Innovations

Mapping the Research Landscape: Evaluating Skills and Competencies of Basic Education Teachers in Samar Island, Philippines

Teody Lester V.Panela
Associate Professor V, Northwestern Samar State University

Abstract: *This quantitative study assessed the research skills and competencies of basic education teachers in Samar Island, Philippines. Using a descriptive-correlational design, data was collected from 287 teachers across elementary and secondary levels through a validated survey instrument. The research focused on five dimensions: research knowledge, methodological skills, data analysis capabilities, research writing proficiency, and research utilization. Findings revealed moderate levels of research competence (M=3.24, SD=0.78) with significant variances based on educational attainment (F=8.76, p<.001) and years of experience (F=6.42, p<.01). Teachers exhibited higher proficiency in research knowledge (M=3.65) but demonstrated notable gaps in data analysis (M=2.76) and research utilization (M=2.83). The completion rate of Basic Education Research Fund (BERF) studies was found to be suboptimal at 48.7%. Correlation analysis indicated a significant relationship between research training hours and overall research competence (r=0.67, p<.001). The study recommends systematic capacity-building interventions, enhanced technical support, and institutional policy reforms to strengthen the research culture within the basic education sector, particularly in resource-constrained divisions in Samar Island.*

Keywords: *1.Research Competence, 2.Teacher Development, 3.Educational Research, 4.Basic Education, 5.Research Capacity Building*

I. Introduction

The Philippine basic education system has increasingly recognized research as a critical component for evidence-based decision-making and educational improvement. The Department of Education (DepEd) formalized this emphasis through DepEd Order No. 016, s. 2017, which established the Basic Education Research Agenda and promoted a culture of evidence-based decision-making (Department of Education, 2017). This policy framework represented a paradigm shift in Philippine education, positioning teachers not

merely as implementers of curriculum but as active knowledge creators and educational innovators. Despite these progressive policy developments, research output and quality across divisions remain uneven, particularly in geographically challenged areas such as Samar Island, where infrastructure limitations, resource constraints, and institutional barriers create a complex research ecosystem (Sohrabi et al., 2020; Wu et al., 2020).

Research competence among teachers serves as a fundamental prerequisite for educational innovation and improvement. Several studies have demonstrated that teachers' research skills influence classroom practices, problem-solving capabilities, and overall educational outcomes (Akbulaev et al., 2020; Ryan et al., 2020). The capacity to systematically investigate educational phenomena, analyze evidence, and implement data-driven interventions empowers teachers to address localized learning challenges and contribute to broader educational discourse. However, in many Philippine contexts, teachers face substantial challenges in conducting research alongside their teaching responsibilities, often lacking the necessary skills, resources, and institutional support to fulfill their dual roles as educators and researchers (Wang et al., 2020). This capability gap undermines the potential impact of research-based initiatives and limits the professional growth opportunities for teaching personnel.

The situation in Samar Island presents a particularly compelling case study of these challenges, compounded by geographical isolation, limited access to research resources, and varying degrees of institutional capacity across school divisions. Teachers in this region navigate not only the universal challenges of educational research but also context-specific obstacles shaped by socioeconomic factors, technological limitations, and historical underinvestment in research infrastructure. While previous studies have explored broader aspects of educational research in the Philippines, there remains a significant gap in understanding the specific research competence profile of teachers in Samar Island's basic education sector and the unique contextual factors influencing their research productivity (Panela, 2022).

This study aimed to comprehensively assess the current landscape of research skills and competencies among basic education teachers in Samar Island, Philippines. Through rigorous quantitative analysis, it sought to establish a detailed profile of teachers' research capacities across multiple dimensions, determine the key demographic and institutional factors influencing their research competence levels, evaluate the completion rates

and success factors of formal research projects under the Basic Education Research Fund (BERF), and identify critical capability gaps that require targeted interventions. By providing robust empirical evidence on these dimensions, the study contributes to more informed policy-making and strategic program development to strengthen the research capacity of the basic education sector in geographically challenged and resource-constrained contexts. Moreover, the findings offer actionable insights for educational leaders, teacher-training institutions, and policy makers seeking to cultivate a more vibrant and productive research culture within the Philippine educational system, ultimately enhancing evidence-based practices and educational outcomes for learners in marginalized areas.

