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An Assessment of Filipino Public School Teachers' Research Competence: A Basis for an Enhancement Professional Development Programme

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Abstract. The ability to conduct academic research is essential for teachers to contribute to the body of knowledge and enhance the quality of education. This study assessed the research competence of 440 public school teachers in the First District of the Schools Division of Ilocos Sur during the school year 2022–2023. A mixed-method research design was used to comprehensively analyse their profiles, research competence and challenges encountered. Data were collected using validated questionnaires and interview guides and analysed using frequency, percentage, mean, Pearson correlation, Chi-square test and thematic analysis. Findings indicated that many schools lack adequate research resources. Teachers had few research projects and minimal research awards. Teachers showed a high level of competence based on their knowledge, skills and attitudes but low research productivity. Significant factors related to research competence included age, educational attainment, length of teaching experience, and rank/position. The overwhelming teaching loads and numerous school activities were the major hindrances to conducting research. As a result, the study proposed a research enhancement training programme aimed at improving teachers' research competence. Implementing this

programme is expected to nurture a positive school research culture, contributing to improved educational practices and outcomes.

Keywords: public school teachers; competence; productivity; skills; action research

1. Introduction

Providing services is often one of the key responsibilities of teachers. They play a vital role in carrying out learning plans, practices and evaluations, giving students guidance and training, participating in research and performing community services. At present, teachers find it challenging to become professionally productive. To provide quality education, teachers must be proficient in a wide range of abilities in a particularly complicated setting, including hundreds of important choices and excessive workloads. Educational research has become one of the components of education and is the systematic gathering and analysis of data in education. Teachers conduct studies in schools to determine what innovation, strategies, or interventions are best applied to improve learners' performance in response to problems, and concerns in the classroom setting. Thus, enhancing their research competence is very important.

According to Fitria et al. (2019), the primary purpose of teachers' research projects at the elementary and secondary education levels is to reflect on their educational methods. Classroom Action Research (CAR) can be used in studies that involve elementary and secondary school teachers seeking solutions to learning problems – it is an essential tool for choosing the optimal approach for the learning classes they oversee (Mettetal, 2019). It is a crucial authentic training tool in teacher education programmes (AlShamsi et al., 2022) where the primary goal is to improve student achievement. Teachers should put forth much effort into finding the appropriate solutions to maximise their students' learning and CAR can assist them in addressing the educational needs of their students. In particular, CAR gives teachers a way to improve the calibre of the educational process and increase student accomplishment (Pandiangan, 2019).

Despite the important role of action research in education, it is still not widely used in K–12 classrooms as identified by Albalawi and Johnson (2022). They discovered that their participants lacked knowledge of the fundamental components of action research and the abilities necessary to conduct an action research investigation. Morales et al. (2019) found that public school teachers had difficulty in some aspects of action research, such as statistics, data organisation, literature searching and writing reports. Moreover, master teachers only had fair skills in designing an experimental study, selecting and developing research instruments, choosing appropriate statistical tools, and preparing manuscripts for publication (Abarro & Mariño, 2016; Basilio & Bueno 2019).

In response to this lack of knowledge, the Department of Education (DepEd) in the Philippines issued DepEd Order (DO) 16, S. 2017, otherwise known as Research Management Guidelines (RMG), which supports the policy development process, research agenda, policy and programme development and

implementation to promote and strengthen the culture of research in primary education. The RMG offers direction for managing research programmes at the national, regional, school division and school levels. The policy enhances research support methods, including financing, collaborations and capacity building. In addition, the DepEd continues to strengthen the culture of research and evidence-based decision-making in primary education. To develop a thorough research management framework, including the Basic Education Research Fund and Principles of Research Management, the department issued DO 14, s. 2022, which established E-Saliksik as its official educational research portal. The RMG and research portal define the processes for quality management in research. In particular, before accepting finished research, the RMG is obliged to perform technical assessments, monitor the implementation of research projects, and develop criteria for assessing research proposals. Moreover, the DepEd published a memorandum establishing the implementation of the completed basic and action research quality control checklist.

Based on improvements in evidence-based decision-making brought about by various education reforms or initiatives, these policies and programmes reinforce the department's research culture. It is imperative that teachers become good enough in both pedagogy and research techniques since teaching and research are core activities of teachers (Karlibaeva, 2021). It is in the teachers' research competence that the development and sustainability of the school towards excellence will be achieved.

