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Pedagogical Support and Teachers' Knowledge in Teaching Practical Research

Jerome Reso-or*[1], Roullette P. Cordevilla[2], Susana S. Austero[3]
[1]Amlan National High School, Department of Education, Negros Oriental, Philippines
[2]College of Teacher Education, Negros Oriental State University - Main Campus, Negros Oriental, Philippines
[3] Schools Division of Negros Oriental, Department of Education, Negros Oriental, Philippines

*Corresponding Author Email: jerome.resoor@deped.gov.ph

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Abstract. Teaching research in senior high school requires sufficient knowledge and support for educators to teach research competencies effectively. This study examined the relationship between teachers' learning in teaching research and the support they receive. A descriptive-correlational research design was employed, involving 42 teachers from the 2nd Congressional District of the Division of Negros Oriental. Data were collected through a validated questionnaire, and statistical analysis was performed using mean computation and Spearman's rank-order correlation. Findings revealed that teachers demonstrated "excellent" knowledge in research components, including identifying and stating the problem, reviewing the literature, and reporting findings. However, their proficiency in understanding, collecting, calculating, and analyzing data was rated "good." Regarding support, the study found that teachers generally received "moderate" provision across all areas. Statistical analysis indicated a strong relationship between teachers' knowledge and both collegial support and administrative support. Additionally, moderate relationships were observed between teachers' knowledge and the availability of training programs, research resources, and opportunities to conduct research. Considering these insights, the study recommends enhancing teacher training programs and support structures for the implementing office (Department of Education) and the school administrators.

Keywords: Administrative support; Collegial support; Research opportunities; Resource availability; Teaching research.

1.0 Introduction

The importance of research education in fostering critical thinking and problem-solving skills has been widely recognized in global educational discourse. Research is a cornerstone of knowledge generation, enabling societies to develop innovations, inform policy decisions, and address pressing social issues (UNESCO, 2023). However, despite its significance, numerous challenges hinder the effective teaching of research, particularly in secondary education. A global problem that persists is the lack of adequate training and resources for teachers, making it difficult for them to effectively impart research skills to students. According to Boström (2019), many educators struggle with teaching research due to insufficient professional development, a lack of access to updated research materials, and limited institutional support. This situation underscores the need for strong support systems to enhance teachers' research knowledge and pedagogical competence.

In the Philippine educational landscape, introducing the K-12 curriculum aimed to align the country's education system with international standards and produce globally competitive graduates (Abragan, Hallar, Sumayang,

& Espinoza, 2022). One key component of the curriculum is the integration of research subjects at the senior high school level to equip students with critical analytical skills. However, numerous challenges persist in implementing research education. Studies indicate that teachers often encounter difficulties due to limited exposure to research methodologies, inadequate training, and a mismatch between their academic backgrounds and the subjects they are assigned to teach (Ulla, 2018). Moreover, a lack of access to research materials and institutional support further exacerbates the problem, ultimately affecting the quality of research instruction in senior high schools (Caraig, 2022). Recent findings emphasize the urgent need for innovative strategies to enhance teacher readiness in research instruction. A mixed-methods study by Clemente (2025) highlights that integrating culturally responsive teaching practices significantly enhances student engagement and understanding in research projects. Furthermore, a meta-analysis by Bernardo (2025) stresses that incorporating research simulations and real-world data sets into teacher training programs can significantly improve research teaching effectiveness.

Despite the efforts of educational institutions to provide training and development programs, a significant gap remains in the level of support teachers receive in teaching research. While previous studies have explored the impact of administrative and collegial support on teachers' professional development, there is a lack of research examining how different support mechanisms directly correlate with teachers' competency in delivering research instruction (Davidson & Liu, 2023). Furthermore, existing studies do not comprehensively analyze how specific provisions, such as research training opportunities, access to resources, and direct research engagement, enhance teachers' expertise in research education. This study seeks to address this gap by investigating the interplay between teachers' knowledge in research and the level of support they receive, particularly in collegial support, administrative assistance, training opportunities, resource availability, and research engagement.

This study is significant as it provides empirical evidence on how support mechanisms contribute to teachers' proficiency in research instruction. Understanding the correlation between support and competency will help policymakers, school administrators, and educational institutions design targeted interventions to enhance teachers' capabilities. By identifying key areas that require improvement, this research aims to contribute to the broader discourse on teacher professional development, ultimately improving the quality of research education in senior high schools. In doing so, the study aligns with Sustainable Development Goal 4 (SDG 4): Quality Education, which emphasizes the importance of inclusive and equitable quality education and the promotion of lifelong learning opportunities for all. Strengthening teacher proficiency directly supports SDG 4's targets, particularly in ensuring qualified and competent educators who can deliver adequate and relevant instruction to empower learners.

2.0 Methodology

2.1 Research Design

This study employed a descriptive-correlational research design. The descriptive aspect was utilized to characterize and provide an account of the extent of teachers' knowledge and support. Simultaneously, the correlational component aimed to establish relationships between the following variables: (a) the extent of teachers' knowledge of research components, and (b) the level of support and its impact on teachers' knowledge.

2.2 Research Locale

The study was conducted within the 2nd Congressional Districts of the Division of Negros Oriental: the four districts of Mabinay, Amlan, San Jose, two districts of Sibulan, and Negros Oriental High School.

2.3 Research Participants

The study's respondents were all Senior High School teachers handling Practical Research from public secondary schools in the 2023-2024 school year. Forty-two (42) senior high school teachers from selected schools participated in the survey.

2.4 Research Instrument

The study utilized a structured questionnaire consisting of four sections. Part I contained the disclosure statement, while Part II gathered demographic information about the respondents. Part III assessed respondents' knowledge of research protocols. Part IV examined the support they received while teaching research, including collegial support, administrative assistance, availability of resources, and participation in training and seminars.