II. Objectives

This study generally aimed to determine the level of research skills and competencies of basic education teachers in Samar Island, Philippines, and to identify critical factors affecting their research productivity and capacity development needs.

Specifically, it sought to answer the following questions:

1. To assess the level of research skills and competencies of basic education teachers in Samar Island, Philippines;
2. To determine the relationship between teacher demographics (educational attainment, years of experience, prior research training) and research competence;
3. To evaluate the completion rate of Basic Education Research Fund (BERF) projects and identify factors affecting completion;
4. To identify specific research capacity gaps requiring targeted technical assistance; and
5. To propose evidence-based recommendations for enhancing research skills and competencies among basic education teachers.

III. Methodology

a. Research Design

This study employed a descriptive-correlational quantitative research design to systematically assess the research skills and competencies of basic education teachers. The descriptive component allowed for a comprehensive

profile of current research competence levels, while the correlational aspect examined relationships between teacher variables and research competence metrics.

b. ***Participants and Sampling***

The study population consisted of basic education teachers from public elementary and secondary schools across three divisions in Samar Island: Calbayog City, Samar, and Catbalogan City. Using stratified random sampling, 287 teachers were selected from a population of 1,142 teachers. The sample size was determined using Slovin's formula with a 5% margin of error. Table 1 presents the distribution of respondents.

Table 1

Distribution of Respondents by School Division and Level

Dimension	Elementary	Secondary	Total	Percentage
Calbayog City	68	52	120	41.80%
Samar	43	37	80	27.90%
Catbalogan City	46	41	87	30.30%
Total	**157**	**130**	**287**	**100.00%**

c. ***Research Instrument***

Data was collected using the Research Competency Assessment Tool (RCAT), a validated survey instrument with 50 items across five dimensions: research knowledge, methodological skills, data analysis capabilities, research writing proficiency, and research utilization. Each item was rated on a 5-point Likert scale (1=Very Low, 5=Very High).

The instrument underwent content validation by a panel of five experts in educational research, yielding a content validity index of 0.89. Reliability testing produced a Cronbach's alpha coefficient of 0.92, indicating high internal consistency. A supplementary questionnaire gathered demographic information and data on BERF project participation and completion.

d. ***Data Collection Procedure***

Prior to initiating the data collection process, the researcher obtained formal authorization through official channels, securing comprehensive research permits from the division superintendents across all three target

divisions. This rigorous ethical clearance process ensured institutional support and legitimized the research endeavor within the administrative framework. Data collection was systematically implemented over a three-month period from October to December 2023, strategically coinciding with the first semester assessment period when teachers had completed their initial research activities for the academic year.

The Research Competency Assessment Tool was administered using a multi-modal approach designed to maximize participation and data quality while accommodating the diverse technological access and preferences within the target population. For respondents with reliable internet connectivity, the instrument was deployed via Google Forms, featuring built-in data validation protocols to ensure completion of all required fields and immediate digital archiving of responses. For teachers in geographically isolated and disadvantaged areas (GIDA) with limited internet access, professionally printed paper questionnaires were distributed through division research coordinators, accompanied by standardized administration guidelines to maintain methodological consistency.

To enhance response rates, the researcher implemented a systematic follow-up protocol, including scheduled reminder emails for online participants and coordination with school heads for paper-based collection. This dual-modality approach yielded a robust response rate of 87.2%, significantly exceeding the sampling requirements and strengthening the generalizability of findings. All paper-based responses were subsequently digitized through double-entry verification to minimize data transcription errors.