However, research culture in primary education is not yet embraced by many teachers. They are still hesitant to do so due to time constraints, lack of knowledge of how to do it, and lack of interest. According to the Research Planning Office of the schools division of Ilocos Sur, of the 3,818 public school teachers, only 168 teachers have completed research during the 5th Research Congress in the schools division of Ilocos Sur. The number is only 4.4 per cent of the total population of the 452 public schools in the 33 districts of the schools division of Ilocos Sur. These data indicate that some teachers lack the expertise to conduct research, especially in the context of classroom or action research. If the teachers are not adept at conducting research, they cannot assist and address the concerns concerning education. This situation should be given attention by the Department of Education and other institutions affected by their outputs (Tamban, 2020).

This study assessed the research competence of public school teachers in the First District of the Schools Division of Ilocos Sur during the school year 2022–2023 as a basis for developing an enhancement programme. Specifically, this study aimed to answer the following research questions: (1) What are the profiles of the teachers in terms of the selected personal and professional factors and the schools regarding research-related factors? (2) What is the level of the research competence of the teachers in terms of knowledge, attitudes and skills? (3) What are the teachers' levels of competency along with research productivity? (4) Is there a significant relationship between the teachers' profiles and their level of research competence? (5) What are the problems encountered

by the teachers in conducting research? and (6) What research enhancement training programme could be developed to improve the research competence of teachers?

2. Literature Review

This study on teachers' research competence is anchored in competence motivational theory, social career cognitive theory and the theory of work adjustment. The current study, which is firmly based on these theories, assumes that instructors' high levels of research proficiency will lead to superior learning results. Similarly, instructors are more motivated to do a good job when they are pleased with the resources and facilities provided by the school.

Among the competencies that a teacher should possess is undoubtedly research competencies. These combine a teacher's education, skills, experience, knowledge, and ability to apply them to accomplish tasks (Abu-Rumman & Alheet, 2019; Van den Berg, 2002). Skills can be acquired through training, but competencies are innate. The most important competencies characterised by good researchers are a critical mind and perseverance. Hence, universities should pay more attention to the research process and allocate a special budget to support scientific research (Abu-Rumman & Alheet, 2019).

Caliwan-Fuentes (2019) mentioned in their study that research competencies are the knowledge and expertise required to do research, and these abilities might have been acquired or improved through formal education, seminars and other comparable experiences. Following the advancements in educational delivery, experiences in the conduct of research also help to increase research abilities and outputs.

Catalan (2018) mentioned that there can be no progress without research. New information can be found, applied or validated through research and it creates appropriate technologies. Therefore, an educational institution's well-established research and development programme is crucial. For the benefit of the institutions and the individuals who work there, pedagogical and administrative procedures can be enhanced through educational research. Academic leaders who desire to enhance and develop their educational organisations require scientific research and a concerted attempt to find a research technique best matched to the growth they aim to generate. One methodology to improve teaching practice and school leadership is action research (Albalawi & Johnson, 2022; Kemmis, 2010).

Ulla et al. (2017) revealed that teachers had a positive perception of doing research. They found that research is beneficial to their teaching practice and students' learning progress. However, they reported challenges such as a lack of research skills and knowledge and heavy teaching loads. The lack of financial support from the teachers' schools obstructed them from doing research. Similarly, Celebi (2021) found in her study that teachers generally have a moderate level of positive attitude towards scientific research. The academics of higher education are required to write scientific papers in reputable international journals which they find challenging in terms of English language

skills and the lack of research skills, low literacy skills, and skills in accessing references (Jayadinata et al., 2022).

Conducting action research according to Albalawi and Johnson (2022) is not always an easy process. It can be complicated, involving a significant amount of time for planning, approval, implementation and data collection. Action research is generally a process of self-monitoring that involves a combination of the following elements: identifying a research focus, problem or area of interest; collecting data; analysing data; and reflecting on the process.

Lew and Mohsin (2013) reported that preservice teachers are more likely to engage in meaningful action research projects of their own choice later in school. They stated that preservice teachers feel positive regarding the role of action research in developing their key understanding of student learning based on theoretical principles and increasing their awareness of student needs within the classroom. Moreover, action research can enhance their teaching abilities. Action research equips them with some knowledge of factors affecting student learning such as learning needs and learning styles. However, their understanding of student learning is not necessarily comprehensive after a single action research project.

The reviewed literature highlights the critical role of research competencies in improving educational practices and outcomes. Research competencies, such as critical thinking and perseverance, are fundamental for teachers and can be cultivated through training and practical experiences. However, many teachers, particularly in elementary education, struggle with research due to various challenges like limited research skills, low literacy and difficulty accessing resources. These findings suggest that universities and educational institutions should place greater emphasis on developing teachers' research competencies. This could involve providing targeted training, workshops and support to enhance their research skills.

In addition, creating a more collaborative environment through action research could improve teaching practices and student achievement. The positive experiences of preservice teachers with action research further suggest that fostering research competencies early in teachers' careers could yield long-term benefits in their teaching approaches. Consequently, educational institutions should not only invest in research but also ensure that teachers have the necessary tools, resources and support to engage in meaningful and impactful research activities.

