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RESEARCH CAPABILITY AND CHALLENGES IN CONDUCTING RESEARCH AMONG PUBLIC ELEMENTARY SCHOOL TEACHERS: BASIS FOR A RESEARCH ENHANCEMENT PROGRAM

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Abstract

Teachers' research capability is essential in addressing classroom concerns, improving instructional practices, and contributing to evidence-based educational decisions. However, teachers may encounter challenges in translating their research knowledge into completed research outputs. This study examined the research capability and challenges encountered by public elementary school teachers in Alcala, Cagayan, and determined whether research capability differed according to selected demographic profile. Using a descriptive-comparative research design, the study involved 60 teachers selected through proportionate stratified random sampling. Data were collected using an adapted questionnaire and analyzed using frequency, percentage, weighted mean, independent-samples t-test, and one-way analysis of variance. The findings revealed that teachers perceived themselves as capable of conducting research. Their strongest areas included formulating research hypotheses, explaining the significance of the study, and defining its scope and delimitations. However, developing conceptual paradigms, formulating research problems, identifying research gaps, and drawing evidence-based conclusions emerged as areas for improvement. Inadequate research knowledge and training and insufficient data were the most frequently reported challenges. Significant differences in perceived research capability were observed according to sex, with male teachers reporting higher mean scores than female teachers. No significant differences were found according to age or civil status. The comparison across years of teaching experience was also reported as nonsignificant. The findings underscore the need for targeted research training, sustained mentoring, and institutional support to strengthen teachers' research competencies and facilitate their engagement in research activities.

INTRODUCTION

Research provides a foundation for evidence-based educational decision-making by helping teachers identify problems, evaluate practices, and develop appropriate interventions.

The Department of Education (DepEd) promotes a research-oriented culture through capacity building, funding, partnerships, dissemination, and research utilization. Nevertheless, recognizing the importance of research does not necessarily translate into actual research productivity. Abella et al. (2024) found that Filipino public school teachers generally demonstrated research-related knowledge, skills, and positive attitudes, but their research productivity remained limited. Similarly, Borreo (2023) identified limited time, difficulties in research writing, challenges in completing research tasks, and additional workload as barriers to teachers' research engagement.

Research capability encompasses the knowledge, skills, attitudes, confidence, and practical competencies required to conduct research systematically. Tınmaz and Sezgin (2023) identified research awareness, attitudes, skills, and research use as dimensions of teachers' research literacy. Hammersley (2023) emphasized research literacy in connecting teaching with action research, reflective practice, and evidence-based instructional improvement. Gussen et al. (2023) distinguished cognitive and affective-motivational dimensions of research competence, while Matjašič and Vogrinc (2025) highlighted the distinction between perceived and actual competence and reported improvements in both following a research-based course. Abu Rumman and Alheet (2019) further emphasized critical thinking, perseverance, and other general competencies that complement technical research skills.

However, research competence alone may not ensure participation. Al-Ghattami (2014) observed relatively low teacher involvement in research in Oman, emphasizing the importance of teachers' understanding, attitudes, and opportunities to engage in inquiry. Similarly, Li and Xu (2024), in their study of 536 Chinese university English as a Foreign Language teachers, found that institutional support positively influenced research engagement, whereas extrinsic motivation had a negative effect; research self-efficacy and intrinsic motivation showed little influence in their statistical model. These findings highlight the role of institutional conditions alongside individual competencies.

Studies examining teachers' research capability have considered methodological skills, confidence, technology, and professional characteristics. Caballero-Jaum and Quirap (2026) assessed public elementary teachers' competencies in formulating research questions, collecting data, reviewing literature and theories, analyzing information, and presenting findings. Oestar and Marzo (2022), studying 147 elementary and secondary teachers in Quezon Province, found that many research-writing competencies remained at a lower level. Jin et al. (2026) developed and validated a multidimensional Research Competence Scale for special education teachers, while Jiang et al. (2026) examined research self-efficacy among primary teachers engaged in practice-based research. Amanonce et al. (2026) explored Filipino teacher educators' research self-efficacy in relation to age, sex, educational qualification, professional experience, faculty rank, research experience, and training.