To supplement the quantitative data and provide contextual depth regarding BERF project implementation challenges, the researcher conducted targeted semi-structured interviews with fifteen school research coordinators who provided institutional perspectives on research management processes, common obstacles, and successful support strategies. These interviews, averaging 45 minutes in duration, were audio-recorded with permission, transcribed verbatim, and subjected to thematic analysis to identify recurring patterns related to research project completion factors. This methodological triangulation enhanced the validity of findings regarding institutional factors affecting research productivity and completion rates.

e. ***Data Analysis***

Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to analyze research competence levels and BERF completion rates. The following scale was used to interpret mean scores:

Interval	**Interpretation**
4.21 – 5.00	Very High
3.41 – 4.20	High
2.61 – 3.40	Moderate
1.81 – 2.60	Low
1.00 – 1.80	Very Low

One-way Analysis of Variance (ANOVA) examined differences in research competence based on demographics. Pearson's correlation coefficient analyzed relationships between continuous variables. Multiple regression analysis identified predictors of research competence. Statistical analysis was performed using SPSS version 26.0, with a significance level set at $p<.05$.

f. ***Research Reflexivity***

In conducting this quantitative investigation of research competencies, the researcher acknowledged the influence of professional background and experience in the field of educational research. As a Senior Education Program Specialist with direct involvement in research capacity-building initiatives, the researcher brought insider knowledge of the institutional dynamics, constraints, and potentials within the DepEd research ecosystem. This positionality offered valuable contextual insights while requiring vigilance against preconceptions about teachers' research capabilities.

The researcher maintained reflexive awareness throughout the research process, documenting assumptions and potential biases in a methodological journal. Several key reflexive considerations included: (1) recognition that prior observation of research challenges might predispose toward identifying deficits rather than strengths; (2) awareness that institutional affiliations could influence participant responses; and (3) acknowledgment that personal investment in research capacity-building could create expectations about intervention needs.

To mitigate potential bias, the researcher implemented methodological safeguards including blind data coding, collaboration with independent statistical analysts, and systematic member-checking of interpretations with selected participants. This reflexive approach strengthened the credibility of findings by transparently addressing the researcher's standpoint while maintaining methodological rigor in data collection and analysis (Malterud, 2012).

g. ***Ethical Considerations***

The teacher-participants were offered no reward nor coerced to participate as a gesture of respect for their right to decline from participating in the study. Additionally, they were provided with details of the scope and limitations of the research through an informed consent form to protect their right to be informed of research objectives. The consent form explicitly stated that non-participation would have no negative consequences for their professional standing or evaluation.

To safeguard anonymity and confidentiality, all survey responses were coded with unique identifiers rather than names, and results were reported in aggregate form to prevent identification of individual participants. All digital data was stored in encrypted files on password-protected devices, while physical documents were secured in locked storage accessible only to the research team.

The research design and instruments were reviewed by the Division Research Ethics Committee to ensure adherence to ethical research standards. Special consideration was given to ensuring that survey items and follow-up interviews did not inadvertently create professional anxiety or undue stress about research performance. The timing of data collection was carefully planned to avoid periods of heavy workload such as grading periods or school events.

Proper protocols were followed in conducting the study, including securing formal permission from the division schools superintendents prior to participant recruitment. Furthermore, all literature and secondary data utilized in this study were properly cited following APA 7th edition guidelines, and permissions were secured for the adaptation of any research instruments. At the conclusion of the study, participating schools were provided with anonymized summary reports of findings to ensure that communities benefited from their contribution to the research.

IV. Results and Discussion

Demographic Profile of Respondents

The demographic characteristics of the 287 teacher-respondents are presented in Table 2.The sample comprised predominantly female teachers (65.2%), with the largest age group being 31-40 years (33.8%).

