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Research Article

A Contextualized Framework for Enhancing Research Capabilities of Elementary Teachers in Resource-Limited Setting in San Carlos City, Philippines

Jeneth P. Luague[1,2]*

[1]Senior Education Program Specialist, Department of Education – Division of San Carlos, Philippines
[2]University of St. La Salle–Bacolod, Philippines

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**Corresponding author:*
E-mail:
jeneth.luague@deped.gov.ph

ABSTRACT

This study aimed to determine the level of research capabilities, engagement, institutional support, and perceived barriers among elementary teachers in San Carlos City, Philippines. It also sought to determine how institutional support and experiences of teachers influence their participation in research activities providing a basis for a contextualized capacity-building program. A convergent parallel mixed-methods design was employed involving 94 elementary teachers who completed standardized survey instruments and five teachers who participated in in-depth interviews. Generally, results showed that teachers perceived themselves as slightly capable in conducting research. Moreover, results revealed a significant moderate positive relationship between research competency and research engagement, signifying that teachers with higher level of research capabilities were more likely to partake in research-related activities. Furthermore, it was revealed that although teachers received supportive administrative support, persistent barriers including heavy workloads, inadequate technical assistance, limited opportunities for sustained mentoring, and low intrinsic motivation hinders their participation in research activities. Qualitative findings further revealed a preference for real-world, empirical, and hands-on professional development rather than primarily lecture-based training. These findings emphasize the need for a contextualized capacity-building program built on three key components such as school-based collaborative expertise or mentoring groups which calls for provision of continuous guidance and peer support, management of workload which strongly suggest for allocating time for research activities, and providing packages or tool kits which will serve as guide for teachers in framing, conducting, and accomplishing their research. Through these, it is hoped that schools can provide the necessary support to teachers to strengthen their capabilities in conducting research

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activities which will eventually establish a sustainable culture for research becoming an integral part in teachers' professional growth.

Keywords: *Elementary Teachers, Research Capabilities, Resource-Limited Setting*

Introduction

Research become a significant part of teachers' professional practice because it allows them to determine classroom problems, assess teaching techniques, and come up with data-driven decisions. Teachers are given the opportunity to identify problems in teaching and learning when they conduct research. It contributes to the improvement of schools performance by providing evidence that can lead into the development of programs, policies and professional advancement initiatives. However, developing teachers' capacity in conducting research remains a significant challenge due to limited resources.

In the context of Philippine basic education, teachers are encouraged to conduct research as part of their professional advancement. However, many elementary teachers have trouble in crafting, conducting, and completing a research paper. These difficulties may be associated with limited knowledge and skills in research, overlapping responsibilities, lack of time and technical assistance, and inadequate access to research resources. Such conditions suggest that research participation cannot be understood solely in terms of an individual teacher's ability. The environment in which teachers work may also influence whether they are able and willing to engage in research.

This study draws on Capacity-Building Theory to explain research capacity as a combination of individual competence and the organizational conditions that enable teachers to apply and strengthen their skills. From this perspective, improving research capacity requires more than providing isolated training activities. Teachers also need appropriate resources, technical assistance, supportive leadership, opportunities to practice research skills, and organizational systems that encourage inquiry and evidence-based decision-making. This perspective is particularly relevant in resource-constrained settings, where limitations in time, funding, expertise, and institutional support may affect teachers' ability to participate meaningfully in research.

The study is also informed by the Professional Learning Community framework, which highlights the importance of collaboration, shared learning, professional dialogue, and collective responsibility among teachers. Within a professional learning community, teachers can discuss common problems, exchange experiences, examine evidence, and support one another in developing solutions to classroom and school concerns. In relation to research, collaborative learning may make the research process more manageable by providing opportunities for mentoring, peer support, joint inquiry, and continuous feedback. It may also help teachers view research not as an additional requirement but as a practical means of improving teaching and learning.

Moreover, they are guided by DepEd Order No. 16, s. 2017 which establishes the mechanisms for managing research initiatives, providing support through the Basis Education Research Fund grant, partnerships, and capacity-building initiatives. This policy recognizes that encouraging teachers to engage in research they should feel they are supported by providing technical assistance and available resources for them to utilize.

Taken together, Capacity-Building Theory and the Professional Learning Community framework provide a broader understanding of teacher research capacity. The first highlights the importance of individual skills, organizational structures, resources, and leadership support, while the second emphasizes the role of professional collaboration and shared learning. Their combined use is appropriate because teachers' research engagement is influenced not only by confidence or personal ability but also by the conditions, relationships, and support systems available within their schools and wider educational environment.

