Preparedness of Postgraduate Students to Conduct Educational Research: Insights from a Ghanaian Public University

Joseph Baidoo* & Rebecca Tetteh

Department of Basic/Early Childhood Education, University of Education, Winneba, Ghana

ABSTRACT

This study investigated the perceived knowledge and self-efficacy of postgraduate students regarding educational research. Employing a quantitative approach, a survey was conducted using all 61 postgraduate students from two departments in a public university in Ghana. The data collected was analyzed using mean and standard deviation, simple frequency counts and percentages. The results of the study revealed that generally postgraduate students in the two department were satisfied with the research course taken (M=2.5, SD=0.82). Again, it was found that postgraduate students' level of perceived research knowledge was moderate (M=2.5, SD=0.82). However, their overall level of self-efficacy concerning the conduct of research was found to be generally low (M=2.4, SD=0.78). Suggestions were offered by the students, including the need to make research teaching more practical. Based on these findings, it is recommended for the Departments and University's branch of GRASAG to tailor their weekly and monthly seminars to address the research needs of its postgraduate students.

Keywords: perceived knowledge, self-efficacy, educational research, postgraduate students, preparedness.

INTRODUCTION

Research is one essential and fundamental area considered in judging the quality of higher institution of learning. Its importance is manifested in diverse aspect of our lives. It informs key decision-making, policy implementation of every developed country. Similarly, in terms of the assessment and accreditation of programs in institution of higher learning, research plays a key role. It is therefore not surprising that research has become a major indicator in measuring the academic achievement and excellence of universities across the globe [1]. Therefore, there cannot be any significant development of any country if the efficacy of high-quality research is overlooked.

Among the fields where high-quality research is harnessed is postgraduate education. Postgraduate education aims to promote higher academic productivity of students to overcome the limitations of undergraduate education [2]. In Western contexts, prospective students are admitted based on their ability to present a convincing research proposal to supervisors, showcasing the significance of their intended research field. In Ghana, like many other countries, postgraduate programs are primarily research-based. Thus, great importance is placed on the role of postgraduate students as researchers.

Yet research shows that postgraduates face various challenges with research including a declining knowledge of research [3], low research self-efficacy [4] and difficulties with research methodology courses taken [5]. In the context of this study, the researchers observed concerns raised by postgraduate students during faculty-level town hall meetings, expressing their dissatisfaction and ill-preparedness for their final year research work. Through these meetings, the researchers noted the persistence and prevalence of these issues, particularly within the two spotlighted departments. This necessitated further investigation to explore and address these concerns. However, studies show that adequate research knowledge is essential for navigating the research process successfully, including proficiency in research methods, statistics, measurement, and data processing [6]. Furthermore, research self-efficacy has been found to foster students research interest and academic performance [7].

Though various studies have been conducted into the problem yet these have focused on non-Ghanaian context in areas including research knowledge, confidence, skills, attitudes, knowledge and challenges (e.g, [2]). In Ghana, studies were skewed towards postgraduates' digital literacy, use of library resources, funding of programs as well as perception on distant education (e.g., [8]). With this particular public University in context, studies have been on LMS, technology and PG research knowledge and skills in normality test (e.g, [9]). Again, none of the studies from accessible literature and to the best of the researchers' knowledge looked at the problem based on research knowledge and self-efficacy of postgraduates in the context of this particular university.

Therefore, the limited studies conducted in Ghana, the non-existence of such a study within this prestigious institution renowned for cultivating top-notch researchers in Ghana coupled with the persistent concerns expressed by postgraduate students in some departments, called for this study. Specifically, the study examined the preparedness of postgraduate students to engage in educational research by virtue of their satisfaction with the research methodology course taken, their perceived knowledge and self-efficacy in the realm of educational research.

RELATED WORKS

A. Theoretical Framework

This study draws on the Social Cognitive Theory, originally proposed in 1960 and redefined in 1986 by Albert Bandura, to understand how postgraduate students' self-efficacy beliefs in educational research influence their involvement, persistence, and achievements in conducting research. The theory allowed the study to examine how these self-efficacy beliefs are shaped by factors like prior experiences, interactions with peers and mentors, and exposure to research-related activities.