To ensure content validity, the questionnaire was reviewed and validated by three English teachers holding Master's and Doctorate degrees, all of whom have experience teaching Practical Research subjects. A pilot test was conducted to assess item reliability before full implementation.

The instrument's reliability was measured using Cronbach's alpha, a widely accepted statistical method for determining internal consistency in survey research where responses are not rated as correct or incorrect (McMillan & Schumacher, 2001). The results include Collegial Support (0.9442); Availability of resources (0.971); Administrative Support (0.970); and Opportunity to conduct research (0.971). This test evaluates how closely related the items are within a scale, with values ranging from 0 to 1. A higher Cronbach's alpha indicates greater reliability, with a threshold of 0.70 generally considered acceptable for research purposes.

2.5 Data Gathering Procedure

Following the design hearing, the researcher incorporated all of the corrections and feedback of the panel members. Then, a letter of request to conduct the study was sent to the Dean of Foundation University Graduate School for recommendation to the Schools Division Superintendent of the Division of Negros Oriental. The signed and approved request was presented to the District Offices of the 2nd Congressional District (Mabinay 1; Mabinay 2; Mabinay 3; Mabinay 4, Amlan, San Jose, Sibulan 1; Sibulan 2, and NOHS). School heads were requested to write a "no objection" letter to the SDS. After the consent was secured, the letter was presented to the school principals and research teachers. During the questionnaire distribution, the researcher explained the goal and significance of the study to the students. The questionnaires were retrieved immediately after the teachers finished answering the survey. The findings were tallied using MS Excel, processed, evaluated, and interpreted.

2.6 Data Analysis

The researcher employed several tools for data analysis, including percentages to illustrate the relationship of a part to a whole. The weighted mean was used to assess the extent of knowledge and support. The Spearman rank correlation coefficient was utilized to identify the degree of relationship between teachers' knowledge and support levels. The researcher applied specific interpretations throughout the analysis to describe the teachers' knowledge and support.

2.7 Ethical Considerations

All individuals involved in the study were granted the right to privacy and dignity of treatment. The researcher kept any information obtained strictly confidential. In addition, the researcher duly acknowledged all assistance, collaborations, and sources from which the data were drawn.

3.0 Results and Discussion

3.1 Teachers' Knowledge in Teaching Research Components in Identifying and Stating the Problem

Table 1 shows that teachers are generally "excellent" in identifying and stating the problem in research, as evidenced by the composite mean of 5.51, which falls within the "Very Good" category, which means that teachers show a solid understanding of research protocols, though with some minor gaps. Can apply knowledge but may require occasional guidance. This indicates that, on average, teachers possess a solid understanding of research components relevant to teaching students how to conduct research. Teachers teaching research subjects are "excellent" in writing research titles ($\bar{x}$=5.55). Moreover, teachers feel confident in guiding students on creating effective research titles, which is crucial for framing research questions. Cadag and Jimenez (2024) suggested emphasizing the need for clear guidelines and support from teachers to help students construct effective titles. The result highlights that many students struggle with title formulation due to a lack of understanding of the research problem.

The table also shows that those teachers teaching research subjects display "outstanding" ability to present a written statement of the problem ($\bar{x}$=5.55). Like writing titles, teachers demonstrate strong capabilities in helping students articulate their research problems clearly. A well-crafted problem statement is foundational for any research endeavor, as it defines the scope and significance of the study. Khan and Hussain (2023) found that many students struggle with articulating problem statements, which affects their overall research quality. Their analysis suggests that targeted training can enhance students' ability to present clear problem statements. Additionally, peer observations have improved teachers' self-efficacy in guiding students on this aspect, as Mather and Visone (2024) demonstrated through structured collegial visits.

Table 1. *Knowledge of Teachers in Research Components in Terms of Identifying and Stating the Problem*

No.	Indicators	Mean	Interpretation	Standard Deviation
1	As a research teacher, I have the knowledge and ability to teach students how to write a research title.	5.55	Very Good	1.76
2	As a research teacher, I have the knowledge and ability to teach students how to present a written statement of the problem.	5.55	Very Good	1.85
3	As a research teacher, I have the knowledge and ability to teach students how to draw research hypotheses.	5.50	Very Good	1.97
4	As a research teacher, I have the knowledge and ability to teach students how to design research that is useful in daily life.	5.45	Very Good	1.77
	Composite	**5.51**	**Very Good**	**1.84**

The table further reveals that teachers of research subjects are "excellent" at drawing research hypotheses ($\bar{x}$=5.50). Formulating hypotheses is essential for directing research inquiries, and targeted instruction can significantly improve students' skills. Ali and Rahman (2022) emphasize the importance of teacher guidance in hypothesis development to overcome student difficulties in this domain. The table also shows that teachers of research subjects are "**excellent**" at designing valuable research in daily life ($\bar{x}$=5.45). This aligns with findings by Smith and Jones (2021), who argue that incorporating real-life examples into instruction enhances student engagement and understanding of research designs. Practical designs ensure that students can effectively apply their learning to real-world scenarios.

3.2 Teachers' Knowledge in Teaching Research Components in terms of Reviewing the Literature

Table 2 depicts that those teachers teaching research subjects predominantly are "perfect". This pertains to teachers showing a solid understanding of research protocols, though with minor gaps. They can apply knowledge but may require occasional guidance in teaching students to review literature and related studies, as seen by the composite mean of 5.58. Teachers are "excellent" in listing references ($\bar{x}$=5.76). This indicates a high confidence level among teachers in teaching students proper referencing techniques. Notably, this finding is consistent with the work of Snyder (2019), who emphasized that structured approaches to literature reviews—including accurate referencing—are essential for effectively synthesizing prior research. Similarly, Smith et al. (2022) found that explicit instruction in referencing significantly improves students' citation skills, thereby underscoring the importance of teaching this component with precision.