Although previous studies have examined teachers' research competencies, participation,

and barriers, there remains a need to understand how these factors interact within resource-limited elementary school settings. Context is especially important because challenges experienced by teachers may differ according to workload, access to technical expertise, institutional priorities, available resources, and local professional development opportunities. Examining these conditions can provide a more realistic basis for designing interventions that respond to teachers' actual research needs rather than relying on generalized or one-time training approaches.

Understanding the research competencies and barriers of elementary teachers in San Carlos City is therefore important in identifying areas where capacity-building efforts can be strengthened. Evidence on teachers' competencies, research engagement, institutional support, professional development experiences, and perceived challenges can inform the development of interventions that are practical, collaborative, and responsive to local conditions. Such evidence can also contribute to the broader understanding of how sustainable teacher research cultures may be developed in educational settings with limited resources.

This article reports an investigation of the research competencies, research engagement, perceived barriers, and support conditions among elementary teachers in San Carlos City. It aims to use these findings as the basis for developing a contextualized capacity-building program designed to strengthen teachers' research capability and promote sustained participation in research.

Materials and Methods

Research Design and Setting

This study utilized a cross-sectional parallel mixed methods design to examine the research capabilities, engagement, institutional support, and perceived barriers among elementary teachers in Cluster 1 of the Schools Division of San Carlos City, Philippines. Since this study required both the quantitative data in terms of teachers' research capabilities, engagement, institutional support and qualitative data in terms of the barriers that hinder the teachers in actively participating in the conduct of research.

As discussed by Creswell and Plano Clark (2018), cross-sectional parallel mixed methods design allowed the researcher to collect quantitative and qualitative data within the same general period, analyze them independently, and integrate during interpretation. Both the quantitative and qualitative data were given due consideration. Quantitative data were utilized to describe the levels and relationships among teachers' research capabilities, engagement, and institutional support. While qualitative data were used to explain the experiences of the in conducting research.

Participants and Sampling

This study consisted of only 94 teachers rather than the original 97 elementary teachers in Cluster 1 of Schools Division of San Carlos City. Thus, the quantitative phase employed an attempted total-enumeration approach rather than drawing a smaller probability sample from the population. Participants were considered eligible to participate because they were currently assigned to an elementary school within the identified cluster and were available during the data-collection period. Three teachers did not participate because of personal reasons. No replacement respondents were recruited. For the qualitative component of this study, five teachers were selected based on the inclusion criteria set by the researcher such as their age, sex, school assignment, previous research experience, and level of research engagement. This technique allowed the researcher to collect myriad lived experiences and statements from the participants which provided depth in the discussion of the results.

Research Instrument

The researcher utilized the survey instrument by Calma (2011) and Laguador (2013) to determine the level of research capability of the participants. Generally, it assessed the participants perceived competence in major research processes such as formulating a problem, reviewing literatures, methodology, data collection, analysis, interpretation, and research discussion. It also covered research engagement, institutional support, professional development, and perceived barriers. It was subjected to validation by educational research specialist

as to its relevance, clarity, and appropriateness to the context of the present study. Reliability testing conducted to 15 non-participating elementary teachers yielded a Cronbach's alpha of 0.85 which indicates a satisfactory internal consistency (Field, 2013). Moreover, qualitative data were collected using a semi-structured in-depth interview guide which explored the participants' experiences, competence, institutional and technical support, and barriers encountered in their participation to the conduct of research.

Data Collection Procedure

Prior to the conduct of the study, the researcher obtained the approval of the Schools Division Superintendent of San Carlos City and the school heads of the teacher participants. After which, the teachers received an invitation to participate in the study with the informed consent explaining the purpose of study, procedures involved, confidentiality measures, and their right to decline or withdraw without penalty. Then, questionnaires were administered to the participants without interfering their regular classroom instruction. They were given sufficient time to complete the survey tool independently. Qualitative interviews were also conducted from five participants who met the criteria set by the researcher. Their consent were taken allowing the researcher to record the interview and were used for transcription and analysis.

Data Analysis Procedure

Quantitative data were analyzed using the Statistical Package for the Social Sciences. To determine participants' profile variables, frequency and percentage distribution were used. To determine the level of research capability, engagement, and institutional support of the participants, mean and standard deviation were used. To determine the significant differences in the level of research capability, engagement, and institutional support in terms of profile variables, independent-samples t-tests or one-way analysis of variance were utilized. To determine the relationship between teachers' research capability and research engagement, Spearman's rank-order was used. Statistical significance was evaluated at the 0.05 level.

Qualitative data were analyzed using Braun and Clarke (2006) six-phase of thematic analysis. First, the researcher familiarize herself with the data by reading the transcripts repeatedly. Then, relevant statements were assigned with initial codes. Next, the codes were grouped into potential themes which were then reviewed to come up with a refined, defined, and well-structured theme that represents the responses of the participants. Finally, the themes were organized into an interpretative narrative that explained the participants' research experiences and perceived barriers. To ensure credibility of the findings, member checking was conducted by the researcher wherein she allowed the participants to check whether their statements clearly represent their emotions and what they want to express. To further strengthen the trustworthiness of the findings, audit trail was conducted wherein another researcher was requested to analyze the data (Lincoln and Guba, 1985).