Luna and Ballado (2025), in a study of 116 senior high school research teachers in Northern Samar, found that respondents generally perceived themselves as competent but continued to experience difficulties in developing theoretical and conceptual frameworks, analyzing data, generating theories, and using research technologies. Servancia and Escarlos (2025) examined digital competence, action research capacity, and professional development, highlighting technology as a supporting component of research capability. Justol and

Paglinawan (2026) investigated technical support availability, socio-emotional learning competency, and research capability in integrated schools, including information retrieval and management, communication and collaboration, and the application of research principles and ethics.

Teachers' research participation is also affected by practical, methodological, and institutional barriers. Bullo et al. (2021) identified limited time, research-writing anxiety, difficulties in conducting studies, and challenges in qualitative and quantitative data analysis. Hussien et al. (2019) reported insufficient time and funding, multiple responsibilities, inadequate mentoring, limited data-analysis knowledge, restricted access to scholarly journals, unreliable internet connectivity, and insufficient management support. In Infanta District, Borreo (2023) likewise emphasized the time and skills required for action research. Tingabngab and Binayao (2023) identified difficulties in selecting research problems, understanding theories, formulating objectives, choosing methods, gathering data, and analyzing results. Cortes and Reyes (2021) found that biology teachers in Mindanao experienced negative perceptions of research, inadequate conceptual knowledge, limited time and resources, and mistrust of colleagues' research capabilities. They also noted that professional development was often short and episodic, with insufficient scaffolding, monitoring, and evaluation. Through narrative inquiry, Bialen (2024) similarly documented workload pressures, resistance to research, difficulties with research methodologies, and concerns about sustaining and applying findings.

Research-related beliefs and competencies may also vary according to teachers' backgrounds and professional experiences. Kurt (2015) examined research self-efficacy and attitudes toward scientific research in relation to gender, age, and teaching field. Livinți et al. (2021) identified research interest, identity, productivity, attitudes, training, and mentoring as factors associated with research self-efficacy, while gender and age were not significantly related to it. Chen and Liu (2023) examined research attitudes among Chinese in-service EFL teachers enrolled in graduate programs, considering teacher characteristics, methodological familiarity, and professional development. In the Philippine basic education context, Satsatin (2025) examined research capability and attitudes according to selected personal and professional characteristics. Yenen (2025) found significant improvements in teacher candidates' research self-efficacy following a computer-assisted flipped learning intervention. Meanwhile, Abella et al. (2024) reported significant relationships between research competence and selected characteristics, including age, educational attainment, teaching experience, and rank or position, despite generally low research productivity.

Intervention studies demonstrate both the potential and limitations of professional development. Cirocki, Indrarathne, and Alcívar Calderón (2024) evaluated reflective-practice and action-research training among 31 English language teacher-learners in Ecuador. Participants improved their understanding of reflective practice, but their understanding of action research did not improve correspondingly. In the Philippines, Tirol et al. (2022) developed a participatory educational action-research program combining needs assessment, training, mentoring, and guided preparation of group research proposals. Esparza et al. (2022) developed a scalable action-research professional development module for prospective and in-service STEM teachers using case studies, collaborative activities, discussions, and research-method instruction; participants demonstrated stronger research self-efficacy and improved

understanding of action research. Jaya et al. (2025) likewise found that action-research training improved STEM teachers' research knowledge and attitudes, which subsequently supported research skills.

Insorio (2026) investigated online research training among 64 public school teachers through a five-day intervention involving research templates, coaching, and mentoring, with pre- and post-training assessments and interviews. In contrast, Fajardo and Digo (2023), studying 41 public secondary school teachers in Prieto Diaz, Sorsogon, found that training incorporating collaboration, coaching, and mentoring did not significantly improve research attitudes and knowledge but enhanced teachers' performance in preparing action-research proposals. These findings suggest that professional development outcomes may differ across dimensions of research capability and that practical application and sustained support are important.

Despite these contributions, teachers' research capability cannot be understood independently of the challenges they encounter and the conditions in which they work. The reviewed literature covers research literacy, competence, self-efficacy, institutional support, barriers, teacher characteristics, and capacity-building interventions. Examining these areas in a specific local context can help identify existing strengths and areas requiring further support. Thus, this study seeks to determine the research capability and challenges encountered in conducting research among teachers in public elementary schools in the Municipality of Alcala, Cagayan. The findings may provide a basis for identifying relevant capacity-building needs and strengthening support for teacher-led research.