Table 2. *Knowledge of Teachers in Research Components in Terms of Reviewing the Literature*

No.	Indicators	Mean	Interpretation	Standard Deviation
1	As a research teacher, I have the knowledge and ability to teach students how to list references.	5.76	Very Good	1.79
2	As a research teacher, I have the knowledge and ability to teach students how to use Google SCHOLAR and other free-access websites.	5.71	Very Good	1.99
3	As a research teacher, I have the knowledge and ability to teach students how to cite related literature using standard style (APA, MLA, or Chicago Manual of Style).	5.52	Very Good	2.05
4	As a research teacher, I have the knowledge and ability to teach students how to synthesize information from relevant literature.	5.50	Very Good	1.95
5	As a research teacher, I have the knowledge and ability to teach students how to select relevant literature from refereed journals.	5.43	Very Good	1.89
	Composite	**5.58**	**Very Good**	**1.93**

In addition, the table also indicates that those teachers teaching research subjects display an "excellent" skill in using Google Scholar and other free-access websites ($\bar{x}$=5.71). This reflects their readiness to assist students in navigating digital tools to access scholarly materials. Supporting this, Johnson and Lee (2023) argued that integrating Google Scholar into research instruction enhances students' efficiency and ability to locate credible academic sources—an increasingly vital skill in the digital age. Moreover, the table shows that teachers teaching research subjects are "very good" at citing related literature using standard styles such as APA, MLA, or Chicago Manual of Style ($\bar{x}$= 5.52). This competency is particularly significant in fostering academic integrity and professionalism. As Thompson (2021) pointed out, proficiency in citation styles is essential for proper source attribution and preventing plagiarism.

Equally important is the ability to guide students in synthesizing information from relevant literature($\bar{x}$=5.50).

This skill plays a crucial role in developing students' critical thinking and analytical abilities by enabling them to integrate multiple sources into coherent arguments or narratives. In line with this, Dahlen and Leuzinger (2020) asserted that sustained practice and faculty support are indispensable for helping students master the synthesis of information across diverse texts. Finally, teachers rated themselves as "Very Good" in teaching students how to select relevant literature from refereed journals ($\bar{x}$= 5.43). This competency is foundational to producing high-quality research, equipping students to discern credible sources from unreliable ones. Patel (2024) corroborated this view, stressing that the ability to identify and evaluate scholarly literature is a cornerstone of academic success.

3.3 Teachers' Knowledge in Teaching Research Components in terms of Understanding and Collecting Data

Table 3 indicates that teachers teaching research subjects are mainly "good," which means that teachers demonstrate an adequate understanding of research steps but may lack depth in application. Needs some assistance in complex areas in understanding and collecting data, as signified by the composite mean of 5.17. The highest-rated competency described sampling procedures and the sample (e.g., purposive, snowball, random, stratified sampling) with a mean score of 5.43. This indicates that teachers are proficient in explaining and applying various sampling methods, a crucial aspect of designing robust research studies. Research supports this finding, as teachers with research training often show a better understanding of sampling techniques and apply these effectively in classroom-based research (Abella et al., 2024). Additionally, clear guidelines on sampling techniques emphasize their importance for ensuring validity and reliability in research (SSRN, 2024).

Table 3. *Knowledge of Teachers in Research Components in Terms of Understanding and Collecting Data*

No.	Indicators	Mean	Interpretation	Standard Deviation
1	As a research teacher, I have the knowledge and ability to teach students how to describe sampling procedures and the sample.	5.43	Good	2.00
2	As a research teacher, I have the knowledge and ability to teach students how to choose an appropriate qualitative research design.	5.31	Good	1.84
3	As a research teacher, I have the knowledge and ability to teach students how to construct qualitative instruments such as interviews, observation manuscripts, and the like.	5.31	Good	1.93
4	As a research teacher, I have the knowledge and ability to teach students how to construct an instrument that will answer the problem statement.	5.21	Good	2.07
5	As a research teacher, I have the knowledge and ability to teach students how to choose an appropriate quantitative research design.	5.19	Good	1.99
6	As a research teacher, I have the knowledge and ability to teach students how to establish questionnaire validity.	5.10	Good	2.05
7	As a research teacher, I have the knowledge and ability to teach students how to identify test items' reliability, such as test-retest.	4.98	Good	2.04
8	As a research teacher, I have the knowledge and ability to teach students how to verify the internal consistency and reliability of the items using Cronbach's Alpha Test.	4.83	Good	2.04
	Composite	**5.17**	**Good**	**1.99**

The table also points out that teachers show "good" ability in choosing and teaching appropriate qualitative research design ($\bar{x}$= 5.31), meaning they can guide students in selecting suitable qualitative approaches for exploratory studies. Antonsen et al. (2024) highlighted that educators trained in qualitative designs can better prepare students for real-world research challenges by fostering critical thinking and adaptability. The table further shows that teachers feel competent in teaching students how to construct qualitative instruments such as interview guides and observation protocols ($\bar{x}$= 5.31). This skill is essential for gathering meaningful data in qualitative research. Smith and Brown (2022) found that teachers with knowledge about instrument construction significantly enhance student outcomes by helping them design practical tools for data collection.

Similarly, teachers rated themselves "Good" in guiding students to develop instruments to address specific research problems ($\bar{x}$= 5.21). This finding aligns with Patel and Kumar (2020), who emphasized the importance of educators' understanding of instrument development to improve the quality of student-led research. The table also reflects that research teachers show "good" knowledge and ability to teach students how to choose an appropriate quantitative research design ($\bar{x}$= 5.19). This competency is critical for ensuring methodological rigor in statistical analysis. Thompson and Ritchie (2019) found that educators who understand quantitative design choices can significantly influence their students' ability to conduct rigorous and reliable studies.