After the analysis of the two data, they were compared side by side as described by Fetters et. al. (2013) following the convergent mixed-method approach. Convergence was identified when two datasets have similar interpretations. Thus, this process allowed the researcher to determine how measured levels of research capability and engagement were related to participants' accounts of workload, technical support, organizational conditions, motivation, and professional learning experiences.

Ethical Considerations

Prior to data gathering, ethical clearance was secured from the ethical review of the university. It was ensured that participation in this study was entirely voluntary. Informed consent was signed by the participants signifying that they understood the purpose and potential benefits in the conduct of this study. Pseudonyms were used to protect the identity of the participants. Electronic files, recordings, questionnaires, and transcripts were stored securely and were accessible only by the researcher. Findings were reported in aggregate form, and quotations from interviews were

presented without personally identifying information. Research activities were scheduled outside regular instructional periods whenever possible to minimize disruption to teaching responsibilities.

Result and Discussion

As shown in Table 1, the sample consisted predominantly of female teachers (85.1%), which aligns with global and local trends reported by Reyes and Villanueva (2022). The largest representation came from Ramon Magsaysay Elementary School, reflecting its size and staffing, which may influence overall research engagement levels. Variability across schools underscores the importance of contextual factors such as school resources and size.

Table 1. Participants' Demographic Profile

School	Male	Female	Total
Binone Elementary School	1	6	7
Don Juan Elementary School	1	6	7
Ermita Elementary School	2	5	7
Marago-os Elementary School	0	9	9
Nataban Elementary School	4	4	8
San Juan Elementary School	2	14	16
Ramon Magsaysay Elementary	4	36	40
Total	**14**	**80**	**94**

As shown in Table 2, over 91.50% of teachers report no active involvement in research, indicating limited participation in research activities. The data reveal a significant gap between policy intentions and actual research activity. This finding is consistent with studies by Ramos and Lopez (2022), who noted heavy workload and lack of skills as key barriers to engagement.

Table 2. Teacher's Research Engagement Level

Engagement Level	Number	Percentage	Interpretation
No Research Involvement	86	91.50 %	Limited Research Participation
Involved in 1-2 research projects	8	8.50 %	Moderate Engagement

As shown in Table 3, the overall research capability level of teachers. It reveals that teachers rated their research skills at a 'Slightly Capable' level (mean=1.95, SD=0.65), indicating limited confidence, particularly in technical areas like hypothesis formulation. This aligns with similar findings in developing contexts, where teachers often perceive foundational skills as weak, limiting their engagement (Dizon & Ramos, 2022).

Table 3. Overall Research Capability Level

Capability Level	Mean	SD	Interpretation
Slightly capable	1.95	0.65	Foundation skills with low confidence

As shown in Table 4, it illustrates the distribution of self-rated abilities across key research skills. Teachers feel most confident in writing research rationales but significantly less so in formulating hypotheses, echoing findings from Asuncion et al. (2020), who identified hypothesis development as a persistent challenge among educators.

Table 4. Item Analysis of Teacher's Research Capabilities (Mean Scores)

Research Skill/Item	Mean	SD	Interpretation
Formulating Research Title	2.01	0.71	Slightly Capable
Writing Rationale/Background	2.05	0.69	Slightly Capable
Writing Hypotheses	1.81	0.60	Weak in Technical Skills
Review Related Literature	1.94	0.67	Basic Understanding
Writing a Research Proposal	1.87	0.60	Building Foundational Skill

As shown in Table 5, teachers generally perceived strong administrative support for research. Funding received the highest mean (4.65), followed by school head motivation (4.57) and allocated research time (4.32), showing strong institutional encouragement. Recognition and incentives (4.18) and availability of research materials (4.26) were also viewed positively, although at slightly lower levels. Overall, the findings suggest a supportive school environment for research, with room to further strengthen recognition systems and access to research resources.

Table 5. Administrative Support for Research

Aspect	Mean	SD	Interpretation
Funding for Research Activities	4.65	0.48	Highly Supportive
Allocated time for Research	4.32	0.65	Highly Supportive
Recognition /Incentive for Research	4.18	0.71	Supportive
School Head motivates Teachers	4.57	0.50	Highly Supportive
Availability of Research Materials	4.26	0.69	Supportive

Table 6 shows that teachers recognize the value of research but often perceive it as an additional burden. Their motivation appears largely career-oriented, particularly for promotion and professional advancement, while intrinsic motivation remains low, indicating a need to strengthen personal interest and curiosity toward research. Initial engagement is further limited by heavy workload, lack of time, and insufficient research skills.