These concepts, views, and information provided a background for this study to understand the significance of assessing the research programme of the Schools Division Office-Ilocos Sur, Philippines. The results can be used to design a research enhancement training programme to boost the teachers' research competence. By implementing the training programme in the future, teachers are expected to increase their research productivity.

3. Methods

3.1. Research Design

This study employed a mixed-method research design to comprehensively explore the research competencies and productivity of public school teachers. Quantitative data were gathered to profile the teacher-respondents and schools and measure their research competencies and outputs. Meanwhile, qualitative data captured the teachers' narratives on challenges encountered in research which were analysed through thematic analysis. By integrating quantitative trends with qualitative insights, this approach provided a holistic understanding of the research context, uncovering both measurable patterns and in-depth explanations, which serve as the basis for the proposed enhancement training programme.

3.2. Population and Sample

The study covered 10 districts in the First District of the schools division of Ilocos Sur, Philippines with 1,484 public school teachers and 90 school heads. Total enumeration was used for the school heads. After using Yamane's formula with a margin of error of four per cent, the study arrived at a sample of 440 teachers selected by stratified random sampling. They provided data on teacher-related factors, research competence, research productivity and concerns regarding research conduct. Moreover, 20 teachers were selected and voluntarily participated in the interviews.

3.3. Data Gathering Instruments

The data gathering instrument, which had four parts, was designed by the researchers and validated by five research experts. Part I was about the profiles of the teachers and school-related factors. The teachers' profiles included age, sex, civil status, place of residence, area of specialisation, educational attainment, length of teaching experience, grade level taught, designation/position, and number of training/seminars attended related to research. Meanwhile, the school-related factors covered the adequacy of research resources, the number of completed action research, research books and research funding. Part II, which elicited the data on the research competence of the teachers was subdivided into three parts. The first part was a 50-item test that looked into the teachers' research knowledge. The test was constructed by the researchers, validated by experts and pilot-tested to ensure its validity and reliability. The second part was a 5-point Likert scale survey question that determined the teachers' attitudes toward research, specifically regarding research usefulness, anxiety, passion and relevance to life. The third portion was another 5-point Likert scale survey question that investigated the teachers' research skills ranging from poor to excellent. Part III covered research productivity which sought to establish data on the number of research completed, number of research presented, number of research published, number of research funded, number of research awards received, and number of used research. Part IV was a set of semi-structured interview questions that sought to elicit the problems encountered by the teachers in conducting research. In addition, the school heads answered a separate questionnaire on school-related factors such as adequacy of research resources, number of completed action/basic research in the school, research

books and research funding. The result of the pilot testing of 60 teachers of SDO Ilocos Sur yielded a reliability index of K20 = 0.798.

Tables 1 and 2 present the norms for the interpretation of the level of research competence of the public school teachers.

Table 1: Norms for the Interpretation of the Level of Competence in terms of Knowledge

Mean Range	Descriptive Rating
40.01–50.00	Outstanding (O)
30.01– 40.00	Very Satisfactory (VS)
20.01– 30.00	Satisfactory (S)
10.01– 20.00	Poor (P)
00.00– 10.00	Needs Improvement (NI)

Table 2: Norms for the Interpretation of the Level of Competence in terms of Attitude and Skills

Mean Range	Descriptive Rating for Level of Competence	
	For Attitude	For Skills
4.21–5.00	Extremely Positive	Excellent
3.41– 4.20	Positive	Good
2.61–3.40	Neutral	Acceptable
1.81–2.60	Negative	Marginal
1.00–1.80	Extremely Negative	Poor

Five research experts evaluated the teachers' research skills using a rubric adopted from the study of Bukhari et al. (2021). The rubric had 5 scales, with 5 as the highest (Exceeds standards), followed by 4 (Meets standards), 3 (Nearly meets standards), 2 (Does not meet standards), and 1 (No evidence). The research parameters covered were writing the introduction, stating the objectives, conducting a literature search, designing the research, sampling, data analysis, formulating conclusions and recommendations and referencing.

3.4. Data Gathering Procedure

To gather the required data, the researchers followed the DepEd's standard protocol by submitting a letter of request to each administrative level and proceeding only after receiving approval. The survey questionnaire was then personally administered to the teachers to collect quantitative data on their profiles, research competencies and school-related factors. Research productivity was assessed through document analysis of completed research outputs from 37 teachers. To explore the challenges faced by teachers in conducting research, semi-structured interviews were conducted, ensuring convenience and ethical compliance. The interviews provided qualitative insights which were thematically analysed and integrated with the quantitative findings to ensure a comprehensive understanding of the research context.

