuals are learning how to deal with their world. After that point, they start to think independently to produce their knowledge in the form of interactivity with the surrounding world and start to change their life depending on their thoughts and beliefs. Thus, learners' legitimization, occurs through the four-fold process of experiencing the language by using it in communication, reflecting what is built in the brain and information from the environment, conceptualizing an idea about the postgraduate stage, and acting or producing what they learn, as similarly advocated by Kolb and Kolb (2005). Postgraduate research is responsible for the improvement and well-being. Language research is critically important too to do other research topics and communicate. Here comes the significance of finding out what are the difficulties and problems facing post-graduate students. With the change in technology and the emergence of Artificial intelligence, it is time to rethink the concept of the identity of doing research or the concept of building knowledge in our student's brains. Another look should be granted to the relationship between student and supervisor and to be considered even before this stage of exploring life. The educational system is building knowledge in students' brains through memorization and

pouring facts and information into the students' brains without checking how they are processing this information or what is coming out from mixing them in their brains. So, great attention has been given to critical thinking skills recently to be aware of what will happen if certain conditions are there. Recently, most PG programs have focused on important competencies and learning outcomes to cope with new requirements of digital literacy and academic literacy (Galvan, 2009). PG programs revolve around eight categories of core skills required like communication skills, computation skills, community skills, critical thinking and problem-solving skills, information management skills, interpersonal skills, personal skills, and technology skills (Miles & Wilson, 2004). However, most universities in the Middle East try to update their programs to face the new challenges and international demands. Egyptian postgraduate students lack these skills and need to bridge information gaps and new trends in higher education to adapt to new future careers. At the same time, there is a growth in not only new universities but also degree options. Egyptian students are not familiar with the measure of responsibility for their learning in the new values of the academic community and the challenges of writing their thesis or other research papers for publication (Al-Zubaidi, 2012).

Objective of the study

This study focuses on the development of students' thinking skills to guarantee that they are going to achieve what they are devoting time, effort, and money too. It may help in guiding both supervisors and students to achieve the target goal of doing postgraduate research which in turn will achieve the target of doing postgraduate research namely life stability and well-being for individuals. The target of this study is to put both visions of the supervisor and student when doing research together to make harmony and better understanding to go in the same direction in their journey. Most PGS are not well prepared for the academic commitments and mental analysis needed for giving their opinions. The article may help in better understanding the scholarly communications landscape for both sides. What the supervisors perceive about researching is what the students need to know about it. They do not have real perceptions about their job or what skills they should have. So, the article may get the two sides closer to doing a better job. This paper may help in understanding their needs and how to develop their critical thinking skills.

Significance of the study

Over the past two decades, one of the main developments in higher education worldwide has been the growth of postgraduate studies. Postgraduate students always struggle and find it difficult to do this job. In the undergraduate stage their minds are always receiving data so, to move towards searching and getting new information and even use their mental skills to structure and present these data, they need some perceptions and beliefs to gain a real identity as a researcher. They must know what a researcher is, what is his task, and how to do it. and what competencies he needs to do it. So, this study aims to provide postgraduate students with appropriate clear steps to understand their jobs and tasks and guide them to do them well. So, the study seeks to discover the students' perceptions and real vision concerning doing research. At the same time focus on the supervisors' vision about what the students should know before joining postgraduate research study. What they need, and the skills needed to do their job. The study produces a clear guide on how to build students' knowledge and order their brains in a way that grants their outcomes.

Review of literature

The undergraduate stage educational system focuses on exam-based education which influences study activities in this direction. It ignores the importance of teamwork activities, oral presentations, and term papers simply because these are not included in exams. Teaching strategies also may be the core reason for being a negative student, not sharing in discussion or analysis. Many Egyptian postgraduate students have problems with choosing a topic, developing a research idea, and designing an inquiry or project. Many students also do not have time to interact with their supervisors in different faculties. At the same time doing research is a highly cognitive task requiring sufficient motivation to persevere. It also includes improving content knowledge and thinking skills. Doing research also requires students to show and present knowledge not in a regular way but with interpretation and showing certain disciplinary skills when reading complex text. Students should have strategies to synthesize, analyze, and respond critically to new information as they are not used to analytical thinking in previous years' learning systems. PGSs are not fully aware of the basic concepts of doing research and writing perceptions without plagiarism as a serious academic crime due to their poorly developed research skills.

Schraw & Moshman (1995), pointed out that a student's ability to be conscious of and monitor his knowledge-building is a main part of cognition. cognition of knowledge is related to how one obtains certain knowledge depending on three types. First, is declarative awareness which is knowing about one's capacity and limitations and then how to integrate them during knowledge building. Procedural awareness relates to the time he starts his knowledge-building. Conditional awareness is about the way he knows when and why cognitive action is used. Regulation of cognition includes essential skills during the process of controlling one's thinking, such as planning, monitoring, and evaluating. Based on the result of the learning process, a person will see the process and the improvement that is achieved. They will be able to monitor their understanding of reading text and hence gain the skill of selecting between what they want as knowledge building or what is not required in a certain context of reading or searching for specific knowledge. They must make an extra effort to reach a good comprehension of the reading materials to finish the assigned tasks. In a paper by Huynh, (2022). He investigates students' perceptions of extensive reading, which may help them to improve their comprehension skills, and figure out the factors that affect their reading comprehension when applying extensive reading in learning. For him, reading comprehension is a dynamic process in which the text and the reader's prior knowledge interact to create meaning.

The undergraduate education system is working on developing students' skills using the Bloom system of building knowledge. Both Bloom's taxonomy and critical thinking process are two frameworks that help students build their mental abilities through which postgraduate researchers can do their research accurately. They consist of six levels or steps of cognitive skills, from lower-order to higher-order: Remember, Understand, Apply, Analyze, Evaluate, and Create. These levels or steps correspond to the tasks of acquiring, understanding, applying, analyzing, synthesizing, and evaluating knowledge and information related to research problems and questions. By using these frameworks, postgraduate researchers can develop their thinking skills and improve their research outcomes. Till the end of secondary school, students are working on the first two stages and maybe a little pet on the third one. Only at the

university level do they start to use the remaining three skills, and this may not happen for one reason or another. It is supposed that they are ready to use all levels by the end of the graduate stage. These deficiencies become clear when they start their postgraduate study as they should use their final two steps of thinking. This means that our students learn to apply rigor to their design and conduct of experiments; view their work through the lens of social responsibility; think critically, communicate better, and thus improve reproducibility.