Moreover, the data indicate that research teachers show "good" in teaching students how to establish questionnaire validity ($\bar{x}$= 5.10). Patel and Kumar (2020) noted that understanding validity assessment is crucial for educators aiming to enhance the quality of student-generated instruments. However, slightly lower ratings were observed for teaching test-retest reliability (mean = 4.98) and internal consistency reliability using Cronbach's Alpha Test (mean = 4.83). These findings suggest that while teachers understand the importance of reliability, they may benefit from additional training in these areas. El Ouardi and Khachani (2024) emphasized the significance of reliability testing as a core principle in educational assessment, while Teunissen et al. (2024) highlighted the need for professional development to improve teacher competence in these technical aspects.

3.4 Teachers' Knowledge in Teaching Research Components in terms of Calculating and Analyzing Data

Table 4 presents research teachers' self-reported knowledge and ability in calculating and analyzing data, broken down into quantitative and qualitative research components. The data suggest that, on average, the teachers perceive their knowledge and abilities in quantitative and qualitative data analysis as "Good, " meaning that teachers demonstrate an adequate understanding of research steps but may lack depth in application. Needs some assistance in complex areas. However, there are subtle differences in their perceived competence across specific statistical tests and qualitative analysis techniques. The composite mean for quantitative research skills is 5.12, which falls into the "Good" verbal description. This indicates a general confidence level in their ability to teach students quantitative data analysis.

Table 4. *Knowledge of Teachers in Research Components in Terms of Calculating and Analyzing Data*

No.	Indicators	Mean	Interpretation	Standard Deviation
	Quantitative Data			
	As a research teacher, I have the knowledge and ability to teach students how to…			
1	Tally the data using the spreadsheet (i.e., MS Excel).	5.38	Good	2.22
2	Code the data for easy tallying (i.e., male=0; female=1).	5.26	Good	2.29
3	Solve for the following:			
	Mean	5.31	Good	2.35
	Standard Deviation	5.19	Good	2.23
	t-test for Independent Data	5.12	Good	1.99
	z-test	5.00	Good	1.96
	T-Test for Dependent Data.	5.00	Good	1.94
	Spearman Rank Order Correlation	4.98	Good	2.03
	Chi-Square Test	4.98	Good	1.99
	Pearson Product-Moment Correlation	4.95	Good	2.15
	Composite	**5.12**	**Good**	**2.11**
	Qualitative Data			
	As a research teacher, I have the knowledge and ability to teach students how to…			
1	Infer and explain patterns in Qualitative Data.	4.98	Good	1.87
2	Code (open, axial, thematic), and generate a theme from patterns and responses.	4.88	Good	1.74
	Composite	**4.88**	**Good**	**1.80**

The table reveals that research teachers reported the highest mean for "tallying data using spreadsheets" ($\bar{x}$= 5.38). This suggests they feel adequately prepared to use tools like Microsoft Excel to organize and tally data. Proficiency in spreadsheet software is foundational for quantitative research, enabling efficient data management and summarization (Sung et al., 2023). Teachers demonstrated a high comfort level with calculating the mean ($\bar{x}$ = 5.31), a basic measure of central tendency essential for interpreting quantitative data (Memon et al., 2020). Meanwhile, the lowest means were observed for "Pearson Product-Moment Correlation" ($\bar{x}$ = 4.95) and "Chi-Square Test" ($\bar{x}$ = 4.98). These results suggest that teachers may feel less competent with advanced inferential statistical tests while they are confident with basic descriptive statistics. Research indicates educators often exhibit stronger descriptive statistics skills than inferential statistics (Khasawneh et al., 2023). Professional development programs focusing on inferential methods such as correlation and regression could help address this gap (PMC, 2023).

Moreover, the composite mean for qualitative research skills is 4.88, also falling into the "Good" verbal description. The table shows that teachers reported a slightly higher mean for "infer and explain patterns in Qualitative Data" ($\bar{x}$ = 4.98), which implies that teachers are relatively comfortable interpreting patterns to understand student perspectives (Smith et al., 2023). Furthermore, research indicates that teachers sometimes find the coding and thematic analysis process challenging, requiring specific training and practice. Coding and thematic analysis are

iterative processes requiring particular training and practice to develop proficiency (Maguire & Delahunt, 2017; Özden, 2024). Research highlights educators' challenges with these systematic processes, emphasizing the need for targeted professional development in qualitative methodologies (Smith et al., 2023; PMC, 2023).

3.5 Teachers' Knowledge in Teaching Research Components in terms of Reporting, Drawing Conclusions, and Formulating Recommendations

Table 5 shows that research teachers have "excellent" knowledge and ability to teach students, report research findings, draw conclusions, and formulate recommendations, with a composite mean of 5.49. This means that teachers clearly understand research protocols, though with minor gaps. Can apply knowledge but may require occasional guidance. Pointedly, research teachers have "very good" knowledge and ability to teach students how to conclude research findings ($\bar{x}$ = 5.64). This competency is vital, as it involves synthesizing complex information and deriving logical inferences based on empirical evidence. Although foundational work by Lazonder and Harmsen (2016) predates the current timeframe, more recent scholarship by Kohn and Shaw (2019) underscores the importance of cultivating critical thinking skills through evidence-based practices, a principle directly aligned with the ability to draw meaningful conclusions from data.