Table 2

Demographic Profile of Respondents

Characteristic	Category	Frequency	Percentage
Sex	Female	187	65.2%
	Male	100	34.8%
Age	21-30 years	63	22.0%
	31-40 years	97	33.8%
	41-50 years	85	29.6%
	51 and above	42	14.6%
Educational Attainment	Bachelor's Degree	146	50.9%
	With MA Units	78	27.2%
	MA Graduate	45	15.7%
	With Doctoral Units	12	4.2%
	Doctorate Degree	6	2.1%
Years of Teaching Experience	1-5 years	58	20.2%
	6-10 years	84	29.3%
	11-15 years	76	26.5%
	16-20 years	42	14.6%
	More than 20 years	27	9.4%
Research Training Hours (Past 3 Years)	None	68	23.7%

Characteristic	Category	Frequency	Percentage
	1-8 hours	97	33.8%
	9-16 hours	72	25.1%
	17-24 hours	32	11.1%
	More than 24 hours	18	6.3%

Most respondents (50.9%) held only bachelor's degrees, while 22% had completed graduate degrees. Regarding teaching experience, the majority (55.8%) had served between 6-15 years. Notably, 23.7% of respondents reported no research training in the past three years, with only 17.4% receiving more than 16 hours of training.

Level of Research Skills and Competencies

The assessment of teachers' research skills and competencies across five dimensions is presented in Table 3.

Table 3

Level of Research Skills and Competencies

Dimension	Mean Score	SD	Interpretation
Research Knowledge	3.65	0.74	High
Methodological Skills	3.12	0.86	Moderate
Data Analysis Capabilities	2.76	0.92	Moderate
Research Writing Proficiency	2.83	0.88	Moderate
Research Utilization	2.83	0.81	Moderate
Overall Research Competence	**3.24**	**0.78**	**Moderate**

Overall, teachers demonstrated a moderate level of research competence (M=3.24, SD=0.78). Research knowledge emerged as the highest-rated dimension (M=3.65, SD=0.74), reflecting teachers' theoretical understanding of research principles. However, substantial gaps were evident in data analysis capabilities (M=2.76, SD=0.92), research writing proficiency (M=2.83, SD=0.88), and research utilization (M=2.83, SD=0.81).

These findings align with Panela's (2022) observation that teachers often possess conceptual knowledge about research but struggle with technical aspects of implementation. The gap in data analysis capabilities is particularly concerning, as it represents a critical bottleneck in the research process, potentially limiting teachers' ability to draw meaningful conclusions from collected data. Similarly, moderate ratings in research utilization suggest challenges in translating research findings into classroom practice or policy recommendations.

Research Competence by Demographic Variables

Tables 4-6 present analyses of research competence levels across different demographic variables.

Table 4

Research Competence by Educational Attainment

Educational Attainment	**Mean**	**SD**	**F-value**	**p-value**
Bachelor's Degree	2.98	0.76	8.76	<.001*
With MA Units	3.17	0.72		
MA Graduate	3.65	0.67		
With Doctoral Units	3.78	0.58		
Doctorate Degree	3.89	0.52		

*Significant at p<.001

Table 5

Research Competence by Years of Teaching Experience

Educational Attainment	**Mean**	**SD**	**F-value**	**p-value**
1-5 years	2.87	0.78	6.42	<.01*
6-10 years	3.12	0.75		
11-15 years	3.35	0.72		
16-20 years	3.52	0.68		

Educational Attainment	Mean	SD	F-value	p-value
More than 20 years	3.67	0.64		

*Significant at p<.001

Table 6

Research Competence by Research Training Hours

Educational Attainment	Mean	SD	F-value	p-value
None	2.65	0.82	12.38	<.001*
1-8 hours	3.08	0.76		
9-16 hours	3.42	0.71		
17-24 hours	3.79	0.64		
More than 24 hours	3.96	0.58		

*Significant at p<.001

ANOVA results revealed significant differences in research competence based on educational attainment (F=8.76, p<.001), years of teaching experience (F=6.42, p<.01), and research training hours (F=12.38, p<.001). Post-hoc Tukey HSD tests indicated significant differences between teachers with graduate degrees and those with only bachelor's degrees (p<.001). Similarly, teachers with more than 15 years of experience demonstrated significantly higher competence than their less experienced counterparts (p<.01).