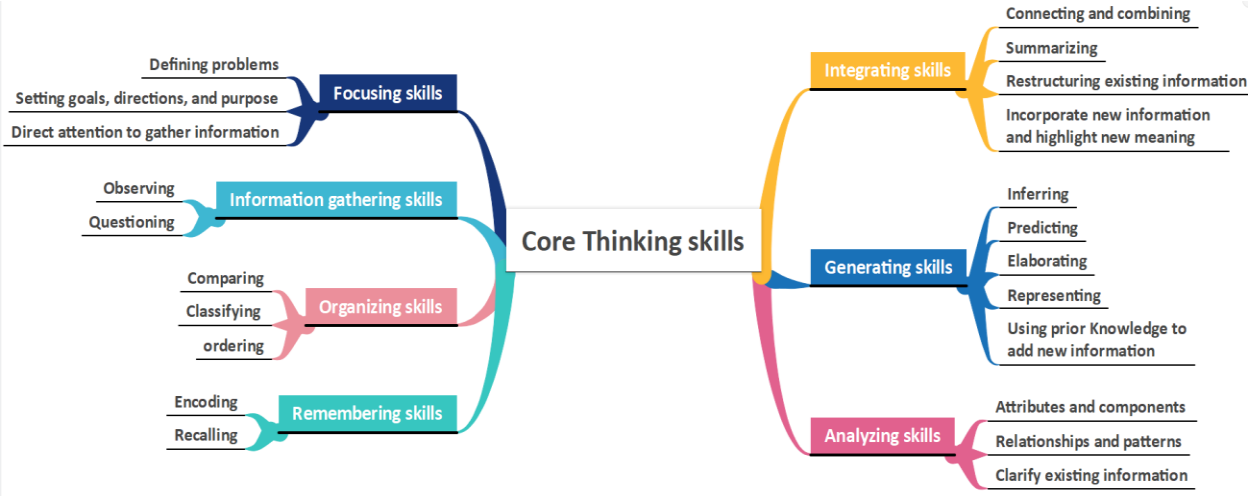


Figure 1: A diagram illustrating the seven components of thinking skills as identified by Kasumagić-Kafedžić and Đuliman (2024). The components include focusing skills, information gathering skills, organizing skills, remembering skills, analysis skills,

Fig (1) Seven Components of Thinking Skills (Kasumagić-Kafedžić, & Đuliman, (2024)

The components of thinking skills can be intertwined with the steps of knowledge transfer, illustrating how various cognitive abilities are engaged at different stages of acquiring and utilizing information. Consequently, the connection of the six steps of knowledge transfer mentioned in fig: (2) (acquisition, communication, application, acceptance, and assimilation) with the seven components of thinking skills (focusing skills, information gathering skills, organizing skills, remembering skills, analysis skills, generalizing skills, and integrating skills) mentioned in fig: (1) is very strong as illustrated in the following table:

Table 1: The Relation Between the Process of Knowledge Transfer and Thinking Skills

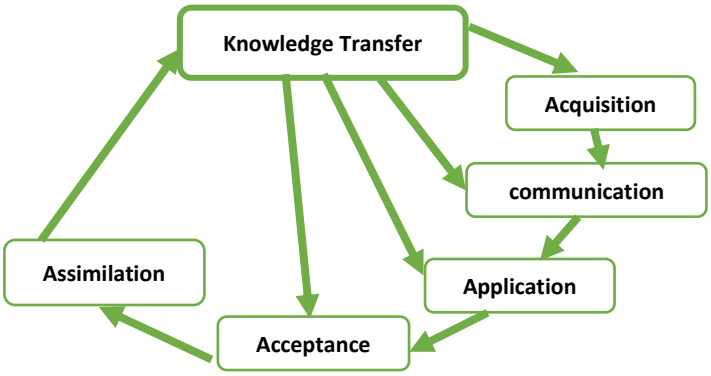
(Knowledge Transfer)	Thinking skills	Interpretation
Acquisition	Information Gathering	Information-gathering skills are crucial during obtaining new knowledge or information which is a part of knowledge Acquisition, for individuals need to collect relevant data or content effectively.
Communication	Organizing	The acquired knowledge is shared in individual Communication. Organizing skills play a key role in helping individuals present information clearly, coherently, and structured. Organization skills depend on understanding and knowledge comprehension, leading them to appropriately

		select the needed information.
Application	Applying	Application is the process of using acquired knowledge in practical situations. Applying skills, such as problem-solving and critical thinking, are essential during this step to effectively use the acquired information. Another skill is connected here which is selecting information.
Acceptance	Remembering	Acceptance involves acknowledging and understanding the knowledge. Remembering skills are crucial here, aiding in the retention and recall of information for future use.
Assimilation	Analysis	Assimilation is the integration of new knowledge into existing understanding. Analysis skills come in to play a critical role during this step, allowing individuals to break down information, understand its components, and connect it to existing knowledge.
Integrating	Generalizing	Generalizing skills involve drawing broad conclusions from specific information. Integrating skills helps combine various pieces of information into a cohesive understanding. These skills are particularly important during assimilation but can also be applied throughout the other steps
All	Focusing	Focusing skills are relevant throughout the entire process. These skills help individuals concentrate on the at hand task, whether it's acquiring, communicating, applying, accepting, or assimilating knowledge.

For the first time, they start to analyze errors in reasoning and find solutions based on their real analysis. They should be able to identify areas in which they saw gaps and how to close them from a moral point of view and certain ethics. They should think like scientists for science should strive to be self-improving, not just self-correcting. Thus, the target will be changed to put the philosophy back into the Doctor of Philosophy as named.

The critical thinking process indicated in Figure (2) is a six-step framework that helps postgraduate researchers to do their research accurately. It involves acquiring knowledge, understanding what they gain, applying, analyzing, synthesizing, and evaluating knowledge and information related to their research problems and questions. Following this process, researchers can develop their thinking skills and improve their research outcomes. They need to practice synthesizing and integrating the data and results that they have analyzed and combine them into a new or original contribution to knowledge.

Fig (2) Knowledge Transfer Process (Testa, 2019)



"Figure 2: A flowchart depicting the knowledge transfer process as outlined by Testa (2019). The process includes six key steps: Acquisition, Communication, Application, Acceptance, Assimilation, and Analysis. Each step is connected to illustrate the progression of knowledge transfer and its relationship to thinking skills."

Another area of difficulty is the relationship with the supervisor as students are often concerned about the issue of contact time. According to Dickinson (1993), for students, the ideal supervisor offers regular tutorials and considerable structure. Students often feel they need to be eased into self-responsibility however, supervisors may not have the time to dedicate to a student, and they may expect the student to be independent straight away. Students do not know the style of learning in the postgraduate stage, and they rarely ask for help, supervisors may assume that they don't need it since they do not express the need (Cortazzi & Jin, 1997). The student's educational culture emphasizes rote learning or reproductive learning (Harris, 1995); therefore, there is a problem of a mismatch in knowledge attitudes (Ballard & Clanchy, 1997). Many believe that at the postgraduate level, students should think of their research questions and methods themselves, as part of their development. The progress of students may be affected by other factors like personal life. Thus, supervisors may consider this side in their students' life as reflected by Brown, (2007, p.242):

> To be precise, the supervisor, when confronted by a distressed student who confesses to personal problems to justify or explain a lack of academic progress will often shift between the roles of academic advisor and therapist, necessitating receptive and empathetic skills that are more recognizable in the counseling community. It may be considered then that a dissertation supervisor might benefit from counseling training, to adequately respond to serious personal problems, as well as to cultivate the necessary skills to move between the academic and pastoral roles when dealing with an emotionally disturbed student**.**

According to Ballard & Clanchy (1997), supervisors may not have the time or energy to engage in students' problems and affairs. This may lead to resentment and disappointment on the part

of the students when less time is conferred than they would like, particularly during times of stress.