3.5. Ethical Considerations

Ethical clearance was reviewed and given by the Ethics Review Committee of the University of Northern Philippines. Throughout the study, it adhered to research ethics principles to ensure the integrity and ethical standards of the study.

3.6. Analysis of Data

Frequency and percentage were used to describe the teachers' profiles, school-related factors, research productivity and problems encountered; the mean was used to determine the research competence of the public school teachers, and Pearson Correlation and Chi-Square were used to determine the significant relationship between their profiles and their research competence. Moreover, thematic analysis was employed to identify the problems encountered by the teachers in conducting research.

4. Results and Discussion

4.1. Profiles of the Teachers and Schools

A substantial percentage (160 or 36.36%) of the teachers were in the 41–50 age range, highlighting a mature workforce. The gender distribution was predominantly female (378 or 85.91%), while the remaining (62 or 14.09%) were male. Most teacher were married (328 or 74.55%), and a great majority (381 or 86.59%) resided in rural areas, which may influence their access to resources and training opportunities. Regarding specialisation, a considerable portion (167 or 37.95%) were generalists, while only a small fraction (26 or 5.91%) specialised in science, indicating potential areas for targeted professional development. Educational attainment was relatively high, with 69.55% holding a bachelor's degree with master-level units, although only seven or 1.59% had achieved doctorate degrees, suggesting a need for further advanced academic opportunities. In terms of teaching experience, 129 or 29.32%, had been teaching for 8–14 years, whereas a small group (6.36%) had extensive experience of 29–35 years. Most (110 or 25%) teachers had been teaching Grade VI and held the Teacher 3 position (300 or 68.18%), which was indicative of their advanced career stages. Despite a significant number (77 or 17.50%) having attended training at the district level, none had participated in national or international level training, pointing to a gap in exposure to broader educational practices and innovations. These findings provide a valuable understanding of public school teachers' demographic and professional characteristics in the First District of the Schools Division of Ilocos Sur. These characteristics provide a foundation for enhancing research competence and professional development initiatives.

The study included research-related factors such as adequacy of research resources, number of completed action/basic research, and research funding across the ninety schools in the First District of the Schools Division of Ilocos Sur. Notably, only a small fraction of schools (3 or 3.33%) had access to research resources. This suggests inadequacy of research resources in schools constrains the ability of these schools to engage in meaningful research, thereby hindering their contributions to the broader educational research community.

In terms of research output, the data revealed that 15 schools (16.67%) had completed one action research, with one school standing out by completing six studies and three schools completing three studies. However, most (71 or 78.89%) had not completed action/basic research. This distribution of research outputs indicates the need for targeted support and capacity building initiatives to foster a stronger research culture across all schools. Schools with little to no research output may benefit from professional development programmes that emphasise the importance of research and provide the necessary skills and tools to undertake such research activities. In addition, fostering collaborations and networks among schools could facilitate knowledge sharing and encourage more widespread engagement in research.

The analysis of research funding further emphasised the challenges faced by schools, with a significant majority (71 or 78.89%) having no funded research projects. This lack of financial support is a critical barrier to the advancement of educational research. This suggests that the schools increase their access to funding through grants, partnerships and institutional support to enable them to pursue research endeavours.

4.2. Level of Research Competence of the Teachers in terms of Knowledge, Attitudes and Skills

4.2.1. Teachers' Level of Research Competence In terms of Knowledge

Table 3 presents the teachers' level of research competency in terms of knowledge. The overall level of research competence in knowledge among the teachers was rated as Very Satisfactory, with a mean score of 31.92 out of 50, equivalent to a percentage score of 63.84%. This rating reflected a reasonable understanding of key research concepts and methodologies essential for conducting rigorous and effective educational research. Specifically, the teachers demonstrated that their knowledge was Very Satisfactory in the principles of research (67.00%), research methodology (60.81%), and data collection (72.70%).

Table 3: Level of Research Competence in terms of Knowledge of the Teachers

Areas	No. of Items	Mean Score	%	DR
A. Principles of Research	11	7.37	67.00	Very Satisfactory
B. Research Methodology	16	9.73	60.81	Very Satisfactory
C. Data Collection	10	7.27	72.70	Very Satisfactory
D. Analysis	13	7.55	58.08	Satisfactory
Overall	50	31.92	63.84	Very Satisfactory

These areas were foundational to conducting meaningful research, indicating that teachers possessed a strong grasp of the theoretical and practical aspects of research design and data gathering. Numerous studies have been conducted on research capacity and research abilities. Research literacy and competency have received more attention from others. It was found that teacher researchers are competent with conceptual skills, while they are moderately competent in computational and technical skills (De la Cruz, 2019).