METHODS

Research Design

The study employed a descriptive-comparative research design to assess teachers' research capability and the challenges they encounter in conducting research. The descriptive component examined the profile of the respondents and their research capability and perceived challenges, while the comparative component determined whether research capability significantly differed across selected profile variables.

Respondents and Locale of the Study

The study involved 60 public elementary school teachers employed in Alcala, Cagayan, during the study period. Proportionate stratified random sampling was employed to ensure that teachers from each public elementary school were proportionately represented in the sample.

Research Instrument

The study utilized an adapted questionnaire based on Almonicar (2023), titled Research Capability of Teachers in Public Secondary Schools in the Province of Masbate, Philippines: Basis for Enhancement Program. The instrument consisted of three parts: Part I gathered the respondents' profile, Part II assessed their research capability, and Part III identified the challenges they encountered in conducting research.

Data Gathering Procedure and Analysis

Prior to data collection, the researcher secured the necessary permissions from the Graduate School, the Department of Education, and the participating schools. The researcher then coordinated with the school heads regarding the distribution of the questionnaires. Before completing the instrument, the respondents were briefed on the study's objectives, the nature of their involvement, and their rights as participants. They were also assured that participation was voluntary. The questionnaires were distributed either in person or electronically, depending on the arrangements approved by the schools. Upon retrieval, the completed questionnaires were reviewed for completeness, coded, and prepared for statistical processing.

The data were processed and interpreted using appropriate statistical techniques. Frequency counts and percentages were utilized to describe the respondents' profiles and the challenges they encountered in conducting research. The weighted mean was employed to assess their level of research capability. Furthermore, independent-samples t-test and one-way analysis of variance (ANOVA) were used to determine whether significant differences existed in the level of research capability when respondents were grouped according to their profile.

RESULTS AND DISCUSSION

Table 1. Demographic Profile of the Respondents

Profile	Frequency (n=60)	Percent
Age		
25-30	7	11.7
31-35	10	16.7
36-40	3	5
41-45	20	33.3
46-50	11	18.3
51 and above	9	15
Sex		
Male	5	8.3
Female	55	91.7
Civil Status		
Single	11	18.3
Married	47	78.3
Widowed	2	3.3
Highest Educational Attainment		
Bachelor's Degree	1	1.7
With Master's Units	13	21.7
Master's Degree	43	71.7
With Doctoral Units	2	3.3
Doctoral Degree	1	1.7

Years in Service		
1-5 years	6	10.0
6-10 years	18	30.0
11-15 years	16	26.7
16-20 years	7	11.7
21 years and above	13	21.7

Table 1 presents the profile of teachers in Alcala, Cagayan, in terms of age, sex, civil status, educational attainment, and years of service. Most respondents were aged 41–45 (33.3%), followed by those aged 46–50 (18.3%) and 31–35 (16.7%). Teachers aged 51 and above accounted for 15.0%, those aged 25–30 comprised 11.7%, and those aged 36–40 represented the smallest group (5.0%). In terms of sex, females predominated (91.7%), while males accounted for 8.3%. Regarding civil status, most respondents were married (78.3%), followed by single (18.3%) and widowed (3.3%).

In terms of educational attainment, most respondents held a master's degree (71.7%), while 21.7% had completed master's units. Those with doctoral units, a doctoral degree, and a bachelor's degree each represented 1.7%. Regarding years of service, the largest group had 6–10 years of experience (30.0%), followed by those with 11–15 years (26.7%) and 21 years or more (21.7%). Meanwhile, 11.7% had 16–20 years of service, and 10.0% had 1–5 years. Overall, the profile indicates that most respondents were female, married, held a master's degree, and had substantial teaching experience, which may provide relevant professional contexts for examining their research capability and challenges.