Psychological sides may have a great effect on students because of motivation which is considered a great factor for achievement and feeling satisfied. From a philosophical perspective, knowledge is a kind of cognitive success by being the constitutive aim of belief, understanding is a kind of cognitive success by being the constitutive aim of reasoning, and practical wisdom is a kind of cognitive success by being the constitutive aim of all human activity. Being guided grants them some confidence that in turn pushes them. However, with depression, they stop being confident in themselves and hence their cognitive success is drawing back. When they cannot form knowledge and feel successful, they start to ask how to proceed in their work. Currently, they start forming independent knowledge and produce knowledge that lets others know how they succeed. Only at this point does their mind start to feel successful and their cognition works with the flow of ideas generating original ones. Postgraduate students do not know themselves and do not know that they have the research skills till they try to do it and use their mental skills in different ways that enable them to build their knowledge by themselves and develop their high thinking skills in searching for knowledge. Gilbert Ryle argued in his book, The Concept of Mind, that knowing how to do something must be different from knowing any set of facts about it. So, knowing how to do postgraduate research must be different from knowing many things and facts about it. At the same time, they may know how to write or do research because they have the talent of writing or practiced researching in their life, but they do not know how to put it in its scientific frame. In addition, knowing who, knowing which, knowing why, knowing where, knowing when, and knowing how—all the varieties of knowing wh-, as called—were all just different forms of knowing that (Bengson & Moffett 2011, and Pavese 2017). Knowledge is structured as a web-connected to surrounding items or as a building in terms that both have basics. Postgraduate students in both metaphors are required to read about specialized areas as basics and read around it as a web to be able to understand all that they construct in their background knowledge. Based on this concept of knowledge building they are required to practice extensive reading in the first step in the postgraduate stage. At the same point, memory is the capacity to retain knowledge acquired in the past; so, it is a basic source of knowledge for them (Heussi, 2012). So, the goal is to allow the student to operate independently of the supervisor. That is, the mark of students' success will be "the extent that they become independent lifelong learners who have learned from us but no longer depend on us to learn" (Riordan & Loacker 2009, p181).

East, et al. (2012) examine students reporting about the feedback they receive from supervisors, and what is most effective from students' point of view. They draw some conclusions about how effective feedback is conceptualized from the student's perspective. Postgraduate research supervision is an important component of the university's teaching and learning environment. Postgraduate supervision is seen by Wisker et al. (2003, p387) "as a form of teaching," and postgraduate research "as a form of learning." Fundamental to this teaching and learning is supervisor feedback offered in the broader context of an ongoing relationship between supervisor and student. As with any teaching/learning process, the supervisory process is not unproblematic. Grant (2005, p2), for example, speculates that "the single word

'supervision' obscures a great and sometimes troublesome diversity in values, beliefs, assumptions, and practices". What the student wants to receive by way of feedback may sometimes differ from what the supervisor gives, thereby creating potential tensions in the supervisor-student relationship and its effectiveness. Nevertheless, as Pearson & Kayrooz (2004) argue, effective supervision is critical to students' satisfaction with their postgraduate experience and successful degree completion, even though a robust conceptual understanding of what supervision involves is often lacking. Franke & Arvidsson (2011) argue that research supervision involves both a knowledge process and a relational process through which the research student is allowed to develop the knowledge and skills needed to carry out research effectively. Effective feedback is considered a crucial element to become independent as reflected by Lantolf (2000). Hattie and Timperley (2007) also add that feedback has a significant influence on learning and achievement and has considerable power to improve teaching and learning. Ramsden (2003) points out that effective commentary on students' work is a key characteristic of quality teaching, besides being a key characteristic of good research supervision as reported by Engebretson et al. (2008). Feedback plays a crucial role in the enculturation of students into discipline-relevant literacy and epistemologies as indicated by Hyland (2009). Kumar and Stracke (2007, p462) argue that the supervisor communicates and provides advanced academic training through written feedback. The central importance of feedback for student writers is therefore well established in the literature (Benesch 2000; Hyland & Tse 2004).

Postgraduate supervision is negatively conceptualized by Grant (2008, p9) to be master slave as a significant archetype for supervision, or as an effective manager by Vilkinas (1998); for Li & Seale (2007) the student is an apprentice or a professional client. However, Pearson and Kayrooz (2004, p100) used the terms apprenticeship, or 'mentor' and 'coach' frequently in discussing supervision. This variety of conceptualizations reveals the complexities involved in defining the relationship that exists between supervisor and student, and, therefore, in determining what makes it effective for both parties (Wisker et al. 2003, p388). They conclude that each role has potential problems because of the long-term professional relationship between supervisor and student". In turn, each role has potential problems because students and supervisors may construct the relationship differently and approach the relationship with different expectations. Carless et al. (2011) pointed out that feedback is central to the development of student learning that needs further analysis. Students have difficulty in understanding feedback comments, they are unsure what to do with them or find these comments terse and operating in a one-way (teacher to student) direction. At the postgraduate supervision level, feedback is effective as it is embedded within more bi-directional "learning conversations from a range of perspectives. Feedback is significantly influenced by the different expectations of both parties. The goal is that the supervisor requires the student to think again through discussion and feedback, to read more, to revise written drafts" (Grant 2005, p76). However, the message might not always be clearly received or delivered confusingly or inadequately by supervisors or misunderstood, resented, and resisted by students. In his study, Gulfidan (2009, p71) illustrates that students perceived that straightforward written feedback gives them clear instructions for how to revise their writing and they prefer detailed, specific comments more than overall, general comments. They also prefer marks with text and

feedback that "tries to change their writing style. So, the appropriate feedback provides information specifically relating to the task or process of learning that fills a gap between what is understood and what is aimed to be understood. The study provides an understanding of what constitutes effective supervision of postgraduate research students, with particular emphasis on written feedback, and thereby sheds light on what is and is not working.

Although thesis supervision has been widely studied, little is known about supervisors' performance dimensions and thesis development from a quantitative perspective. For this reason, one of the folds of this research is to analyze the relationship between thesis development and supervisors' performances according to the perceptions of postgraduate students. The academic capacity, knowledge building, and research experience of the supervisor are significant in helping them understand the regulations and rules of the supervision process. Supervisors apply supervision styles considering the characteristics of the students (Smeby, 1998). The supervisor should make equal information, time, and energy available to all students (Brown and Krager, 1985). According to them, the supervisor needs to be sensitive to students' time and competence limitations and to assist them to become aware of their limitations and any constraints on them. Doing postgraduate studies is an optional decision and is based on an inner motivation to go deeper into a branch of studying. There is a big difference between graduate and postgraduate studies as the latter helps students gain basic knowledge in a major or even in a few majors. In undergraduate studies, students must receive other courses related to their majors. However, in postgraduate, they only receive courses specialized in a specific area of study. Graduate studies grant knowledge that students may not like or care about. However, in postgraduate studies, students have what they already like and would like more about. The number of students in graduate courses may prevent them from discussing things they are not convinced about but in postgraduate they should discuss every point to be clear and they are keen to know everything about their study. Unlike your undergraduate years, your postgraduate studies focus primarily on developing specialized knowledge, advanced critical thinking, and innovative research skills. In the postgraduate stage, all the time students are being asked for opinions or analysis on a certain topic. This requires them to be critical thinkers. To think critically means to be fully informed and capable of supporting ideas with in-depth analysis and assessment. This may not be the way of studying in the previous stage and consequently, they face a problem doing tasks that need this process.