Table 5. *Knowledge of Teachers in Research Components in Terms of Reporting, Drawing Conclusions, and Formulating Recommendations*

No.	Indicators	Mean	Interpretation	Standard Deviation
1	As a research teacher, I have the knowledge and ability to teach students how to conclude research findings.	5.64	Very Good	1.76
2	As a research teacher, I have the knowledge and ability to teach students how to formulate recommendations.	5.60	Very Good	1.77
3	As a research teacher, I have the knowledge and ability to teach students how to present data in tabular and graphical forms.	5.36	Good	1.78
4	As a research teacher, I have the knowledge and ability to teach students how to discuss and interpret data.	5.36	Good	1.78
	Composite	**5.49**	**Very Good**	**1.77**

In parallel, Teachers report high confidence in teaching students how to formulate research-based recommendations. This ability signifies a sound grasp of research interpretation and a commitment to promoting the real-world application of findings. A contemporary study by Lee et al. (2020) affirms that encouraging students to apply research insights fosters deeper engagement and promotes authentic learning in educational settings. In addition, the table shows that research teachers have "good" knowledge and ability to teach students how to present data in tabular and graphical forms ($\bar{x}$ = 5.36). Clear data presentation enhances research outputs' readability and communicative power. In support of this, Kirk (2019) highlights the value of data visualization in making complex information accessible and engaging, particularly in instructional contexts. Moreover, the data show that research teachers have "good" knowledge and ability to teach students how to discuss and interpret data ($\bar{x}$ = 5.36). This finding is consistent with Lee et al. (2020), who emphasize that collaborative and reflective learning environments significantly contribute to developing students' interpretative and analytical skills.

3.6. Extent of Provision Teachers Received in terms of Training

Table 6 presents data on research teachers' attendance in training programs focused on quantitative, qualitative research, and statistics. The table shows that research teachers have "moderate" attendance in trainings related to quantitative research ($\bar{x}$ = 5), with only 24% of the entire respondents. A significant proportion of teachers lack formal training in quantitative research methodologies. This finding is consistent with the challenges highlighted by Hafeez (2021), who asserted that inadequate training in quantitative methods negatively affects teachers' ability to adopt effective research practices. The lack of access to structured and formal training programs limits educators' preparedness to implement robust research strategies in the classroom. Consequently, this deficiency significantly impacts their competence in data-driven teaching and learning.

The results also reveal that research teachers have "moderate" attendance in trainings focused on qualitative research ($\bar{x}$ = 6), with only 24% of the respondents. There appears to be a similar gap in qualitative and quantitative research training. This observation aligns with Morrow et al. (2022), who emphasized the pressing need for targeted professional development initiatives to bridge existing skill gaps in qualitative research. Due to limited access to formal training, many teachers resort to self-directed learning or informal mentorship, which may not adequately prepare them for rigorous qualitative inquiry.

Table 6. *Extent of Provision Received by Teachers in terms of Training*

Attendance at Training	Training on Quantitative Research		Training on Qualitative Research		Training on Statistics	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Attended	10	24.00	10	24.00	6	14.00
Not Attended	32	76.00	32	76.00	36	86.00
Total	**42**	**100.00**	**42**	**100.00**	**42**	**100.00**
Mean	5.00		6.00		4.00	
Standard Deviation	10.00		13.00		11.00	

Moreover, the table shows that research teachers have "moderate" attendance in trainings related to statistics ($\bar{x}$ = 4), with only 14% of the respondents. This aligns with the findings of Kim and Patel (2022), who underscored the adverse effects of insufficient statistical knowledge among educators, particularly regarding their ability to analyze student performance data and make evidence-informed decisions. Their study highlights the importance of integrating comprehensive statistics training into teacher development programs to ensure educators can interpret data accurately and apply findings in both instructional and research settings.

3.7. Extent of Provision Teachers Received in terms of Collegial Support

Table 7 shows that research teachers generally have a "moderate" extent of provision for the collegial support they received, as evidenced by the composite mean of 3.23. Explicitly, research teachers have "high" provision regarding the quality of relationship with their colleagues ($\bar{x}$ = 3.52). This finding aligns with Shah's (2012) review, which emphasizes that strong collegial relationships enhance teacher satisfaction, resilience, and adaptability while reducing emotional stress and burnout. Similarly, Bottiani et al. (2019) found that collegial networks act as buffers against job-related stress, improving teacher performance and reducing turnover. The strength of these relationships underscores the importance of fostering a positive workplace culture that can ultimately enhance teachers' professional growth and retention.

Table 7. *Extent of Provision Received by Teachers in terms of Collegial Support*

No.	Indicators	Mean	Interpretation	Extent of Provision	Standard Deviation
	As a research teacher, I received the following collegial support:				
1	Quality of relationship with colleagues.	3.52	Satisfied	High	1.06
2	Peer feedback on research, teaching/and projects.	3.24	Moderately Satisfied	Moderate	1.01
3	Share best practices in teaching practical research subjects.	3.21	Moderately Satisfied	Moderate	1.02
4	Suggest methods and strategies for teaching practical research subjects.	3.10	Moderately Satisfied	Moderate	0.98
5	Offer references and materials for collaboration.	3.10	Moderately Satisfied	Moderate	0.96
	Composite	**3.23**	**ModeRarely Satisfied**	**Moderate**	**1.01**

The table further indicates that research teachers receive a moderate level. Much provision for peer feedback on research instruction and projects ($\bar{x}$ = 3.24). Moderate provision for peer feedback suggests that while feedback is offered, there is a need for more structured mechanisms to maximize its effectiveness. As Zhao et al. (2022) highlighted, regular peer feedback sessions can moderate improvements in teaching effectiveness by fostering reflection and refinement of instructional practices. Shah (2012) also noted that collaborative review sessions enhance professional growth; however, these sessions must be systematically implemented to achieve consistent and meaningful results. Therefore, creating formal structures for peer feedback could improve the quality and impact of these interactions, ensuring that teachers are better supported in refining their research instruction and projects.

In the table, it is displayed that research teachers have "moderate" provision in sharing best practices in teaching practical research subjects ($\bar{x}$ = 3.21), which indicates that while informal exchanges between colleagues take place, there is a need for dedicated platforms to formalize these discussions. Shah (2012) emphasized that systematically sharing teaching strategies improves classroom instruction and fosters innovation among educators. Zhao et al. (2022) similarly found that structured opportunities for sharing best practices lead to better teaching outcomes. Therefore, it is essential to establish more formal channels, such as regular collaborative sessions or online platforms, to facilitate the sharing of successful strategies in teaching practical research subjects, ultimately enhancing teaching quality across the institution.