As shared by two participants,

"Naa raman mo mentor namo Maam pero wala pami willingness mag-research kay gamay ra ang time; giingnan mi mag-research pero ning balibad mi."[We have mentors, but we still lack willingness to do research due to limited time; we were asked to conduct research but refused.] - P4

"*Gihatagan mi ug time pero dili gihapon mi mo-conduct ug research kay kapoy kaayo; dili basta-basta ang research."* [We were given time, but we still did not conduct research because it is very tiring; research is not easy.] - P5

These findings suggest that sustaining teacher participation in research requires both stronger internal motivation and practical support that reduces workload-related and competency barriers. This aligns with Ramos and Lopez (2022), emphasizing that fostering intrinsic motivation is crucial for long-term research participation.

Table 6. Perception of Research Role and Motivation

Aspect	Finding
Perceived Value of Research	Seen as beneficial but burdensome
Motivation for Research	Primarily intrinsic; driven by promotion and career advancement
Intrinsic Motivation	Low emphasizes the need to foster internal curiosity
Barriers to initial engagement	Heavy workload, lack of time, and limited skill

As shown in Table 7, teachers expressed dissatisfaction with existing professional development initiatives, citing limited, infrequent, and non-interactive training sessions.

There is a strong preference for hands-on, relevant workshops to build research skills, consistent with Dela Cruz & Fernando (2023)'s advocacy for experiential learning approaches.

Table 7. Teachers' Perceptions of Professional Development on Research

Aspect	Finding
Access to Training	Limited; Emphasis on frequency rather than quality
Perceived Effectiveness of Training	Desire for hands-on, interactive workshops
Frequency of Seminars	Low, driven by external rewards, indicating motivation issues
Attitudes towards Research Workshop	Heavy workload limits participation; teachers value practical, relevant sessions.

As shown in Table 8, a moderate positive relationship (r = 0.319, p = 0.002) between research skills and engagement was revealed, supporting the notion that enhancing research competence promotes active participation, a finding consistent with Villanueva and Ramos (2023). The moderate positive relationship suggests that strengthening research capabilities of teachers maybe an important consideration in improving the engagement of teachers in conducting research. Thus, this further insinuates that schools should have school-level capacity-building initiatives for teachers to strengthen their capability in research through a supportive environment.

Table 8. Correlation between Research Capabilities and Engagement in Research Activities

Variables	Correlation Coefficient (Spearman's rho)	p-value (Significance)	Interpretation
Research Capabilities and Research Engagement	0.319	0.002	Moderate positive correlation; Significant at p < 0.01 enhances Understanding of how practical involvement Bolsters research skills

Conclusion

This study highlights that while elementary teachers in resource-limited settings like San Carlos City possess foundational research skills and perceive strong administrative support, systemic barriers including heavy workloads, limited technical expertise, and low intrinsic motivation hinder meaningful research engagement. These findings emphasize the need for a contextualized capacity-building program built on three key components such as school-based collaborative expertise or mentoring groups which calls for provision of continuous guidance and peer support, management of workload which strongly suggest for allocating time for research activities, and providing packages or tool kits which will serve as guide for teachers in framing, conducting, and accomplishing their research. Through these, it is hoped that schools can provide the necessary support to teachers to strengthen their capabilities in conducting research activities which will eventually establish a sustainable culture for research becoming an integral part in teachers' professional growth.

Acknowledgement

These should be included at the end of the text and not in footnotes. Personal acknowledgements should precede those of institutions or agencies.

The main findings (novelty) and why they are important and useful:

Generally, results showed that teachers perceived themselves as slightly capable in conducting research. Moreover, results revealed a significant moderate positive relationship between research competency and research engagement, signifying that teachers with higher level of research capabilities were more likely to partake in research-related activities. Furthermore, it was revealed that although teachers received supportive administrative support, persistent barriers including

heavy workloads, inadequate technical assistance, limited opportunities for sustained mentoring, and low intrinsic motivation hinders their participation in research activities. Qualitative findings further revealed a preference for real-world, empirical, and hands-on professional development rather than primarily lecture-based training. These findings emphasize the need for a contextualized capacity-building program built on three key components such as school-based collaborative expertise or mentoring groups which calls for provision of continuous guidance and peer support, management of workload which strongly suggest for allocating time for research activities, and providing packages or tool kits which will serve as guide for teachers in framing, conducting, and accomplishing their research. Through these, it is hoped that schools can provide the necessary support to teachers to strengthen their capabilities in conducting research activities which will eventually establish a sustainable culture for research becoming an integral part in teachers' professional growth.

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