Reviews of literature about this topic show that little is written about it. However, little research has been conducted on the transition into postgraduate study. Some studies are conducted to investigate the students' problems in postgraduate research like that of Al-Zubaidi (2012) where he dealt with Egyptian students with language skills when they write academic writing in English. His paper discussed how postgraduate Egyptian students are more effectively assisted to adjust to and be more successful in an academic context in writing and language use. He focused on writing skills as one of the most important language skills that show how much postgraduate students master the process of his/her research. To write well one needs multiple physical and mental processes in one concerted effort to communicate information and ideas. to incorporate and synthesize diverse sources of knowledge into an authoritative viewpoint. In Egyptian universities, academic writing has not received enough attention as part of the curriculum. Al-Zubaidi & Richards (2010) stated also that Egyptian

students often have serious difficulties about how to deal with academic citations or references as well as generic writing formats.

In a study by Rahman, et.al (2014) they try to find out the challenging aspects of teaching research skills to postgraduate students and found that identifying a research problem is the most challenging one. They also seek to help students identify research problems in an educational setting and help them write a sound research problem statement for their project using metacognitive strategies. The findings show students' improvement in identifying research problems in an education setting and their ability to identify important elements in writing a research problem statement. Their critical thinking skills are improved in planning, monitoring, and evaluating. An additional study dealing with the quality of postgraduate students writing by Lindsay, et. al (2002) added that at each stage of research progress, students are likely to need different forms of guidance. They need a guide to tell them when to stop data collection, when to start analysis, when to start drafting the thesis, how to structure it, and what to insert and what to delete from the knowledge they selected. On the other hand, supervisors should adopt flexible supervision strategies depending on the students' requirements, which in turn are influenced by the student's abilities and skills to apply what they ask them to do and their abilities to change according to research requirements. According to Brown and Krager (1985), the supervisor should consider students' time and competence limitations. His basic role is to assist them in becoming aware of their limitations and any constraints on them. The tasks of supervisors are broadly related to advice, which is given on direction, completeness, clarity, methodology, and topic selection (Spear, 2000). In the same vein, feedback is given on the progress of written work (Donald et al., 1995; Russell, 1996). Spear (2000) states that supervisors should read the student's written work thoroughly and provide constructive criticism since this is an essential element in the student's intellectual development. In a study by Ryan et. al (2009) they try to assess postgraduate pharmacy students' perceptions of plagiarism and academic honesty. They want to determine students' levels of awareness of university policy concerning academic honesty, and attitudes to plagiarism. Findings indicated widespread deficiencies in student knowledge of, and attitudes toward, plagiarism. Students did not perceive plagiarism as a serious issue and the use of inappropriate strategies for sourcing and acknowledging material was common. Their study highlights the importance of achieving a balance among the 3 dimensions of plagiarism management: prevention, detection, and penalty.

Problems of postgraduate studies are discussed by some scholars in terms of the following five points: 1) inadequate supervision (Ibrahim et al.,1980; Rudd, 1984), 2) emotional and psychological problems like social and intellectual isolation, lack of confidence in their ability to complete their job at all or within the specified time limit (Welsh,1979), McCormack(2004)3) lack of understanding or communicating with their supervisors (Moses, 1984), 4) lack of background knowledge, or experience in research methods or selecting tools (Zuber-Skerritt & Rix, 1984), and finally 5) late completion and high drop-out rates (Beard & Hartley, 1984). Research students are asked to complete other tasks within candidature time like, publish or present conference papers, and support families and jobs, in addition to developing a broader range of skills that enhance their marketability. These factors are reducing their ability to create new knowledge, producing ground-breaking work, keeping up

with the literature, and writing a thesis et cetera. They must manage their time and effort for previous commitments. Consequently, the successful completion of their job depends on the function of their abilities and the follow-up of the supervisor. Universities are trying to produce more quality students with outstanding research projects. In response to this move, they are striving to improve the development of postgraduates' research and supervision. In a study by Ismail, et al. (2011) their main objective is to expose what are postgraduate students' problems in research and supervision. They highlight the importance of supervisory contribution to graduate study and propose the best practice of supervisory inputs. They conclude that developing skills for effective supervision needs to be tackled in various ways. In addition to, effective supervision is essential to guide postgraduate students during their progress in postgraduate study.

Studies about writing a thesis as the main task for postgraduate students is writing the thesis which comes out because of building a mental view about the development of ideas and presenting knowledge they collected. Akindele (2008) dealt with the quality of each thesis that was formed when they finished the literature review. Mallett (2004), focused on how researchers select methodologies or theories to work. Lopez (2014) illustrated that the literature review section includes brief explanations or notes for each reference and should be clear and comprehensive. This task's importance comes from the view of the thesis as a building and each section is linked to the other and all are cumulative forms. This is the part where the students' mental skills are reflected. It should be prepared and organized critically to compare different theories and contrast notions and this process requires high thinking skills and competencies where the students are asked to draw a new original vision of what they read. Researchers should critically consider various factors like recognizing the similarities and differences of the various findings, distinguishing gaps that existed in the study and how they are solved and comparing/contrasting the obtained results in different studies (Denney & Tewksbury, 2013) and before all these elements to be able to present them in a logic order to the reader. They are not writing free text they are writing to a special category that will in turn criticize and rebuild their visions in the future. Consequently, they must show how limitations in other works create a research gap for another research which means that they are going to involve personal judgment and an appeal to share values and ideas. It should take the form of a critical discussion that requires critical analysis and show that they understand their thesis topic. Given the importance of writing the literature review section and students' inability to write it effectively, a lot of studies have been conducted to help them like Akindele, 2008; Fitt et al., 2009; Kuang & Maya, 2015). From the previous talk, one can see how this transition is very important and should be done in a certain developmental system to end at the same target point.

Methodology

The study applied a quantitative and qualitative approach. A survey for professors and students is developed to collect data about what is already applied and what should be applied based on Kasumagić-Kafedžić, & Đuliman, (2024) classification of core thinking skills. A twenty-question survey is applied to professors to know how much they can evaluate their students' thinking skills with other needed skills for the daily life treatment of a researcher. Another thirty-nine-question survey is developed for students to estimate their thinking skills and other

daily life treatment skills in researching. Part two of the students' survey is derived from Arabaci & Ersözlüb ,2010). Both surveys were sent to four professors working in accrediting postgraduate programs to decide the suitability and clarity of items. It was sent to forty-six professors to respond, and thirty-seven students from different universities to respond. Only twenty professors and twenty-seven students responded with complete answers to the surveys. The surveys were developed in a Google form with a brief introduction about the nature of the study and sent to them. The study as a qualitative one represents the transition of students' minds from receptive to active searching. Questions in both surveys are designed to see what perspectives there are in both students' and supervisors' minds about postgraduates and what both are expecting from each other. A review of official rules and regulations is executed to see how they parallel the administrative and professional side. To find out the objective of the study five main questions are formulated as follows:

1. What aspects do students have to develop for doing postgraduate research?
2. What is their perception of a postgraduate researcher's competency?
3. How do they understand the postgraduate researcher's identity?
4. What steps do they take in their postgraduate research?
5. What skills do they have to be ready to do research?