However, it is noteworthy that the competence level in data analysis was only rated as Satisfactory, with a percentage score of 58.08%. In the study of Basilio

and Bueno (2019), master teachers are competent in experimental study design, research instrument development, proper statistical tool selection and paper preparation. This suggested that while teachers were proficient in the initial stages of research, they encountered challenges when interpreting and analysing data. Data analysis is a critical component of the research process, as it involves making sense of collected data to draw valid and reliable conclusions. The relatively lower competence in this area suggested a need for targeted professional development to enhance teachers' skills in data analysis. Training programmes focusing on statistical methods, the use of analytical software, and practical data interpretation could significantly improve teachers' overall research capabilities.

4.2.2. Teachers' Level of Research Competence In terms of Attitudes

Table 4 presents the teachers' level of research competence in terms of attitudes. Overall, the teachers' level of research competence in terms of attitude was Positive based on the overall mean of 3.53.

Table 4: Level of Research Competence in terms of Attitudes of the Teachers

Indicators	M	DR
A. Research Usefulness	4.13	Positive
B. Research Anxiety	3.36	Neutral
C. Research Passion	3.38	Neutral
D. Relevance to Life	3.24	Neutral
Overall	3.53	Positive

Looking at the attitude towards research per component, it was noted that the teachers had a positive attitude towards research usefulness, as evidenced by the overall mean rating of 4.13. This means that showing a positive attitude in research helped their career and profession. These findings implied that the teachers realised the relevance of research to professionals and students. The teachers acknowledged that through research, they could improve in content and pedagogy, resulting in improved teaching and learning. This supports the claim of Azim (2020) that regardless of the career path a person is following or their position in society, there is always room for learning.

Meanwhile, the teachers' overall level of research competence in terms of attitude and research anxiety was Neutral based on the computed mean score of 3.36. This revealed that the teachers claimed to have moderate research anxiety despite finding research complex, complicated, difficult and stressful. Even though they knew research was a rigorous activity, they still had a positive attitude towards it, perhaps realising its benefits.

Similarly, the computed mean score of 3.38 indicated the teachers were Neutral in their passion for research, supported by a mean rating of 3.38. The teachers claimed to be inclined to study the details of research; however, they were not sure whether they loved, liked or enjoyed research. These findings indicated that the teachers still realised the need to learn its principles. They were convinced that by conducting research, they would grow professionally. This conforms with Albalawi and Johnson's (2022) argument that research allows the pursuit of

interests to learn something new, hone problem-solving skills and challenge individuals in new ways.

Lastly, the teachers' attitude towards relevance to life was Neutral, supported by a mean rating of 3.24. This revealed that the teachers were research-oriented and used research daily. Conversely, they were uncertain whether research thinking did apply or was relevant to their daily life. These results indicate that the teachers realised the crucial role of research in everyday living, as Basilio and Bueno (2019) claimed that research propels humanity forward.

4.2.3. Teachers' Level of Research Competence in Terms of Skills

Table 5 presents the mean scores on the teachers' research competence in terms of skills.

Table 5: Level of Research Competence along Skills of the Teachers

Components	Personal Assessment		Based on Completed Research		Overall	
	M	DR	M	DR	M	DR
a. Writing the Introduction	3.72	Good	3.92	Good	3.82	Good
b. Stating the Objectives	3.86	Good	4.18	Good	4.02	Good
c. Literature Search	3.75	Good	4.03	Good	3.89	Good
d. Designing the Research	3.72	Good	4.00	Good	3.86	Good
e. Sampling	3.68	Good	3.90	Good	3.79	Good
f. Statistical Analysis	3.67	Good	3.61	Good	3.64	Good
g. Presentation and Analysis	3.67	Good	3.69	Good	3.68	Good
h. Formulating the Conclusions and Recommendations	3.71	Good	4.47	Excellent	4.09	Good
i. Referencing	3.77	Good	4.57	Excellent	4.17	Good
Overall	3.73	Good	4.10	Good	3.91	Good

Notably, based on their assessment, the teachers were at a good level in all indicators of research skills. The result of this study aligns with the findings of Anub (2020) concerning the writing of the introduction of the paper – the teachers were competent in determining research relevance and usefulness to their discipline, stating research questions and citing benefits and beneficiaries of the study and rated as highest in rank. Meanwhile, based on the assessment of their completed research, the teachers were excellent in formulating conclusions and recommendations and referencing and good in all other indicators.