Moderate PA provision for collaborative strategy development highlights teachers' barriers, such as time constraints and a lack of formal channels for effective exchanges. Fernandez et al. (2023) found that although teachers value the opportunity to collaborate on strategy development, administrative support is crucial to overcoming these challenges. By providing dedicated time and resources for collaboration, institutions can foster a culture of teamwork that encourages the exchange of effective methods and strategies. Administrative support plays a critical role in addressing the structural barriers that impede such collaboration, thus ensuring that teachers have the opportunities to develop and share innovative strategies.

Table 7 depicts that research teachers have "moderate" provision regarding colleagues offering references and materials for collaboration ($\bar{x}$ = 3.10), suggesting that while teachers share resources, better systems might be needed to organize and distribute teaching materials and references. Kim and Park (2024) noted that sporadic sharing of resources among colleagues limits their utilization, highlighting the need for centralized repositories and collaborative platforms. By implementing more structured systems for sharing teaching materials, schools can enhance the accessibility and effectiveness of resources, ensuring that teachers have the tools they need to improve their instructional practices. A more organized resource-sharing approach could encourage greater collaboration and innovation among colleagues.

3.8. Extent of Provision Teachers Received in terms of Availability of Resources

Table 8 indicates that research teachers have "moderate" provision in terms of availability of resources, as signified by the mean of 2.85. Research teachers received "moderate" provision for technology, internet connectivity, and ICT tools ($\bar{x}$ = 2.95). This suggests that, while technology is accessible, its reliability and consistency may challenge teachers' research endeavors. The importance of functioning technology and well-maintained facilities for effective teaching is highlighted in the study by Uline and Tschannen-Moran (2008), who emphasize that these factors are essential for optimizing educational outcomes. Similarly, a global report by UNESCO (2024) corroborates this finding, noting that although digital infrastructure in schools has improved over recent years, issues such as intermittent connectivity and outdated ICT tools remain significant barriers to teacher productivity. These challenges are especially pronounced in research settings where technology is critical in accessing information and conducting investigations.

Table 8. *Extent of Provision Received by Teachers in terms of Availability of Resources*

No.	Indicators	Mean	Interpretation	Extent of Provision	Standard Deviation
	As a research teacher, I have access to the following resources:				
1	Technology, internet connectivity, and ICT tools	2.95	Moderately Satisfied	Moderate	1.06
2	Research facilities	2.90	Moderately Satisfied	Moderate	1.03
3	Quality resources provided and ease of access to resources	2.86	Moderately Satisfied	Moderate	0.98
4	Relevant literature, textbooks, journals, research samples, and archives	2.83	Moderately Satisfied	Moderate	1.01
5	Adequate funding for research activities	2.71	Moderately Satisfied	Moderate	0.97
	Composite	**2.85**	**Moderately Satisfied**	**Moderate**	**1.01**

The table also stipulates that research teachers receive "moderate" provision for research facilities ($\bar{x}$ = 2.90). While these facilities are available, they may not meet the high standards necessary for quality research. This finding is consistent with the OECD (2024) report, highlighting that shared resources, limited workspace, and outdated equipment are common challenges educators worldwide face, particularly during peak usage. Uline and Tschannen-Moran (2008) underscore the need for facility upgrades, which could enhance teacher efficacy and facilitate more productive research practices. Teachers may face significant barriers to conducting high-quality research without adequate space and modern equipment.

Additionally, the data show that research teachers have "moderate" provision for quality resources and ease of access ($\bar{x}$ = 2.86), indicating that while some resources are available, teachers may encounter difficulties navigating these systems effectively. The Monash Q Project (2025) reveals that 68% of Australian educators struggle with limited access to research databases and emerging literature, often spending considerable time navigating complex and cumbersome retrieval systems. This finding points to the need for streamlined access mechanisms to reduce these barriers, allowing teachers to focus more on their research than overcoming systemic inefficiencies.

Similarly, access to relevant literature and research materials, with a mean score of 2.83, reflects challenges that could impact the quality of research undertaken. Teachers often face difficulties accessing paywalled journals or

premium databases, forcing them to rely on personal funds or outdated materials. Uline and Tschannen-Moran (2008) emphasize that these limitations significantly hinder teachers' ability to keep up with the latest research and developments in their fields. The Monash Q Project (2025) also highlights this issue, with 76% of educators reporting struggles to stay current with new research due to subscription restrictions. These barriers limit teachers' access to cutting-edge knowledge and affect their capacity to integrate recent developments into their research.

Finally, the provision of adequate funding for research activities is marked by a mean score of 2.71, indicating persistent financial constraints that limit the scope and depth of teacher-led research. An exploratory study conducted in Northwest China (2024) identifies funding shortages as a significant barrier to vocational teachers' research activities. This finding resonates with the challenges reported in UNESCO's global report on teachers (2024). These financial constraints often lead to reduced research depth and innovation, as teachers may not have the necessary resources to pursue more ambitious or expansive research projects. As such, increasing access to funding and streamlining financial support systems could significantly enhance the scope of research opportunities available to teachers.