Table 2. Level of Research Capability of Teachers

Items	Mean	Qualitative Description
1. Formulating a clear, concise, and researchable research title.	3.07	Capable
2. Writing the rationale, introduction, and background of the study.	3.02	Capable
3. Identifying and explaining an appropriate theoretical or conceptual framework for the study.	3.00	Capable
4. Developing a conceptual paradigm that clearly presents the variables or concepts of the study.	2.98	Capable
5. Formulating a clear and logically organized statement of the problem.	2.98	Capable
6. Formulating appropriate research hypotheses when required by the study.	3.08	Capable
7. Explaining the significance of the study to its intended beneficiaries.	3.08	Capable
8. Defining the scope and delimitations of the study.	3.08	Capable
9. Providing clear conceptual and operational definitions of important terms used in the study.	3.03	Capable
10. Locating relevant and credible literature and previous studies from appropriate academic sources	3.00	Capable

11. Reviewing and synthesizing related literature and studies in relation to the research problem.	3.02	Capable
12. Identifying research gaps based on the reviewed literature and previous studies.	2.98	Capable
13. Preparing a research proposal that clearly presents the major components of the proposed study.	3.02	Capable
14. Selecting a research design appropriate to the research questions or objectives.	3.00	Capable
15. Selecting an appropriate sampling technique and determining the required sample.	3.00	Capable
16. Selecting appropriate statistical tools or data-analysis procedures based on the research questions.	3.00	Capable
17. Interpreting research findings accurately based on the results of data analysis	3.03	Capable
18. Writing the results and discussion in relation to the research questions and relevant literature.	3.00	Capable
19. Formulating conclusions that are directly supported by the findings of the study.	2.98	Capable
20. Developing practical and evidence-based recommendations from the research findings.	3.00	Capable
Weighted Mean	**3.02**	**Capable**

Table 2 presents the level of research capability among public elementary school teachers in Alcala, Cagayan. The highest mean scores were recorded for formulating appropriate research hypotheses when necessary, explaining the significance of the study to its intended beneficiaries, and defining the scope and delimitations of the study. In contrast, developing a conceptual paradigm, formulating a logically organized statement of the problem, identifying research gaps, and drawing conclusions directly supported by the findings obtained the lowest mean scores. Nevertheless, all indicators were verbally described as Capable, which suggests that the respondents perceived themselves as possessing competencies across the major stages of the research process.

The findings indicate that teachers have a working foundation in research, particularly in defining research components and articulating the purpose and boundaries of a study. However, the relatively lower ratings for conceptual paradigm development, problem formulation, research gap identification, and conclusion writing point to areas that may benefit from targeted training and technical assistance. These competencies require teachers to organize ideas coherently, establish connections among research concepts, identify gaps in existing knowledge, and draw evidence-based conclusions. The overall weighted mean of 3.02, verbally interpreted as Capable, indicates that the respondents generally perceived themselves as competent in conducting research, although opportunities for further development remain.

These findings are consistent with Bongco et al. (2024), who examined the research capabilities of public school teachers in the Philippines and reported high levels of competence in research-related knowledge, skills, and attitudes despite low research productivity. Hence,

research capability may not necessarily translate into research output, highlighting the importance of institutional support and opportunities for sustained research engagement.

Table 3. Challenges Encountered by Public Elementary Teachers in Conducting Research

Challenges Encountered	Frequency (f)	Rank
• Inadequate knowledge and training in scientific research	42	1
• Inadequate or insufficient data for the study	29	2
• Difficulty sustaining productivity throughout the research writing process	26	3
• Career-related concerns that affect engagement in research	23	4
• Difficulty obtaining sufficient and relevant literature	22	5
• Difficulty defining an appropriate and manageable scope of the research problem	22	5
• Difficulty meeting the required standards of academic writing in the review of related literature	21	6
• Insecurities or lack of confidence in conducting research	20	7
• Difficulty aligning survey and research questions with the objectives of the study	18	8
• Inadequate resources needed to conduct research	17	9
• Limited education or formal preparation in research	17	9
• Limited access to libraries and other research references	13	10
• Difficulty encouraging respondents or participants to participate in the study	13	10
• Absence of a collaborative research culture in the workplace	12	11
• Absence of specific deadlines for completing research activities	8	12
• Interpersonal conflicts or lack of cooperation among colleagues	5	13
• Lack of support from supervisors or school administrators	4	14

Table 3 presents the challenges encountered by public elementary school teachers in conducting research, ranked according to frequency. Inadequate knowledge and training in scientific research ranked first, followed by insufficient data for the study. Meanwhile, interpersonal conflicts or lack of cooperation among colleagues and inadequate support from supervisors or school administrators ranked among the least frequently reported challenges.