To answer these questions and have a detailed and deep understanding of the topic, the researcher used a set of questions (twenty for supervisors and thirty-nine for students) developed in a questionnaire for the professors and postgraduate students as the instruments of this study (Appendix 1 and 2). Cubukcu (2009, p. 160), stated that a questionnaire is frequently used to measure attitudes and opinions. The questionnaire was set to cover all the aspects of research: planning, monitoring, and evaluating through measuring thinking skills and other skills for daily life treatments of a researcher.

Analysis and Discussion

Postgraduate studies are designed for students who want to gain a deeper understanding of their chosen field, develop their research skills, and advance their career prospects. Postgraduate studies can also provide the opportunity to specialize in a particular area of interest, gain access to more advanced resources and technologies, and develop professional networks. A gap between what is required (research skills) and what is already there is found through my treatment of my students.

Concerning the first question, responses revealed that only 7 of the 30 students answered that they do not know what researching is which means that most of them are supposed to know what researching is but what exactly do they know, and does what they know is the real concept of researching? the responses come like:

St.1 "Yes, I think that the only obstacle that I struggle with is managing my time.

St.2 "Because sometimes instructions are vaguely discussed.

St.3 "Yes, because I don't know what to do, and how to do it.

St.4 "Yes, it's a new stage with new rules that undergraduate student does not know much about

St.5 "Yes, it feels like what I think about is not what is supposed to be done.

In the same vein, they showed that they chose their areas of research only two of them showed that their supervisors chose for them *Yes and No, sometimes the supervisors have*

interests that I as a researcher have to put in mind. Also, sometimes the area is not very popular or is not preferred by the department you study in. The concept of doing research is formulated and connected with the concept of a better life and good job. Few of them are doing postgraduate to develop their knowledge but to develop their professional life. Most of them choose to do research in translation studies and discourse analysis and both areas require excellent knowledge of both languages and updating information about social life at the same time discourse needs their mentality to be able to analyze and synthesize. They do not know that these skills develop from reading and thinking about others' opinions. They also do not recognize that the critical thinking skills they need for doing research are not teachable, but they acquire them through practice reading different genres and seeing how others do the job on their own. They discover their hidden abilities because the way of teaching itself differs from undergraduate as they read and gather information. The problems they face as difficulties in this process vary from lack of time management, and guidance, inability to find appropriate information, Data collection, Statistical Analysis, organizing research material, writing for long hours, and identifying research gaps. All these difficulties are researching skills that should be trained in before starting their jobs. Consequently, they should have some prerequisites to be ready for doing research. This means also that they should be mentally prepared and be taught how to depend on themselves in research.

They should be able to criticize and select between information. 20% of them indicated that they do not read enough thus, their knowledge does not expand, and their style cannot be developed. Likewise, most of them illustrated that they search their topics and find papers by themselves which means the supervisors' guidance is not enough to save time and to be to the point. However, most of them pointed out that they devote specific time to their research process which means that they already have time management and time to do it and set plans. They already know what is required from them. They do not know that they should have skills like organizing, selecting, and writing and they even know they should read more without being conscious of what is happening to their minds and how this happens. Their conception of researching identity is restricted to being excellent in writing, having high grades, or even specialized or having a research interest. Some of them think they can do research "*Because I have the basic knowledge and enough time to conduct research.* They thought that research skills can be taught in undergraduate courses. *Or even "have the material and the willpower." Or "Psychologically prepared "and even learning is a lifelong process I want to know more and contribute to the field.* All that they think are basics for doing research, most of these skills are not needed which means that they do not understand what researching is. They indicated that they know Qualitative research methods, conducting focus group interviews, thematic analysis, content analysis, multimodal discourse analysis, transcribing the data, translating the data in English, Urdu, and Punjabi, drafting research manuscripts, running Turnitin for checking plagiarism, computer skills, Endnote, Descript, editing, and proofreading. Other skills they can do are subskills but not core ones for researching like teamwork and presentation in slides. They know about research skills, as they hear about searching for information and collecting data, but they cannot apply most of them. They know that a researcher should acquire skills like managing time, computer, static analysis, and critical reading but did not execute the process of thinking, focusing, and analyzing. Problems they face are not serious like "finding the

information I need" or "Choosing suitable research design and preparing tools for it"" Lack of access to modern research, supervision lukewarm attitude" and even "Finding Resources and feedback". However, they stated that the most difficult tasks they face are as follows:

1. *Every step one after the other seems difficult.*
2. *Putting the information in the correct order*
3. *Need analysis. Since I need to determine the subjects and carefully select the samples from a population. It is hard because I am afraid, I will select one suitable participants.*
4. *Managing time*
5. *Data collection for quantitative analysis*
6. *Make a stylistic analysis of a poem because I did a lot of searching and reading to do a good one.*
7. *Analyzing some facts and situating them in my literature.*
8. *Lack of access to literature, Literature review, identifying gaps Lack of access by the university because they have not subscribed to, I need to be taken through the process.*
9. *The stage of planning because it's the basis for what is coming next.*
10. *The citation system*

These difficulties are all research skills which means they do not know the tasks included in doing research. They should apply these skills not only know about them or theoretically memorizing facts about researching. Candidates should be evaluated before joining so that they can apply what they think they know or equip themselves with the required skills. Joining postgraduate enabled them to analyze and read critically. They see life differently with more reading. They manage their time, find research gaps, and get more information. They appreciate citations, make references, and attend conferences to see what is up to date in the field. Now they want to explore and enjoy having information and constructing original ones, not as before studying for exams only.

Results and Findings

Results of the surveys reflected that most supervisors agree that students' first step is to read more in their specialization. Even supervisors do not have a specific time to start doing research. However, they have basic steps to be done in research like extensive reading, the ability to go through certain steps even if they are different to complete doing research like defining a gap point writing skills, and the ability to treat and deal with big data. The analysis of the surveys comes as follows:

Supervisors' responses

As for supervisors' responses, most supervisors agree that there are no basic differences in each area of research, however, some fields have specific procedures for data collection and treatment. Every discipline has its tools and methods. It is clear from Table No. (2) that all chi-square values ($\chi 2$) are statistically significant at a significance level of 0.01 (the p-value is more than 0.01) except for statements No. 7, 14, and 20, which are statistically significant at a significance level of 0.05 (the p-value is more than 0.05). This result indicates that supervisors expect that students have some skills to start their jobs. However, supervisors suggest topics for them to help him though they are supposed to know by themselves. supervisors know that they should read to decide the gap and have the sense of defining a problem however, they responded positively to number 8 indicating that students know their research area. Most

supervisors prepare their students by reading and training them on statistics and tools that may be used in their study or writing a summary of what they read. Almost all of them agree on setting plans and scheduling time for their students' meetings to discuss their problems and help solve them.