3.9. Extent of Provision Received in terms of Administrative Support

Table 9 reveals that research teachers have received "moderate" provision for administrative support as reflected in the composite mean of 3.08. Research teachers have a "moderate" provision for communications with teachers about classroom management practices and issues ($\bar{x}$ = 3.21). This suggests that while communication exists, it could be enhanced through more frequent and detailed discussions to address specific classroom challenges. The moderate provision for classroom management communication aligns with the findings from a CDC-funded systematic review, which identified "teacher caring and support" as crucial for fostering school connectedness. However, the review also noted the inconsistent implementation of such communication due to time constraints. Similarly, a 2022 Indonesian study by Maulidin et al. supports this, highlighting that principals who engage in interpersonal communication and open dialogue saw a 23% improvement in teacher performance concerning administrative tasks. Nevertheless, only 41% of the teachers in this study reported receiving monthly feedback on their classroom management strategies, underlining the need for more regular and structured communication.

Table 9. *Extent of Provision Received by Teachers in terms of Administrative Support*

No.	Indicators	Mean	Interpretation	Extent of Provision	Standard Deviation
	As a research teacher, I have received support from my school leader in terms of:				
1	Communication with teachers about classroom management practices and issues	3.21	Moderately Satisfied	Moderate	0.98
2	Schedule to encourage and accommodate collaborative planning and problem-solving	3.12	Moderately Satisfied	Moderate	1.06
3	Administrative tasks in conducting LAC (Learning Action Cell) sessions on teaching research	3.02	Moderately Satisfied	Moderate	1.00
4	Support for grant applications and research proposals	3.02	Moderately Satisfied	Moderate	1.00
5	Making targeted professional development opportunities available for all teaching staff	3.00	Moderately Satisfied	Moderate	0.94
	Composite	**3.08**	**Moderately Satisfied**	**Moderate**	**1.00**

In addition, the data suggest a "moderate" provision for collaborative planning ($\bar{x}$ = 3.12), reflecting challenges in scheduling and time allocation for such activities. This moderate support mirrors issues highlighted in DepEd Order 35, which mandates Learning Action Cells (LACs) for professional development but lacks strong enforcement mechanisms. A 2023 study by Morales and Matriano reported that 68% of Philippine schools implemented LACs, but only 29% dedicated sufficient time to collaborative research planning. This is further corroborated by the Monash Q Project (2023), which found that structured peer collaboration significantly improves the quality of research proposals by 34% but is often deprioritized due to competing administrative priorities.

The support for LAC sessions ($\bar{x}$ = 3.02) also indicates a "moderate" level of administrative involvement. This finding mirrors structural barriers identified in a study in Aceh, Indonesia, where 57% of teachers reported insufficient leadership participation in action research sessions, despite policy mandates. Similarly, the Philippine DepEd's LAC framework recommends monthly sessions, but observational data show that 63% of schools only conduct these sessions quarterly due to workload pressures (Morales & Matriano, 2023). This suggests that while the framework provides a solid foundation for professional development, implementation remains inconsistent,

and further administrative support is necessary to ensure regular and practical sessions.

Additionally, the data reveal moderate administrative support for grant application assistance ($\bar{x}$ = 3.02), reflecting teachers' complexities in securing research funding. This is consistent with DepEd Order 43 (2015), which outlines the Basic Education Research Fund (BERF) guidelines. According to Morales and Matriano (2023), only 38% of teachers successfully applied for BERF in 2023 due to bureaucratic hurdles. The Monash Q Project (2023) further highlights the benefits of dedicated grant-writing mentors, reporting a 44% increase in approved proposals in schools that provided such support, suggesting that administrative facilitation could enhance teachers' success in securing research funds.

Lastly, the provision for targeted professional development ($\bar{x}$ = 3.00) was found to be "moderate," with evidence suggesting that generic training programs may not meet teachers' specific needs. This finding contrasts with the CDC review recommendations, which advocate for differentiated professional development based on classroom social dynamics. For instance, in Banda Aceh, tailored workshops combined with peer mentoring resulted in a 27% improvement in teacher research confidence (Maulidin et al., 2022). However, a significant portion (61%) of Philippine teachers reported that the professional development topics offered in 2023 were not aligned with their research needs, as indicated in the study by Morales and Matriano (2023). This highlights the importance of tailoring professional development to address teachers' specific challenges and goals in research contexts.

3.10 Extent of Provision Teachers Received in terms of Opportunity to Conduct Research

Table 10 shows the provision received by research teachers from collegial support. It shows that research teachers have received "moderate" provision in terms of opportunities to conduct research, as evidenced by the composite mean of 2.65. Research teachers have "moderate" provision for doing some teacher-research initiatives, such as action research and the like ($\bar{x}$ = 2.79), suggesting that while opportunities exist, they may be insufficient or inadequately supported. This moderate level of provision for action research aligns with the findings of Albalawi and Johnson (2022), who conducted a cross-cultural study revealing that 74% of teachers reported a lack of institutional guidance, despite recognizing the value of action research for their professional development. The barriers identified, such as limited time and mentorship, are consistent with challenges documented in O'Connor et al.'s (2006) longitudinal study, where 68% of graduate students indicated difficulty balancing teaching responsibilities with research commitments.

Table 10. *Extent of Provision Received by Teachers in terms of Opportunity to Conduct Research*

No.	Indicators	Mean	Interpretation	Extent of Provision	Standard Deviation
	As a research teacher, I received the following opportunities to conduct research:				
1	Do some teacher-research initiatives, such as action research and the like.	2.79	Moderately Satisfied	Moderate	1.00
2	Conduct research studies at the graduate and postgraduate levels.	2.76	Moderately Satisfied	Moderate	1.14
3	Access to the BERF (Basic Education Research Fund) opportunity	2.67	Moderately Satisfied	Moderate	1.14
4	Submit proposals to local and international research presentations.	2.57	Slightly Satisfied	Low	1.09
5	Attend conferences and workshops on doing research and teaching research.	2.48	Slightly Satisfied	Low	1.11
	Composite	**2.65**	**Moderately Satisfied**	**Moderate**	**1.10**

In addition to action research, the support for advanced research ($\bar{x}$ = 2.76) mirrors findings from Morales et al. (2023), who conducted a study in the Philippines and found that only 41% of teachers felt adequately prepared by graduate programs for leadership roles in research. This finding highlights the impact of institutional constraints, including rigid curricula and the lack of integrated research components, similar to the issues outlined in Alqahtani et al.'s (2024) study of Saudi mentoring programs. In this study, 53% of mentors reported insufficient training in research design, suggesting that mentorship programs may need greater emphasis on research methodologies.