The findings suggest that teachers' primary difficulties relate to research knowledge, technical preparation, and the practical demands of conducting research. The prominence of inadequate research knowledge and training highlights the need for capacity-building initiatives that strengthen competencies in research design, data collection, analysis, interpretation, and academic writing. Although the preceding findings indicated that teachers perceived themselves as capable of conducting research, the challenges identified suggest

that perceived competence may not always translate into the effective application of research skills in practice.

Furthermore, challenges involving literature retrieval, defining research scope, academic writing, and aligning research questions with study objectives underscore the importance of structured guidance throughout the research process. Addressing these concerns requires sustained professional development, practical mentoring, and institutional support, particularly in strengthening research competencies, improving data-gathering practices, and facilitating the completion of research projects.

These findings are consistent with Tolentino (2021), who reported that many secondary school science teachers had limited opportunities to participate in research training. The study also identified inadequate research training and skills as key challenges and found that teachers demonstrated moderate research capability, underscoring the need for sustained research development programs.

Table 4. Test of Difference in the Level of Research Capability of Respondents When Grouped According to Age

	Age	Group Means	F-value	p-value
Level of Research Capability	25 – 30	3.46	1.346	.259
	31 – 35	2.82		
	36 – 40	3.67		
	41 – 45	2.90		
	46– 50	3.02		
	51 and above	2.95		

Table 4 presents the differences in teachers' perceived research capability across age groups. Teachers aged 36–40 obtained the highest mean score (3.67), followed by those aged 25–30 (3.46). In contrast, teachers aged 31–35 recorded the lowest mean (2.82), while those aged 41–45, 46–50, and 51 and above obtained mean scores of 2.90, 3.02, and 2.95, respectively.

The computed F-value of 1.346 and p-value of .259 indicate that the differences in research capability across age groups were not statistically significant at the 0.05 level. Thus, there was insufficient evidence to conclude that teachers' perceived research capability differed significantly according to age.

The findings suggest that age alone may not distinguish teachers' perceived research capability within the study context. Similarly, Herset et al. (2026) found no significant age-based differences in overall teacher self-efficacy among first-year preservice teachers. Although self-efficacy differs conceptually from research capability, this finding provides a related perspective on the relationship between age and perceived professional competence.

Table 5: Test of Difference in the Level of Research Capability Respondents When Grouped According to Sex

	Sex	Group Means	t-value	p-value
Level of Research Capability	Male	3.79	2.640	.011
	Female	2.95		

Table 5 presents the differences in teachers' perceived research capability when grouped according to sex. Male teachers obtained a higher mean score (3.79) than female teachers (2.95), indicating a difference in their self-assessed research capability.

The computed t-value of 2.640 and p-value of .011 indicate that the difference was statistically significant at the 0.05 level. The findings suggest that male teachers reported higher perceived research capability than their female counterparts.

In contrast, Camara et al. (2021), in a study involving 1,220 senior high school learners in the Philippines, found that female respondents reported greater perceived competence in research writing than male respondents. This difference highlights the possibility that gender-related patterns in perceived research competence may vary across populations and research contexts.

Table 6. Test of Difference in the Level of Research Capability Respondents When Grouped According to Civil Status

	Civil Status	Group Means	F-value	p-value
Level of Research Capability	Single	3.29	.945	.395
	Married	2.96		
	Widowed	3.00		

Table 6 presents the differences in teachers' perceived research capability when grouped according to civil status. Single teachers obtained the highest mean score (3.29), followed by widowed teachers (3.00), while married teachers recorded the lowest mean (2.96). Despite these variations, the computed F-value of 0.945 and p-value of .395 indicate that the differences were not statistically significant at the 0.05 level. Thus, there was insufficient evidence to conclude that perceived research capability differed significantly according to civil status.