B. Empirical Studies

Several studies have been conducted to investigate postgraduate students' knowledge, skills, and self-efficacy in research. In one study, the researchers explored the research skills acquisition among graduate students in universities in Cross River State, Nigeria [10]. The study, based on a survey design, involved 3018 graduate students from two universities. The findings indicated that graduate students had low research skills acquisition, with the highest skills observed in reading, oral presentation/communication, and information gathering, while analysis skills were found to be the least developed. The study recommended the inclusion of more research-oriented activities to enhance research skill acquisition among graduate students for their holistic development.

Another study measured the research knowledge and skills of a random sample of postgraduate students from the University of Kebangsaan Malaysia [11]. The study involved 529 respondents who completed a questionnaire assessing research outcomes. The findings indicated that graduates, in general, had moderate knowledge and competencies to conduct research. However, the study highlighted the need for further enhancement of research training to produce highly knowledgeable and skillful researchers in their respective fields of specialization.

Similarly, researchers have investigated the research competence needs of postgraduate students in science, technology, engineering, and mathematics (STEM) education, specifically in research writing in Nigerian universities [12]. The study, which adopted a descriptive survey research design, involved 372 respondents (222 master's and 150 PhD students) from nine universities in southeastern Nigeria. The findings revealed that while postgraduate students had knowledge of research writing, they lacked the skills needed to carry it out effectively.

Additionally, one of such studies examined the attitudes of postgraduate students towards research [13]. The study involved 75 subjects from various faculties, with 25 subjects randomly selected from each faculty. The results showed that postgraduate students predominantly exhibited a negative attitude towards research. The

study also found variations in research attitudes among different groups of students, with management students displaying the lowest attitude scores.

It can be observed that researchers from various contexts, including non-Ghanaian settings, have shown an interest in exploring postgraduate students' knowledge, skills, and self-efficacy in research.

METHODOLOGY

The study used a descriptive cross-sectional survey as its design. The survey is one of the quantitative designs guided by the positivist paradigm. In this study, the researchers employing a census sampling, administered questionnaires to all 61 postgraduate students in the two selected departments to assess their perceived knowledge and self-efficacy beliefs regarding educational research.

Data was collected during the second term of the 2023/2024 academic year, focusing on the cohort of postgraduate students available on campus during that period. A structured questionnaire made of four sections that required the students to rate their responses on a four-point scale of 1-strongly disagree, 2-disagree, 3-agree and 4-strongly agree.   was used. The instrument was validated and fine-tuned by an expert research lecturer. Also, items measuring each of the constructs were carefully adapted from empirical studies.

RESULTS

Table 1: Demographic Information of Respondents

Variables		Frequency	Percent
Department of Respondents	Department A	37	61
	Department B	24	39
	Total	**61**	**100**
Age of Participants	20-30 Years	30	49
	31-40 Years	22	36
	41-50 Years	9	15
	Total	**61**	**100**
Gender of Participants	Male	25	41
	Female	36	59
	Total	**61**	**100**

(Source: Field data, 2023)

Table 1 reveals that the study comprised of sixty-one postgraduate students sampled from two different departments, A and B. 37 came from department A and the remaining 24 from Department B. The majority of the sample (49%) were aged 30 to 40 years, while more females (59%) than males were involved in the study. It could be implied from the age group that the cohort of postgraduates enrolled in these two departments were a very energetic and youthful population. Further, it could be said that more females are gradually showing interest in furthering their education at the postgraduate level than males for the cohort of students enrolled in postgraduate education in the chosen departments of the study.

C. Research Question 1

What is the level of satisfaction among postgraduate students regarding the educational research courses they have studied?