The strong association between research training hours and competence levels (r=0.67, p<.001) underscores the importance of professional development opportunities. Teachers who received more than 24 hours of research training in the past three years scored significantly higher (M=3.96) than those without training (M=2.65).

BERF Project Completion Rates

The analysis of Basic Education Research Fund (BERF) project completion rates is presented in Table 7.

Table 7

Demographic Profile of Respondents

Characteristic	Total Participants	Completed Projects	Completion Rate
Calbayog City	48	23	47.9%
Samar	36	18	50.0%
Catbalogan City	33	16	48.5%
Total	**117**	**57**	**48.7%**

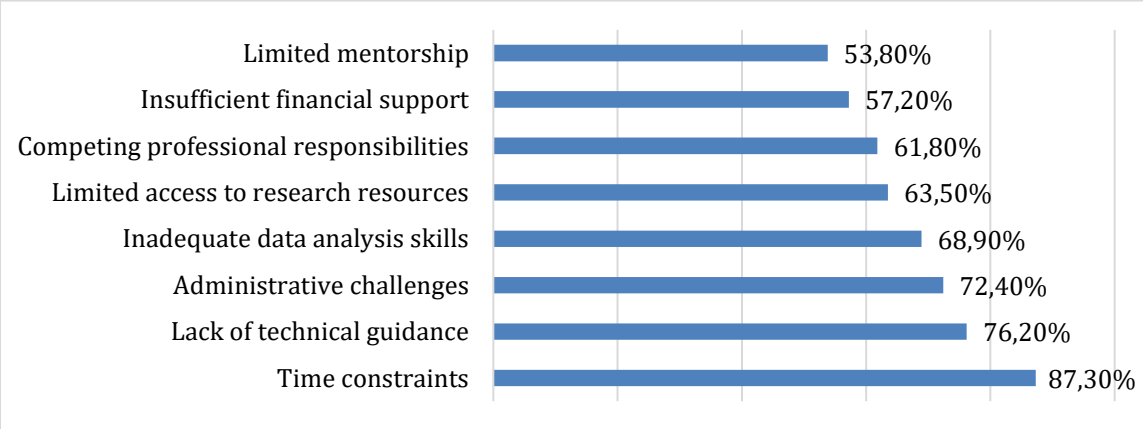
Of the 287 respondents, 117 (40.8%) had participated in BERF projects over the past three years. Among these participants, only 57 successfully completed their research projects, yielding an overall completion rate of 48.7%. This finding aligns with the observation in the TA Needs Assessment Report regarding low completion rates of BERF studies. The completion rates were relatively consistent across divisions, ranging from 47.9% in Calbayog City to 50.0% in Samar.

Factors Affecting Research Completion

Teachers identified several factors affecting BERF project completion, as shown in Figure 1.

Figure 1

Factors Affecting BERF Project Completion



ime constraints emerged as the most significant barrier (87.3%), followed by lack of technical guidance (76.2%) and administrative challenges (72.4%). These findings corroborate Cherney and Fitzgerald's (2016)

assertion that competing professional responsibilities often impede teachers' research productivity. The high percentage citing inadequate data analysis skills (68.9%) aligns with the lower competence scores in this dimension, suggesting a critical intervention area.

Predictors of Research Competence

Multiple regression analysis identified significant predictors of research competence among teachers (Table 8).