Table 2: Questions for the supervisors

Questions for the supervisors about students' abilities	Total Sample Size	Chi-square Statistic	Significance
1- Researching in English differs from other areas of research.	20	18.500	0.01
2- My students know the steps of doing postgraduate research.	20	22.500	0.01
3- My students know how to define a problem of a study.	20	18.000	0.01
4- My students have difficulty understanding what is required of them.	20	20.000	0.01
5- My students know how to organize their information	20	13.500	0.01
6- I suggest the research topic to them.	20	17.500	0.01
7- When we discuss their work, they can recall information.	20	10.500	0.05
8- Students can connect and reconstruct information.	20	14.000	0.01
9- I know the difficulties they face in their research work.	20	20.000	0.01
10- Students read a lot in their area.	20	18.500	0.01
11- I set work time for their research work.	20	18.000	0.01
12- They set planes (action planes for their research work.	20	20.000	0.01
13- They can elaborate and represent their information.	20	13.500	0.01
14- They can predict and use new information.	20	17.500	0.05
15- They can classify their information.	20	10.500	0.01
16- I encourage them to do interdisciplinary research.	20	14.000	0.01
17- They know their strengths and weaknesses.	20	20.000	0.01
18- Students always meet the deadline for submitting their work.	20	13.500	0.01
19- They can analyze relations and set arguments.	20	17.500	0.01
20- They responded to my instructions.	20	10.500	0.05

Table 2 summarizes the supervisors' responses to various statements concerning the abilities of postgraduate students in conducting research. The Chi-square statistics reveal significant insights into supervisors' perceptions of students' preparedness and skills. Notably, the majority of responses indicate statistically significant Chi-square values at a significance level of 0.01, indicating a strong consensus among supervisors that students possess certain foundational skills necessary for research, such as the ability to identify research gaps and engage in extensive reading. For example, the significant results for statements such as "My students know the steps of doing postgraduate research" and "Students are expected to have some skills to start their jobs" suggest that supervisors believe students are generally aware of the research process and possess a basic understanding of their field. However, the exceptions

noted in statements No. 7, 14, and 20, they are significant at a 0.05 level. This indicate that supervisors recognize the importance of certain skills, and there may be variability in students' actual competencies in these areas. These findings highlight the need for targeted support and training to bridge any gaps in students' skills, particularly in areas where supervisors feel students may struggle. Overall, the results underscore the critical role of supervisors in guiding students and the importance of fostering a supportive research environment that encourages skill development.

They think students should have "*An open mind; a willingness to challenge language ideologies; curiosity; some statistics;* some *qualitative analysis skills; organization; people/social skills; common sense helps a lot;* patience. The students also should have Scientific thinking skills and the ability to analyze the results and interpret them". Some supervisors added that students should have "*the methodology of scientific research and methods of writing and scientific publishing - statistical analysis - computer science*" as basics to do postgraduate studies. Concerning the difficulties students face, most of the supervisors agree that they may have some difficulties due to the lack of preparing them in the undergraduate and training them "*fit to shock them out of the memorizing mindset into the researcher mindset".* This is the core point for the study to prove. Students study and learn in an undergraduate stage in a certain way and they are required to do another job in the postgraduate stage. They should be trained in certain skills to adapt searching and analyzing or even selecting what to write and what to read. Mostly, all supervisors stated that they suggested some points to students and gave some topics with keywords to search and start with.

Some essential skills that should occur are:

1. Time management as perfecting time management skills is probably one of the most important aspects of postgraduate study. Part of this process involves understanding when and where one should work more effectively.
2. They should care about a lot of details, and they should also take notes for a lot of things should be organized and ideas should be developed in a specific way.
3. Excessive reading is a must during this time, and they should utilize all resources available to them.
4. Although it differs fundamentally from the more didactic, less "personal" and more "short-term" teaching approach often adopted in larger-scale undergraduate and postgraduate taught courses, at the heart of supervision is pedagogy.

In response to the question of why students make postgraduate some of them agree with the vision of students that *"… not knowing what to do after university; lack of jobs after university; passion for academia and the subject; parents' expectations. It's a long list of reasons…Some of them just consume time as they have not found a job yet, some of them take it to* enhance *their work position, and a few of them are passionate about research. or to complete their studies and advance in their jobs or employment.* This means that supervisors understand well the reasons behind doing research and at the same time these reasons have nothing to do with doing research and the real identity or skills needed to do it. Most of the students' problems in research, as indicated by supervisors, are skills related to dealing with references and abilities to write a well-developed thesis and "*their mindset or "How to review scholars' past work".* This means that their background knowledge is not what they are

expected to be, or their way of thinking is not what is required in doing research. Supervisors stated that students should have certain skills and pass some courses that enable them to have basic and good knowledge about methodologies and tools of research. They should read and think differently, not like before. They should read resources about scientific research techniques. This means that they are to be mentally reformulated to see themselves not as students receiving data but as students constructing data according to a certain vision. Students must learn how to originate ideas and not copy others for now they will be copied soon. They are going to be copied without mentioning their names too which means they must understand that doing research is inserting their names among the previous scientists to be mentioned in others' writing. It is not a matter of honesty but a matter of building their position and name in research- a matter of research ethics. Critical thinking skills may be trained to improve but they are not teachable.

Almost all supervisors agree that interdisciplinary research is highly recommended for students, and students should define their strengths and weaknesses. More interest should be directed to providing postgraduates with tools required for having their research done, either in the form of software or whatever. Thus, concerning students' aspects and how to develop them, Postgraduate research requires students to develop a range of skills, including 1. Research and analytical skills as students must be able to identify and analyze relevant sources of information, critically evaluate data, and draw meaningful conclusions. 2. Writing and communication skills for students must be able to communicate their research findings effectively in a written form. This includes the ability to write clear, concise reports and papers that are well-structured and logically organized. 3. Problem-solving skills as students must be able to identify problems, develop solutions, and implement them promptly. 4. Time management skills for researching require students to manage their time efficiently to meet deadlines and complete tasks on time. 5. Interpersonal skills for researchers often involve working with other researchers or supervisors, so students need to have strong interpersonal skills to collaborate effectively with others. The following statements may form a general farmwork and specific steps that may guide students in their journey and where to start.

1. *Having sound background knowledge of the area in which students want to pursue their postgraduate research.*
2. *Extensive reading in their specialization to know what is new and where the research gaps are. Then, the decision on what to work on should be made. More reading on the specific topic to formulate a well-thought-out research question, maybe more, and then the writing of the proposal.*
3. *Adequate knowledge of the research area*
4. *Reading- collecting substance- organizing the collected substance- making statistics if wanted- writing documented articles- reviewing- publishing.*
5. *Topic selection Research Gap Literature Review Conceptual Framework Theory building Hypothesis development Methodology Questionnaire Sampling Analysis Results/discussion Future research.*
6. *Choose the topic, search in the review of literature for similar research, and start to write the protocol.*
7. *Review of the literature, methodology, and works of art.*

8. *Research interest, application to the program, awareness of the distinction between discipline, topic, and issue*
9. *This question is very broad and difficult to answer, but I would consider these steps: coursework, research assistantship training, assisting others in lab, community, and classroom research contexts, assisting in participant recruitment and data collection, assisting in bibliographies and literature reviews, assisting in data analysis, and then completing a course research proposal and ultimately a full study on their own.*
10. *First, identifying a problematic gap that needs bridging. Second, collecting data is required. Third, having the appropriate theoretical framework. Fourth, indulging in data analysis using the tools settled upon earlier. Finally, come to some results and findings.*
11. *Choosing a topic, collecting data, writing a paper, refereeing*
12. *selection of area of research, of a topic, supervisor, and department then a collection of material then examination writing and editing*
13. *Read, specify research question, read, Gap analysis, read, new possible contribution, read, apply, test, result analysis, enhance, write the research work, publish it.*

Students Responses

Postgraduate researchers are expected to demonstrate a high level of competency in their field of study. This includes having a deep understanding of the research topic, being able to effectively communicate their findings, and having the ability to think critically and solve complex problems. Postgraduate researchers should also be able to work independently and collaboratively with other researchers to produce meaningful results.