In addressing this research question, eight statements were provided for respondents to rate their level of agreement of disagreement with each statement. The responses were hinged on a four-point Likert scale questionnaire of 1= Strongly Disagree (SD), 2= Disagree (D), 3=Agree (A) and 4=Strongly Agree (SA) hence the following scale was used to rate their level of agreement or disagreement;

Scale	Interpretation	Level of Satisfaction
1.0 – 2.4	Disagree	Unsatisfied
2.5 – 3.4	Agree	Moderately Satisfied
3.5 – 4.0	Strongly Agree	Very Satisfied

The data is summarized as follows;

Table 2: Satisfaction with Research Course Taken

S/N	Statement	Mean	Standard Deviation
1	The research courses I have read met my expectations.	2.5	0.80
2	I am satisfied with the quality of the research courses.	2.5	0.76
3	I found the content covered to be relevant and useful.	2.8	0.62
4	The teaching methods used were effective for my learning.	2.5	0.87
5	I feel confident in applying the knowledge and skills gained.	2.3	0.91
6	The research courses have enhanced my understanding of research methodologies.	2.5	0.87
7	I believe the research courses have adequately prepared me for conducting research in my field.	2.3	0.87
8	The research courses have increased my interest and passion for conducting research.	2.5	0.89
	Overall	**2.5**	**0.82**

(Source: Field data, 2023)

The results on Table 2 revealed that generally postgraduate students in the two department were moderately satisfied with the research course taken (M=2.5, SD=0.82). A breakdown of the response shows that the postgraduate students felt the research course taken met their expectation (M=2.5, SD=0.80) and that they were

satisfied with the quality of the research course (M=2.5, SD=0.76), thereby finding the content covered in the course as useful and relevant (M=2.8, SD=0.62). Similarly, they perceived the methods of course instruction as effective for their learning (M=2.5, SD=0.87), while believing that their understanding of research methodologies was enhanced by the course taken (M=2.5, SD=0.87), thereby sparking their passion and interest for conducting research (M=2.5, SD=0.89). The high mean and low standard (M=2.8, SD= 0.62) suggest that the majority of the postgraduate students were in favor of the assertion that the content of the research course taken were actually relevant and useful and that their responses were more clustered. On the contrary, the postgraduates expressed disagreement with the assertion that the research course had adequately prepared them for field research (M=2.3, SD=0.87) as well as the course imbibing in them the confidence to apply the knowledge gained in conducting research (M=2.5, SD=0.82). It is evident from the findings that though the postgraduates in these department were moderately satisfied with the contents of the research course taken, yet they still had some reservations about their ability and confidence to use the knowledge gained on the actual field of research activity.

It is therefore not surprising that the majority (51%) reported that their unwillingness to recommended the research course read to other prospective postgraduate students as found in table 3 as follows;

Table 3: Overall Satisfaction with Research Course Taken

Overall Satisfaction with Research Course	Yes (%)	No (%)	Interpretation
Overall, I would recommend the research courses taken to other postgraduate students	30 (49)	31(51)	**No**

(Source: Field data, 2023)

The results in Table 3 highlight a key aspect of the perception of postgraduate students with regards to their satisfaction with the research course taken in the two department. It further implies that generally the students were at the crossroad as to their satisfaction with the research course taken. While 30 (49%) were ready to sell out the research course taken to other postgraduates, 31(51%) were not. A similar finding was obtained by Murtonen and Lehtinen (as cited in [14]) where postgraduate students in social science and education programs often struggle to attain the desired learning outcomes in research methodology courses. The study reported of how postgraduate students face challenges in acquiring statistical knowledge for research purposes as well as a general difficulty in understanding research methodology courses. This has implications for the departments as it emphasizes the need for a re-look at the research course, its teaching and learning in general to address the need of the concerned students.

D. Research Question 2

To what extent do postgraduate students perceive their knowledge in educational research as adequate to conduct research activities?

To answer this research question, 20 items were formulated and rated on a four-point Likert scale questionnaire of 1= Strongly Disagree (SD), 2= Disagree (D), 3=Agree (A) and 4=Strongly Agree (SA) hence the following scale was used to rate their level of agreement or disagreement in relation to their perceived knowledge of research. The table is shown as follows;

Scale	Interpretation	Level of Knowledge
1.0 – 2.4	Disagree	low
2.5 – 3.4	Agree	Moderate
3.5 – 4.0	Strongly Agree	High

The responses from the questionnaire on postgraduate students perceived knowledge as adequate for conducting research are summarized on table 3 as follows;