Meanwhile, the combined assessment rating showed that the teachers were at a good level in all indicators of research skills. This indicated the need to do something to raise it to enhance their research skills. One way could be adopted from the study of Al-Ghattami and Al-Husseini (2014) which showed there is a need to establish a research department in each educational district aiming at providing teacher-researchers with professional support in areas of research and that they are provided with resources, PCs, internet service and research material. Providing this support will indeed breed a positive research culture and raise the skill level of teachers in conducting research. Caingoy (2020) also

found in his study that their teachers were reasonably competent in the various dimensions of research skills; however, they pointed out the need to raise the level to make them more proficient in research.

4.3. Research Productivity of the Teachers

This study revealed significant challenges in research productivity among the teachers. A striking 91.59% of the teachers had not completed any research projects; similarly, 92.95% had not presented any research. Furthermore, the number of teachers who had published, funded or received awards for their research was exceptionally low, with only 1.59% having published or received funding for their research projects. In addition, only 10 or 2.27% had received at least one research award, and 15 or 3.41% had their research used. These figures highlighted a prevalent concern where most teachers were not actively engaged in meaningful research activities which is crucial for academic and professional development.

The teachers identified several factors contributing to their low level of research productivity during the interviews. These included a lack of motivation and poor time management. Many cited insufficient training or workshops related to research and a lack of necessary skills such as writing. Others mentioned a lack of self-confidence, especially when presenting research papers, and difficulties in maintaining focus or direction when writing.

In addition, limited support from school heads or colleagues and inadequate ICT skills were highlighted. Teachers also pointed out the inadequacy of research materials in schools and challenges in retrieving questionnaires from teachers. Furthermore, they noted a lack of mentoring and coaching in research. Finally, teaching loads, paperwork and numerous school activities left little time for research pursuits. D'Amico et al. (2021) found that their teacher respondents registered a deficient level of productivity due to personal and professional constraints. Moreover, according to the bibliometric study of Supriyadi et al. (2022), the number of publications that deal with ICT and RME published in the Scopus database has decreased.

4.4. Relationship between the Teachers' Profiles and their Research Competence in terms of Knowledge, Attitude and Skills

The relationship between the teachers' profiles and their level of competence in knowledge and attitude is presented in Table 6. Several significant correlations were observed. Age, educational attainment, length of teaching experience, and rank/position showed a significant negative correlation with research knowledge, with r-coefficients of -0.305, -0.220 - 0.374, and -0.104, respectively, indicating that older teachers with higher level of education, more teaching experience and holding higher ranks tend to have lower levels of research knowledge.

Table 6: Correlation Coefficients between the Teachers' Profiles and their Research Competence in terms of Knowledge and Attitude

Profile	Knowledge	Research Attitude				
		Research Usefulness	Research Anxiety	Research Passion	Relevance to Life	Overall
Age	-0.305*	-0.056	0.042	-0.014	-0.003	-0.005
Sex	4.718	0.771	3.620	4.488	1.140	0.385
Civil Status	7.102	4.703	11.802	5.107	2.340	1.902
Place of Residence	3.762	2.105	6.099	4.414	7.701	7.670
Area of Specialisation	27.860	32.936	30.410	21.986	22.288	14.795
Educational Attainment	-0.220*	0.082	-0.097*	0.086	0.008	0.018
Length of Teaching Experience	-0.374*	-0.003	0.007	-0.014	-0.014	-0.008
Grade Level Taught	0.077	-0.014	-0.034	0.047	-0.069	-0.027
Rank/Position	-0.104*	0.043	-0.008	0.051	0.066	0.054
Number of Training/ Seminars Attended	-0.017	0.131*	-0.011	0.054	0.015	0.063

**. Correlation is significant at the 0.05 level*

This may be due to the constant evolution of knowledge and emerging trends in research which render their existing information outdated. On the other hand, younger teachers tend to be more knowledgeable in research. This concurs with the results of the study of Maravilla (2020) that teachers aged 21–30 were more research-oriented, more personally interested in research, and more perceptive of the usefulness of research in the profession and life. This could be because these young professionals were more optimistic about their future careers and still had more time for research.

On the other hand, the variables such as sex, civil status, place of residence, area of specialisation, grade level taught, and number of training/seminars attended had no significant relationship with their research competence and knowledge. This suggested that these factors do not impact teachers' research knowledge.

In terms of research attitude, educational attainment showed a significant negative correlation with research anxiety (r = -0.097), indicating that higher educational levels may help reduce anxiety towards research. This result is in accordance with the finding of Celebi (2021) that there was a significant difference between the attitudes of teachers with bachelor's degrees and those with master's degrees, where those with master's degrees scored higher regarding positive attitudes towards scientific research.

In addition, the number of training or seminars related to research attended was positively correlated with the perceived usefulness of research (r =.131), suggesting the importance of continuous professional development. Moreover, encouraging more research training and seminars can further improve the perceived usefulness of research, fostering a more positive attitude towards research. The overall low and insignificant correlations between profile characteristics and other dimensions of research attitude suggested that these attitudes were relatively independent of demographic factors.