Although personal and family responsibilities may influence how teachers allocate time to professional activities, the findings do not establish civil status as a distinguishing factor in their perceived research capability. This result is consistent with Alibagon (2020), who found no significant difference in the research competence of Social Science teachers in the Schools Division of Iloilo when grouped according to marital status.

Table 7: Test of Difference in the Level of Research Capability of Respondents When Grouped According to Years in Teaching

	Years in Teaching	Group Means	f-value	p-value
Level of Research Capability	1- 5 years	3.59	1.991	.1085
	6 -10 years	2.98		
	11-15 years	3.04		
	16-20 years	3.21		
	21 years and above	2.67		

Table 7 presents the differences in teachers' perceived research capability when grouped according to years of teaching experience. Teachers with 1–5 years of service obtained the highest mean score (3.59), followed by those with 16–20 years (3.21), 11–15 years (3.04), and 6–10 years (2.98). Teachers with 21 years or more of service recorded the lowest mean score (2.67).

Although variations in group means were observed, these differences alone do not establish statistical significance, as evidenced by the p-value greater than 0.05. The findings suggest that longer teaching experience does not necessarily correspond to higher perceived research capability. Research competence may also be influenced by opportunities to conduct research, access to training and technical support, and continued professional development. Consistent with this finding, Basa (2025) reported no significant differences in teachers' research competence when grouped according to teaching experience, suggesting that teaching tenure alone may not adequately explain variations in research capability.

CONCLUSION AND FUTURE WORKS

The findings revealed that public elementary school teachers in Alcala, Cagayan, perceived themselves as capable of conducting research, although they encountered challenges related to inadequate research knowledge and training and insufficient data. Research capability did not differ significantly according to age, civil status, or years of teaching experience, but a significant difference was observed according to sex, with male teachers reporting a higher level of research capability. These findings highlight the need for targeted research training, mentoring, and institutional support to strengthen teachers' research competencies. Future studies may involve larger samples from multiple municipalities and examine additional factors, such as research training, institutional support, and actual research productivity. Qualitative approaches may also provide deeper insights into teachers' research challenges and inform the development of targeted capacity-building programs. A Research Enhancement Program for Public Elementary School Teachers is also proposed.

Proposed Three-Day Research Enhancement Program for Public Elementary School Teachers

Area of Concern	Proposed Activity	Expected Output
Inadequate knowledge and training in scientific research	Conduct a research capability seminar-workshop covering research design, methodology, and the basic steps in conducting educational research.	Improved understanding of research concepts and procedures
Difficulty in identifying research gaps and formulating research problems	Conduct a hands-on workshop on identifying research gaps, formulating research questions, and developing research objectives and hypotheses.	Draft research problem, objectives, and hypotheses
Difficulty in developing conceptual paradigms	Facilitate a workshop on reviewing related literature and developing conceptual frameworks or research paradigms.	Draft conceptual framework supported by relevant literature
Insufficient data for research	Provide training on research instruments, data collection procedures, and appropriate sources of educational data, subject to ethical requirements and permissions.	Draft data collection plan and research instrument
Challenges in academic writing and organizing research papers	Conduct a research writing clinic focusing on the introduction, review of related literature, methodology, and proper citation.	Initial draft of a research proposal or manuscript
Difficulty in analyzing and interpreting research findings and drawing conclusions	Conduct a workshop on basic data analysis, interpretation of results, and drawing conclusions based on research evidence.	Improved data analysis and interpretation skills
Limited guidance during research implementation	Establish a research mentoring program pairing teachers with experienced researchers or research coordinators for consultation and feedback.	Research proposals refined through mentoring and a timeline for implementation
Need for sustained research engagement and institutional support	Organize a school-based research presentation and sharing session to present outputs, discuss challenges, and identify opportunities for further research.	Research presentations, documented feedback, and proposed follow-up studies

CONFLICT OF INTEREST

The author declares no conflict of interest related to the conduct of this study, its analysis, or the publication of its findings.

DECLARATION OF AI USE

The author declares the use of ChatGPT and Grammarly solely for grammar checking and language improvement. These tools were not used to generate research data, conduct data analysis, or interpret the findings. The author takes full responsibility for the accuracy, integrity, and final content of the manuscript.

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