Table 4: Postgraduate Students Perceive Knowledge of Educational Research

S/N	Statement	Mean	Standard Deviation
	I know how to…….		
1	Write statement of the problem	3.0	0.59
2	Formulate research objectives	3.0	0.58
3	Formulate research questions / hypotheses	2.8	0.65
4	State the significance of the study	2.9	0.76
5	Review literature and summarize the content	2.5	0.83
6	Analyse the literature and draw gaps for my study	2.4	0.86
7	Identify relevant theory/s that applies to my study	2.4	0.86
8	Develop conceptual model/framework for my study	2.3	0.89
9	Choose the right research approach (quantitative/qualitative/mixed)	2.5	0.91
10	Identify the research paradigm that applies	2.6	0.89
11	Identify research design to use in my study	2.5	0.92
12	Write about the study area/setting of my study	2.5	0.87
13	Identify accessible, target and sample population	2.6	0.92
14	Choose and justify the right sampling technique	2.5	0.85
15	Choose the right research instrument for my study	2.6	0.87
16	Establish the validity and reliability of my instrument	2.5	0.81
17	Write about ethics in research	2.4	0.87
18	Reference my citations in APA style	2.4	0.91
19	Use statistical tool for my data analysis	2.2	0.80
20	Interpret results from the data analysis	2.2	0.84
	Overall	**2.5**	**0.82**

(Source: Field data, 2023)

The data on Table 4 revealed that the postgraduates perceived their level of research knowledge needed to adequately conduct research activities as moderate (M=2.5, SD=0.82). With the exception of their knowledge of analyzing literature and drawing gaps for their study (M=2.4, SD=0.86), identifying relevant theory that applies to their study (M=2.4, SD=0.86), developing conceptual model/framework for their study (M=2.3, SD=0.89), writing about ethics (M=2.4, SD=0.87), referencing in APA (M=2.4, SD=0.91), using a statistical tool to analyse data (M=2.2, SD=0.80), and analyzing and interpreting results (M=2.2, SD=0.84) that was reported as low (1.0<M<2.5), all other key aspect of their research proposal/thesis were rated as having a moderate knowledge of research. Again, it was evident from the data that postgraduate students exhibited a better knowledge of how to write statement of the problem and to formulate research objectives as the means were the highest with a low standard deviation. On the contrary, using a statistical tool to analyze data and to interpret the results from the analyzed data were the areas postgraduate students exhibited a very low level of knowledge as indicated by the smallest value of attained mean with high standard deviation.

The data further revealed that in terms of the five chapters of thesis writing as established and used by most tertiary universities in Ghana, postgraduate students in the study were moderately knowledgeable about chapter one (introduction) and some aspects of chapter three (methodology) and chapter five (Conclusion and Recommendations). Low level of knowledge was identified with the Chapter two and four as well as in referencing of the entire research work.

It is possible that the challenges identified with these key chapters (2, 4 and references) might have influenced the rating of their overall perception of their knowledge in research to be insufficient for conducting research activities as shown in table 6 as follows;

Table 5: Overall Perceived Sufficiency of Research Knowledge

Overall perceived knowledge	Yes (%)	No (%)	Interpretation
Overall, I perceive my knowledge in research to be sufficient for conducting research activities	16[26]	45[74]	**No**

(Source: Field data, 2023)

The data in Table 5 reveals that generally postgraduates perceived their knowledge as inadequate to allow for high quality research activity. On this note 74% felt they did not have the pre-requisite knowledge of research needed to conduct education research. This confirms the research findings of another study [11], which indicated that postgraduates, in general, had moderate knowledge and competencies to conduct research.

E. Research Question 3

What is the level of self-efficacy among postgraduate students regarding their confidence and belief in their abilities to conduct educational research?

To address this research question, 25 items were formulated and rated on a four-point Likert scale questionnaire of 1= Strongly Disagree (SD), 2= Disagree (D), 3=Agree (A) and 4=Strongly Agree (SA) hence the following scale was used to rate their level of agreement or disagreement in relation to their self-efficacy of research. The table is shown as follows;

Scale	Interpretation	Level of Self-Efficacy
1.0 – 2.4	Disagree	low
2.5 – 3.4	Agree	Moderate
3.5 – 4.0	Strongly Agree	High