Table 8

Multiple Regression Analysis of Research Competence Predictors

Predictor Variable	**Beta**	**t-value**	**p-value**
Educational Attainment	0.326	4.87	<.001*
Years of Teaching Experience	0.248	3.76	<.001*
Research Training Hours	0.412	6.38	<.001*
School Level (Elementary vs. Secondary)	0.107	1.58	0.116
Gender	0.063	0.94	0.348

*Significant at $p<.001$ $R^2 = 0.534$, Adjusted $R^2 = 0.525$, $F(5,281) = 64.38$, $p<.001$

The regression model accounted for 53.4% of the variance in research competence ($R^2=0.534$, $p<.001$). Three variables emerged as significant predictors: research training hours ($\beta=0.412$, $p<.001$), educational attainment ($\beta=0.326$, $p<.001$), and years of teaching experience ($\beta=0.248$, $p<.001$). School level and gender did not significantly predict research competence.

The strong predictive value of research training hours reinforces the critical importance of professional development in building research capacity. This finding supports the recommendation in the TA Needs Assessment Report regarding capacity-building workshops and mentoring programs.

Technical Assistance Needs

Based on competence gaps and completion challenges, teachers identified specific technical assistance needs (Figure 2).

Figure 2

Identified Technical Assistance Needs

The highest-rated technical assistance needs aligned closely with the identified competence gaps, particularly in data analysis (88.2%) and research writing (83.6%). These priorities echo the findings of Touret and de Lamballerie (2020) regarding the importance of technical support in research capacity building.

The substantial demand for mentoring on research proposal writing (83.6%) highlights the need for structured guidance beyond formal training sessions. This corresponds with the capacity-building recommendations in the TA Needs Assessment Report, particularly regarding mentoring on research proposal writing and report development.

V. Conclusion and Recommendation

This study assessed the research skills and competencies of basic education teachers in Samar Island, Philippines, revealing moderate overall competence levels with significant variations based on educational attainment, years of experience, and research training. While teachers demonstrated relatively higher proficiency in research knowledge, substantial gaps were identified in data analysis capabilities, research writing proficiency, and research utilization. The completion rate of BERF projects was suboptimal at 48.7%, with time constraints, lack of technical guidance, and inadequate data analysis skills emerging as primary barriers.

The findings underscore the need for comprehensive interventions to strengthen research capacity within the basic education sector in Samar

Island. Educational attainment, teaching experience, and particularly research training emerged as significant predictors of research competence, explaining 53.4% of the variance. Technical assistance needs aligned closely with identified competence gaps, emphasizing data analysis, research proposal writing, and methodology training as priority areas.

Based on these findings, the following recommendations are proposed:

1. **Capacity Building Programs**: Implement structured, sequential training programs focusing on identified competence gaps, particularly data analysis, research methodology, and research writing. Training should be differentiated based on existing competence levels.
2. **Mentoring Systems**: Establish formal mentoring mechanisms pairing experienced researchers with novice teacher-researchers, providing sustained guidance throughout the research process.
3. **Resource Support**: Enhance access to research resources, including statistical software, research databases, and analysis tools, particularly in geographically isolated schools.
4. **Time Management Solutions**: Develop institutional mechanisms to address time constraints, such as reduced teaching loads for BERF grantees and scheduled research time blocks.
5. **Innovation Management Framework**: Establish a comprehensive framework for identifying, implementing, and sustaining educational innovations stemming from research findings.
6. **Monitoring and Evaluation Systems**: Strengthen tracking mechanisms for research progress and impact, providing early intervention for at-risk projects.
7. **Research Dissemination Channels**: Create accessible platforms for sharing research findings among teachers and translating results into classroom practice.
8. **Policy Development**: Formulate division-level policies to institutionalize research support systems and integrate research utilization into educational decision-making processes.

These recommendations align with the technical assistance needs identified in the TA Needs Assessment Report and address the specific challenges facing teachers in Samar Island. Implementing these targeted interventions, school divisions can foster a more robust research culture, improve BERF project completion rates, and ultimately enhance evidence-based educational practices.

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