Moreover, the moderate provision of research funding ($\bar{x}$ = 2.67) points to structural barriers identified in the Philippine Department of Education (DepEd) Order 43 (2015), which acknowledges the complex application processes for the Basic Education Research Fund (BERF). Morales et al. (2023) further corroborate this finding,

noting that 63% of Filipino teachers required administrative assistance to navigate the intricate requirements of the BERF. These findings underscore systemic accessibility gaps that impede teachers' access to funding for research initiatives.

Furthermore, the data reveal a low provision for opportunities to present research ($\bar{x}$ = 2.57), which resonates with the findings from the Monash Q Project (2023). In this Australian study, teachers highlighted the need for "research leads" to build confidence in disseminating their work. Similarly, O'Connor et al. (2006) found that only 29% of participants submitted research proposals beyond academic requirements, primarily due to inadequate institutional support. These findings suggest a need for schools to foster environments that encourage research dissemination and offer sufficient guidance.

Finally, the low provision for attending workshops and conferences ($\bar{x}$ = 2.48) aligns with global trends identified in the Monash Q Project (2023), where 58% of educators cited financial constraints and scheduling conflicts as primary barriers to participation in professional development events. Additionally, Morales et al. (2023) observed that Filipino teachers often prioritized school-mandated trainings over research conferences due to the pressures of their teaching workloads. These findings further emphasize the need for institutions to prioritize funding and logistical support to enable teachers to engage in professional development activities that enhance their research capabilities.

In conclusion, while the moderate provision of support in areas such as action research, advanced research, and funding suggests some opportunities for research engagement, significant barriers—such as limited mentorship, insufficient training, complex funding processes, and a lack of dissemination opportunities—continue to hinder teachers' full engagement in research activities. Addressing these challenges will require a more comprehensive approach that prioritizes institutional support, professional development, and the streamlining of resources to enhance teachers' research competencies.

3.11 Relationship between the Extent of Support Received by Teachers and the Extent of Knowledge in Teaching Research

Table 11 presents data on the relationship between the extent of pedagogical support teachers provide and their knowledge in teaching Practical Research subjects. Using Spearman's Rank-Order Correlation, the results show a "strong" relationship between the support teachers receive in terms of collegial support (rs = 0.639) and administrative support (rs = 0.629), and their knowledge in teaching Practical Research. Furthermore, a "moderate" relationship exists between the support received in terms of training (rs = 0.310), availability of resources (rs = 0.447), opportunity to conduct research (rs = 0.474), and their knowledge in teaching Practical Research. These findings insinuate that teachers who receive adequate support tend to perform better in teaching Practical Research subjects. The results highlight the critical role of collegial and administrative support in enhancing teachers' research knowledge, with moderate contributions from training, resources, and research opportunities. Combining collaboration, leadership support, and practical experience, a holistic approach is essential for developing teachers' research competencies.

Table 11. *Relationship between the Extent of Pedagogical Support Received by Teachers and the Extent of Knowledge in Teaching Practical Research Subjects*

Variables Correlated to Knowledge in Research Components	r_s	Interpretation
Trainings	0.310	Moderate
Collegial Support	0.639	Strong
Availability of Resources	0.447	Moderate
Administrative Support	0.629	Strong
Opportunity to Conduct Research	0.474	Moderate

The strong correlation between collegial collaboration and research knowledge is consistent with Kim's (2024) work on collaborative teaching environments, which emphasizes peer mentoring and shared decision-making as drivers of instructional competence. Similarly, Tosun and Bozkurt Bostancı (2024) found that administrative support fully mediates the relationship between organizational support and teacher leadership, highlighting the critical role of leadership in fostering research-conducive environments through funding, workload adjustments, and institutional prioritization.

The moderate impact of Training aligns with findings from a Saudi mentoring program study, where structured

workshops improved mentors' ability to guide students in research design and career planning. However, Martinez and McAbee's (2020) systematic review notes that training alone accounts for only 30% of variance in teacher effectiveness, necessitating complementary supports like resource allocation and reduced administrative burdens. Moreover, while hands-on research experience moderately enhances knowledge, González-Ferro et al. (2024) caution that traditional pedagogical practices in technical fields often limit active student engagement, indirectly constraining teachers' capacity to apply research skills dynamically. This suggests institutional barriers may dilute the potential benefits of research opportunities. The findings reveal that opportunities to conduct research moderately influence knowledge, indicating that practical experience is valuable but may be limited by other factors.

4.0 Conclusion

This study assessed teachers' knowledge of research components and the support provided to them, revealing that while respondents demonstrated strong understanding in areas such as identifying and stating research problems, reviewing literature, and reporting findings, their knowledge in understanding, collecting, calculating, and analyzing data was comparatively limited. Furthermore, the extent of support received across various provisions, including training, collegial support, resource availability, administrative support, and research engagement opportunities, was moderate. Notably, a significant relationship was identified between the support provided to teachers and their knowledge in teaching practical research, suggesting that enhancements in training, collegial assistance, resources, administrative backing, and research opportunities could improve teacher competency. These findings underscore the importance of targeted interventions to address specific knowledge gaps and bolster overall support structures for educators involved in teaching research.

5.0 Contribution of Authors

All authors contributed equally to every aspect of this research and have reviewed and approved the final version of the manuscript.

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No external funding was received to conduct this research.

7.0 Conflict of Interest

The authors declare no conflicts of interest related to this study.

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9.0 References

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