Table 6: Research Self-efficacy

S/N	Statement	Mean	Standard Deviation
I can confidently …………			
1	Write my thesis proposal	2.2	0.70
2	Write an abstract for my study	2.2	0.78
3	Develop background to the study	2.7	0.68
4	State a research problem	2.8	0.72
5	Write the purpose of my study	2.8	0.59
6	Formulate research objectives for my study	2.8	0.70
7	Formulate research questions/hypotheses	2.7	0.68
8	Write significance of the study	2.8	0.81
9	Review literature and summarize the content	2.2	0.82
10	Analyse the literature and draw gaps for my study	2.3	0.79
11	Identify relevant theory/s that best explain my study	2.5	0.72
12	Develop conceptual model/framework for my study	2.4	0.86
13	Choose the right research approach (quantitative/qualitative/mixed)	2.3	0.72
14	Identify the research paradigm applicable to my study	2.5	0.87
15	Identify research design to use in my study	2.3	0.81
16	Write about the study area/setting of my study	2.5	0.93
17	Identify accessible, target and sample population	2.5	0.80
18	Choose and justify the right sampling technique	2.5	0.95
19	Choose the right research instrument for my study	2.4	0.84
20	Establish the validity and reliability of my instrument	2.3	0.87
21	Write about ethics in research	2.2	0.79
22	Reference my citations in APA style	2.3	0.87
23	Use statistical tool for my data analysis	2.0	0.70
24	Interpret results from the data analysis	2.0	0.80

25	Communicate my research findings effectively	2.1	0.76
	Overall	**2.4**	**0.78**

(Source: Field data, 2023)

From Table 6, it was found that the level of self-efficacy among postgraduate students regarding their confidence and belief in their abilities to conduct educational research was generally low (M=2.4, SD=0.78). With the exception of developing background to the study (M=2.7, SD=0.68), stating research problem (M=2.8, SD=0.72), purpose of the study (M=2.8, SD=0.59), research objectives (M=2.8, SD=0.70), research questions/hypothesis (M=2.7, SD=0.68), writing significance of the study (M=2.8, SD=0.81), identifying theoretical frameworks (M=2.5, SD=0.72) and research paradigm (M=2.5, SD=0.87), writing about study area (M=2.5, SD=0.93), identifying target, accessible and sample population (M=2.5, SD=0.80) and choosing and justifying appropriate sampling technique (M=2.5, SD=0.95), in which the attained mean indicated a moderate level of research self-efficacy, all other aspect of the research thesis revealed a low level of self-efficacy in terms of the confidence in their own ability to practicalize their knowledge into actual writing. In all, 15 out of 25 aspects were rated as having low levels of self-efficacy.

This suggest that though postgraduate profess being knowledgeable about those aspects, they still perceived their ability to translate their knowledge into actual writing as low. Among the aspects of the research activity that a low level of self-efficacy was identified were their ability to confidently write their research proposal (M=2.2, SD=0.70), develop and abstract for the study (M=2.2, SD=0.78), review literature coming out with significant gaps for their study (M=2.2, SD=0.82), developing a conceptual framework ((M=2.4, SD=0.86), choosing a right research approach be it qualitative, quantitative or mixed methods (M=2.3, SD=0.72) with its associated designs (M=2.3, SD=0.81), as well as choosing the right research instrument (M=2.4, SD=0.84) while validating the chosen instrument (M=2.3, SD=0.87). Similarly, low level of research self-efficacy manifested in writing about research ethics (M=2.2, SD=0.79), referencing in APA style (M=2.3, SD=0.87), using a statistical tool to analyze the data (M=2.0, SD=0.70), with appropriate interpretations and discussions (M=2.0, SD=0.87), as well as communicating the entire research findings effectively (M=2.1, SD=0.76).

The results further revealed that the chapter four aspect of the research thesis, entailing data analysis and discussion poses the most difficulty as all of its aspect recorded the lowest mean and high standard deviations. The sequence of difficulty was followed by confidence in communicating the study's findings and in developing a research proposal and abstract for the study. Next was chapter two where literature is reviewed for necessary research gaps. Chapter three followed with difficulty experienced in research ethics writing as well as validity and reliability issues. This finding corroborates the findings of a similar study conducted that found that many postgraduates lack the required research competency and self-efficacy [15].