From a student's perspective, the most important aspects of a college or university are the quality of the academic programs, the availability of financial aid, the campus environment, and the support services offered. Quality academic programs are essential for students to gain the knowledge and skills they need to succeed in their chosen field. Financial aid is important for students who may not be able to afford tuition and other associated costs. The campus environment should be safe and welcoming, with plenty of opportunities for socializing and extracurricular activities. Finally, support services such as counseling, career guidance, and health services should be available to help students succeed academically and personally. Table (3) presents the results of the survey conducted with postgraduate students regarding their self-assessed thinking skills and abilities related to research. The Chi-square statistics indicate varying levels of confidence among students in their capabilities, with several statements achieving statistical significance at the 0.01 level. This suggests that students generally feel competent in key areas essential for successful research, such as defining a problem, gathering information, and classifying their ideas.

For instance, the significant Chi-square values for statements like "I know how to define a problem" and "I can classify my ideas, information, and tasks" indicate that students possess a foundational understanding of critical thinking skills necessary for research. However, significant results at the 0.05 level for statements such as "I have difficulty understanding what

is required of me" suggests that some students may struggle with clarity regarding research expectations, highlighting an area where additional support may be beneficial. Moreover, the responses to statements regarding the ability to connect and combine information, as well as to infer new ideas, reflect a positive self-assessment among students, besides confidence in their analytical skills. However, the variability in responses across different statements points to the need for targeted interventions to enhance specific skills, particularly in areas where students express uncertainty or difficulty.

So, findings from Table (3) underscore the importance of fostering critical thinking and research skills among postgraduate students, as well as the necessity for clear communication of research expectations to support their academic success.

Table 3: Questions for Students about doing PGS.

Questions for students Part one: about thinking skills	Total Sample Size	Chi-square Statistic	Significance
1- I know how to define a problem.	27	10.963	0.05
2- I have difficulty understanding what is required of me.	27	9.481	0.05
3- I can focus on gathering information.	27	14.296	0.01
4- I choose my research topic myself.	27	10.593	0.05
5- I always have questions while reading.	27	12.074	0.05
6- I can classify my ideas, information, and tasks.	27	23. 185	0.01
7- I have difficulties encoding my information.	27	14.296	0.01
8- I read a lot in my area. (papers/dissertations/ thesis/general)	27	12.074	0.05
9- I set work time for my research work.	27	10.593	0.05
10- I set planes (action planes for your research work.	27	12.074	0.05
11- I can connect and combine my information.	27	18.896	0.01
12- I reconstruct my information and highlight the meaning	27	14.296	0.01
13- I can infer new ideas and information	27	23. 185	0.01
14- I can elaborate and represent my information	27	12.074	0.05
15- I can analyze relations and patterns of information	27	10.593	0.05

Concerning part one of the students' survey, Table (3) indicates that almost all chi-square values ($\chi 2$) are statistically significant at a significance level of 0.05 (the p-value is more than 0.05) except for statements No. 3, 6,7,11,12, and 13, which are statistically significant at a significance level of 0.01 (the p-value is more than 0.01). Students' answers reflect that they lack some thinking skills required for research. They cannot focus on the data required, especially with the big data available through the internet and web browsers. They find it difficult to classify and order their ideas and information. They cannot combine and find relations between text and their problem. While searching and reading they cannot infer new ideas unless they discuss them with their supervisors. Whereas, during searching they recorded

a lot of questions to ask their professors which is a base for building arguments and analytical background about their ideas. Their reading is free, and they start to know how to select and create folders for each idea supporting their readings from papers and eliciting relations between them. They now focus on reading a text that summarizes and concentrates in a partition called abstract through which they can understand, estimate, and select a paper or dissertation for complete reading and find a connection to utilize it in the research.

Table 4 outlines the responses from postgraduate students concerning their self-reported thinking skills and competencies related to research activities. The Chi-square statistics reveal significant insights into students' perceptions of their abilities, with many statements achieving statistical significance at the 0.01 level. This indicates a strong consensus among students regarding their confidence in various critical thinking skills essential for effective research. For example, the significant Chi-square values for statements such as "I can focus on gathering information" and "I can analyze relations and patterns of information" suggest that students feel equipped to engage in the research process actively. These findings highlight the importance of information gathering and analytical skills, which are crucial for synthesizing data and drawing meaningful conclusions. However, the responses also indicate areas of concern, particularly with statements like "I have difficulty understanding what is required of me," which achieved significance at the 0.05 level. This suggests that some students may lack clarity regarding research expectations, pointing to a potential gap in communication or guidance from supervisors or academic programs. Additionally, the significant results for statements related to the ability to classify ideas and reconstruct information underscore the importance of these skills in the research process. Students' confidence in their ability to connect and combine information further emphasizes their engagement with the material and their capacity for critical thinking. So, Table 4 highlights the strengths and weaknesses in students' self-assessment of their thinking skills. They underscore the need for ongoing support and resources to enhance students' understanding of research requirements and to further develop their critical thinking abilities, ultimately contributing to their success in postgraduate studies.

Table 4: Questions for Students about their supervisor's entity

Questions for students Part two: about their supervisor's entity	Total Sample Size	Chi-square Statistic	Significance
1- s/he adopts a friendly approach towards me.	27	9.481	0.05
2- s/he Spends time helping me improve my academic skills.	27	10.593	0.05
3- s/he guides me in all research steps.	27	12.074	0.05
4- s/he is my greatest supporter in my work.	27	10.593	0.05
5- s/he guides me effectively in my work.	27	23. 185	0.01
6- s/he always encourages me about my work.	27	12.074	0.05
7- s/he is my greatest helper in my improvement.	27	12.015	0.05
8- s/he sets an exemplary model for me.	27	18.896	0.01
9- s/he evaluate my work objectively.	27	10.593	0.05
10- s/he always praises the improvement in my performance.	27	12.074	0.05
11- s/he helps me gain skills in my field.	27	14.729	0.01
12- s/he tends to establish good relations with me.	27	13.341	0.01
13- s/he spends enough time with me.	27	18.896	0.01
14- s/he forwards me to people I can get help from.	27	12.074	0.05
15- s/he makes me do his personal work.	27	10.593	0.05
16- s/he leads the way for me to benefit from opportunities.	27	13.081	0.01
17- s/he regularly gives feedback on my performance.	27	10.593	0.05
18- s/he shares his experiences with me.	27	14.626	0.01
19- s/he helps me expand my vision and establish goals.	27	12.074	0.05
20- s/he mentors me in my personal problems.	27	13.800	0.01
21- s/he spends effort to enable me to improve my skills.	27	13.341	0.01
22- s/he provides positive and constructive criticism.	27	18.896	0.01
23- I do not like to talk about my problems with my supervisor	27	13.800	0.01
24- I am very glad to be working with my supervisor.	27	13.341	0.01

Table (4) is about supervision and the professor's personality which is a core point in research. The table reflects that a lot of students responded positively to the items which makes chi-square values ($\chi 2$) statistically significant at a significance level of 0.01 (the p-value is more than 0.01) except for statements and the other half are statistically significant at a significance level of 0.05 (the p-value is more than 0.05). Maybe this response is an outcome of personal relations with the supervisor. This part deals with the responsibilities of supervisors. S/he is always a helper, gives feedback, expands vision, and pushes forward encouraging. Students at

the same time need some friendly sense where they can talk about their personal life and receive pieces of advice from whom they consider the ideal character in life.

Postgraduate studies competence is generally viewed as an asset in the job market. Employers recognize that postgraduate studies demonstrate a commitment to professional development and an ability to think critically and analytically. Postgraduate studies can also provide specialized knowledge and skills that apply to many different industries, making graduates with postgraduate qualifications more attractive to employers. More is added about using online teaching with them as another side of having or doing their studies. From the professor's perspective, teaching online can be a great way to reach a larger audience and provide more flexibility for students. It can also help professors save time by not having to travel to and from campus for lectures or office hours. Additionally, online courses can be more engaging for students since they can interact with their peers and the professor in Realtime. Finally, online courses provide an opportunity for both to experiment with different teaching methods and technologies that may not be available in a traditional classroom setting.

The postgraduate researcher identity is a complex one, and how students understand it depends on their individual experiences. Researchers are expected to be highly motivated, independent learners who can conduct research in a specific field. They should have the ability to think critically and analytically, as well as the capacity to communicate their findings effectively. Postgraduate researchers should also be able to work collaboratively with other researchers and academics to further their research goals. Ultimately, postgraduate researchers should strive to become experts in their chosen field and contribute meaningfully to the body of knowledge in that area.

Professors understand the postgraduate researcher's identity in a variety of ways. They may view postgraduate researchers as highly motivated, independent learners who are eager to explore new topics and develop their research skills. They may also recognize researchers as individuals who are committed to their studies and have a strong desire to contribute to the academic community. Professors may also appreciate the unique perspective that researchers bring to their research projects, as well as their ability to think critically and creatively about complex topics. The suggested fixed steps to do research are as follows. 1. Develop a research question: Students should develop a research question that is interesting, relevant, and feasible to answer. 2. Conduct literature review: Students should conduct a thorough literature review to gain an understanding of the current state of knowledge on the topic. 3. Design research methodology: Students should design a research methodology that will allow them to answer their research question ethically and effectively. 4. Collect data: Students should collect data using the methods they have designed to answer their research questions. 5. Analyze data: Students should analyze the data they have collected to conclude their research question. 6. Write-up results: Students should write up their results clearly and concisely so that others can understand their findings and draw their conclusions from them. 7. Present results: Students should present their results at conferences or other venues so that others can learn from their work and build upon it for future studies.

To sum up, the study aimed to explore the perceptions of both postgraduate students and their supervisors regarding the essential skills and competencies required for successful

research. To address the research questions, a multi-methods approach is employed, utilizing quantitative surveys to gather data from students and supervisors.

- **As for question one: What aspects do students have to develop for doing postgraduate research?** The findings indicated that students recognized the need to enhance their critical thinking and analytical skills, particularly in organizing and synthesizing information from diverse sources. Many students expressed a desire for more structured guidance in these areas.
- **As for the second question: What is their perception of a postgraduate researcher's competency?** Both students and supervisors generally agreed on the core competencies required for research, such as problem definition and data analysis. However, students often felt less confident in their abilities compared to supervisors' expectations, highlighting a potential gap in self-assessment.
- **Concerning the question: How do they understand the postgraduate researcher's identity?** The responses revealed that students view themselves as emerging researchers but often struggle with the transition from theoretical knowledge to practical application. This suggests a need for more experiential learning opportunities.
- **For question four: What steps do they take in their postgraduate research?** The analysis showed that while students are aware of the research process, they often lack clarity on specific steps, such as formulating research questions and conducting literature reviews. This indicates a need for clearer communication of research expectations from supervisors.
- **Finally for question five: What skills do they have to be ready to do research?** The results highlighted that students felt equipped with foundational skills but identified significant areas for improvement, particularly in critical thinking and data management. Supervisors emphasized the importance of mentorship in developing these skills.

By triangulating the data from both groups, the study provided a comprehensive understanding of the dynamics between student capabilities and supervisory support, ultimately informing recommendations for enhancing postgraduate education and research training.

Conclusion and Recommendations

Finally, both visions about postgraduate and why there are some problems with both sides, are clear. Supervisors need students to have a mindset with certain skills and students need to be guided or enlightened with the requirements of the new stage they are trying. They need to know that it is not just studying for exams, it is more than a way of presenting what they know. It is a fully constructed new knowledge database and how to process it. They must read behind words written by other previous researchers, and they need to think critically about what to write and even what words are used to form ideas in their minds and the readers of their work minds as well. So, the development of students' cognitive skills in postgraduate studies is dependent on the quality of teaching and learning activities. Quality teaching and learning activities should be designed to challenge students to think critically, analyze complex problems, and apply knowledge to real-world situations. This can be achieved through active learning strategies such as problem-based learning, case studies, simulations, and group work. Additionally, providing students with feedback on their performance and progress can help them identify areas for improvement and develop their cognitive skills.

It can be concluded that developing cognitive skills in postgraduate students is crucial for their success. So, the following few suggestions could be helpful. First, critical thinking should be encouraged about the material students are studying. This can be done by asking them to analyze and evaluate different perspectives, arguments, and theories. Second, problem-solving as an essential skill for postgraduate students should be focused on. Students should be given opportunities to solve complex problems related to their field of study. They should have opportunities for research to develop cognitive skills such as analysis, synthesis, and evaluation. Postgraduate students should be given opportunities to conduct research in their field of study. Third, creativity as an important aspect of cognitive development should be fostered. Postgraduate students should be encouraged to think creatively and come up with innovative solutions to problems. Fourth, technology can be used to enhance cognitive development in postgraduate students and cannot be avoided. For example, online simulations and virtual labs can provide hands-on experience and help develop problem-solving skills. Thus, developing cognitive skills in postgraduate students requires a combination of teaching methods, practical experience, and exposure to new ideas and technologies. While the study offers important insights, it may be limited by its sample size and the specific context in which it was conducted. Further research with a larger and more diverse sample could strengthen the findings and provide a broader understanding of the challenges faced by postgraduate students.

To effectively support their postgraduate students, supervisors should adopt a proactive and structured approach to mentorship. First, they should establish regular, scheduled meetings to discuss research progress, set clear expectations, and address any challenges the student may be facing. During these meetings, supervisors should provide constructive feedback that is specific, actionable, and focused on both the strengths and areas for improvement in the student's work. Additionally, fostering a collaborative research environment is crucial; supervisors can encourage students to engage in peer discussions, participate in research groups, and attend academic conferences to enhance their learning experience. Providing resources such as workshops on research methodologies, critical thinking, and academic writing can further empower students. Lastly, supervisors should remain approachable and supportive, creating an atmosphere where students feel comfortable seeking guidance and sharing their concerns, thus promoting a positive and productive research journey. To enhance critical thinking, students could be guided to participate in debates or discussions that require them to evaluate and defend various viewpoints on relevant research topics. In the realm of data analysis, providing hands-on training sessions with statistical tools and software would enable students to gain practical experience in interpreting and manipulating data. Furthermore, incorporating case studies that showcase effective research designs helps students understand the intricacies of developing their research projects.

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