Not surprising, postgraduate students in the two departments confirmed this when asked whether they have a strong belief in their abilities to conduct educational research successfully. The responses indicated that 36% agreed that indeed they possessed a strong belief in their ability to successfully conduct research while the majority (64%) disagreed. The implication is that they perceived their ability to actually write their research work as inadequate as shown in table 8. This confirms the research findings of [12] that revealed that while postgraduate students had knowledge of research writing, they lacked the skills needed to carry it out effectively.

Another interesting finding that emerged was that though they lacked confidence in their abilities to conduct their research successfully, they however indicated readiness to independently conduct their research. Thus, they were willing to do their research work all by themselves though they do not possess the sufficient knowledge to successfully complete the work as shown on Table 7. This emphasize the need for additional support systems to supplement the regular research lectures. This, the researchers believe is a sign of their readiness to upgrade their research knowledge and self-efficacy when the required support and targeted interventions are provided by the Departments and University's branch of GRASAG.
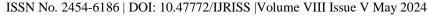
Table 7: Research Self-efficacy

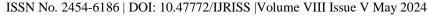| Overall Self-Efficacy	Yes (%)	No (%)	Inter-pretation
Overall, I have a strong belief in my abilities to conduct educational research successfully.	22[36]	39[64]	**No**
Based on your current knowledge of research, are you ready to do your proposal/thesis by yourself?	34[56]	27[44]	**Yes**

(Source: Field data, 2023)

To inform administrative policy decisions, the postgraduate students offered some suggestions that could help address their research needs. Ten (10) key recommendations were made as follows;

Table 8: Suggested Research Help on Knowledge and Self-efficacy

S/N	Overall Self-Efficacy	Yes (%)	Inter-pretation
1	The need for extra tutorials/workshops	48[79]	(√)
2	The need to re-teach some chapters of the thesis	14[23]	
3	The need to make research teaching more practical	33[54]	(√)
4	Provision of sample research works during teaching	14[23]	
5	The need for expert to share their research experience	36[59]	(√)
6	The need for a single lecturer to handle research	14[23]	
7	The need to teach slow paced research teaching	46[75]	(√)
8	The need for a common research textbook	12[20]	
9	The need for supervisors to be a guide not observers	27[44]	
10	The need for timely assignment of supervisors to students	25[41]	

NB: Ticked (√) means most frequent challenge as observed by half (+) of the respondents (Source: Field data, 2023).

The responses in Table 8 revealed that the majority of the postgraduate students (79%) vouched for the need for extra research tutorials to supplement their usual research lectures. Similarly, 75% of the respondents felt that teaching research methodology course at a slower pace could help address the knowledge gap. Again, 59% of the postgraduates expressed concern on the need to invite research expert into the teaching and learning process so they could share their expertise and experience with the students. This could go a long to whip their research interest and better enhance their understanding of the research activity. Other suggestions included the urgent need for re-teaching some chapters of the thesis, supplying students with sample of research works conducted in their specific fields, monopolizing the teaching of research courses, providing a common research

textbook, timely assignment of supervisors as well as the need for supervisors to be more supportive of their supervisees in the conduct of the research activity.

CONCLUSION

Based on the findings, four key concerns emerged from the study.

First, the results of the study revealed that generally postgraduate students used in the study were moderately satisfied with the research course taken (M=2.5, SD=0.82) yet not ready to recommend it to prospective students hence the departments should consider giving more attention to how research methodology courses are taught in the departments.

Again, it was found that postgraduate students' level of perceived research knowledge was moderate (M=2.5, SD=0.82) hence the departments and the University's branch of GRASAG should consider additional research tutorials to supplement the research lectures.

Also, their overall level of self-efficacy concerning the conduct of research was found to be generally low (M=2.4, SD=0.78) hence the Departments and the University's branch of GRASAG should consider providing more practical research exposures such as monthly mini research project and article writing as part of the assessment criteria for its postgraduate students.

Lastly, suggestions were offered by the postgraduate students, including the need for extra tutorials/ workshops, inviting expert to share their research experience, teaching research at a slow pace as well as making research teaching more practical. It is therefore recommended for the departments and the University's branch of GRASAG to consider incorporating some of these suggestions into their instructional and capacity-building practices.

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