The relationship between the teachers' profiles and their level of research competence regarding skill is presented in Table 7.

Table 7: Relationship between the Teachers' Profiles and their Research Competence in terms of Skill

Profile	Introduction	Objectives	Literature Search	Designing	Sampling	Statistical	Analysis	Conclusion	Referencing	Overall
Age	-0.017	0.014	0.032	0.035	0.009	0.044	0.039	0.061	0.038	0.031
Sex	8.804	3.562	2.532	5.284	8.156	2.577	1.647	5.376	1.250	4.486
Civil Status	2.373	4.768	2.519	5.092	3.724	1.982	4.922	2.084	2.423	4.022
Place of Residence	1.896	3.435	1.500	1.250	2.900	1.690	3.353	3.532	1.158	2.788
Area of Specialisation	16.271	15.497	19.474	17.833	14.915	14.987	20.067	21.975	14.726	19.836
Educational Attainment	0.096*	0.040	0.066	0.054	0.057	0.047	0.030	0.057	0.071	0.061
Length of Teaching Experience	-0.005	0.002	0.006	0.007	-0.015	0.017	0.003	0.026	0.015	0.007
Grade Level Taught	0.012	0.014	0.041	0.040	0.048	0.047	0.022	0.074	0.048	0.041
Rank/Position	0.034	0.047	0.030	0.051	0.036	0.041	0.017	0.040	0.047	0.041
Number of Training/ Seminars Attended	0.012	0.055	0.056	0.030	0.023	-0.006	0.038	0.041	0.051	0.036

**. Correlation is significant at the 0.05 level*

As indicated in the table, among the indicators of research skills, only educational attainment bore a significant relationship with writing the introduction. This was based on the correlation coefficient (0.096). This finding implies that teachers with higher educational attainment tended to have a higher skill level in writing the research introduction.

One of the most essential requirements in the pursuit of a master's degree and a doctorate is the submission of a thesis or dissertation. Writing these requirements affords every candidate a great deal of exposure to writing the introduction and the initial part of the research. This could be why those who had finished advanced degrees tended to be better at writing an introduction.

These results agree with the findings of Celebi (2021) that there is a significant relationship between the teachers' education level and their skills in writing introductions. In her study, she found that teachers pursuing advanced degrees tended to write the paper better than those who were pursuing graduate studies. This could be due to having conducted advanced research where they were exposed to the rigours of writing research.

The finding also concurs with that of Al-Ghattami and Al-Husseini (2014), which indicated that teachers with doctoral degrees tended to be more skillful in research than their counterparts with master's and bachelor's degrees.

4.5. Challenges Encountered by the Teachers in Conducting Research

The following results present the challenges encountered in conducting research by the teachers.

a. Preoccupied with heavy teaching loads, paperwork, and too many school activities: The participants' responses underscored teachers' significant challenges in balancing their teaching responsibilities and engaging in action research. Many teachers expressed feeling overwhelmed by their academic load and the paperwork required to complete. Teacher 14 revealed that much of their

time was consumed by teaching preparations, grading papers, addressing student concerns and fulfilling administrative duties, leaving little to no time for research. With five teaching preparations, the burden of preparing lessons and materials became almost unbearable, making it difficult to focus on action research. As Teacher 14 stated,

> "*With these preoccupations, how can we concentrate on action research making?*"

Teacher 15 echoed similar concerns, emphasising that school activities, often scheduled on weekends, further hinder the time they could allocate for research. Typically reserved for family and personal time, school-related events often interrupt weekends, leaving teachers with minimal opportunities to engage in action research. The teacher remarked,

> "*The problem is most of these activities are scheduled on weekends…we are still loaded even on weekends.*"

These insights align with previous research by Taban and Cajindos (2018), which found that while many teachers strive to continuously enhance their teaching performance and meet high professional expectations, others struggle to achieve these goals due to various factors. Among the main reasons cited were the overwhelming workload, the stress associated with balancing school and home responsibilities, and teachers' sense of self-efficacy. The ongoing stress experienced by teachers, combined with the demands of their profession, not only impacts their ability to conduct research but may also affect their overall well-being and job satisfaction.

b. Lack of training/workshops related to research*:* Another constraint that they faced was the lack of training or workshops in research, which they said complicated things. Teacher 18 agreed:

> "*The last time we heard about research was when we were still in college, a long time ago. We hardly remember what research is and how to do one. This is now our problem. We need a refresher in doing action research, but our school cannot provide the needed training.*"

In keeping with the above sentiments, Teacher 12 revealed:

> *"Training is what we need, but the school cannot provide us even one because of lack of funds. Despite this, they force us to do action research. In fact, our school has made it a requirement for clearance signing. Our school heads must realise that the best thing that they can do to help us is to provide us with training on basic and action research."*

c. Lack of necessary research skills: Another dilemma faced by the teachers was their lack of essential research skills, ranging from conceptualisation to data gathering to interpreting and writing the paper itself. Teacher 2 stated:

> "*Lack of research skills/knowledge is a barrier preventing me from doing research." This struggle can be seen in the various phases of research.*

For instance, Teacher 14 and Teacher 10 experienced "getting stuck" at the conceptualisation stage, which caused them stress and frustration, forcing them

to stop from that stage once and for all. Teacher 9 also found data gathering to be too challenging. She stated:

> "*Preparing questionnaires and interview guides proves to be extremely difficult,*"

Finally, Teacher 8 claimed:

> "*I can hardly interpret results and write a research paper. Writing extensive papers, like research, is one thing I am not really good at. After gathering the data for my research, I had trouble organising them into tables and interpreting them. But the real challenge was writing the paper because it has many parts.*"

d. Lack of self-confidence, especially when presenting a research paper: Self-confidence was another big concern for teachers. Teacher 8 shared:

> "*Finishing action research is not enough, for we must present the research before a panel for improvement and dissemination. Our lack of exposure has developed stage fright in us"*

e. Lack of Motivation" Lack of motivation was the main factor that prevented Teachers 5, 7, 8, 10 and 12 from conducting research. They shared:

> *"Seeing the difficulties of our colleagues as they conduct research just erases the interest we have in pursuing research."*

Similarly, Teachers 1, 3, 4, 13, 15, and 18 insinuated their peers' daily narratives in school, making them unmotivated to engage in a similar undertaking. They expressed:

> *"Our co-teachers who are engaged in research barely have time to rest and interact with us casually, as they are busy even during their free time going through the rigours of research writing. They even say that they barely sleep just to finish their research and hardly have time bonding with tier families."*

Finally, Teachers 2, 6, 8, 16, 17, 19 and 20 claimed that that they do not really excel in research, as they mentioned the following:

> "*We believe that conducting research is rewarding and has many benefits like getting promotion and recognition, but then to us, the difficulty outweighs the benefits. Rest and relaxation after a hard day's work is important to maintain our sanity.*"

f. Inadequacy of research materials in the school: One of the school profiles considered in the study was the adequacy of instructional materials. Both the survey and the interview results pointed to it as a major problem. One teacher claimed:

> *"Conducting research requires lots of readings. It is in reading that we generate a large body of knowledge that will be inputted into the various sections of the paper. Theories that serve as anchor of our study and literature needed as backups can only be established through countless readings. However, how can we do this if there are no materials/resources to use. Since we are neophytes in the field of research, we need materials like research books, sample journals and others which we can use as guide or basis in making one."*

***g. Lack of ICT skills*:** ICT skills are an essential ingredient in conducting research. They are needed in data gathering, statistical analysis and encoding. However, the teachers' problem was their lack of necessary ICT skills. Teacher 11 shared:

> *"I am now old. I have been a product of the old school, where the only technology we knew was books, paper, pencil and chalkboard. Research was purely done by reading books, which were even limited. Today, everything is available right at the fingertips. Technology is essential in the conduct of research. Literature can be readily available in various websites, waiting to be uncovered. Our problem, however, is that we do not possess the requisite ICT skills to discover these unlimited resources and maximise their use."*

4.6. Description of the Developed Research Enhancement Training Programme

Based on the results, an enhancement training programme was developed to enhance the research competence of teachers in the schools of the First District of the Schools Division of Ilocos Sur. The research enhancement training programme was a training proposal entitled "Action/Basic Research Made Easy: Training-Workshop on Classroom-Based Action/Basic Research." It targeted 440 public school teachers of the First District of SDO Ilocos Sur. This training programme was coordinated with the University of Northern Philippines Research Extension.

The proposed enhancement training programme employs lecture discussion with an andragogical approach. Each segment will be embedded with a write shop and culminates in a presentation and critiquing of outputs. The programme will highlight the following research competencies: knowledge, attitudes and skills in writing the introduction, stating the objectives, literature search, research designing, sampling, statistical treatment, presentation and analysis, formulating the conclusions and recommendations, and referencing.

Generally, the training aims to awaken participants' interest in research. A friendly approach will introduce action/basic research as a professional development model through discovery and self-reflection. Thus, participants will have authority, ownership of their work, responsibility and accountability in their respective areas of concern. The following are the participants' desired learning outcomes at the end of the programme: 1) List assessment gap for research work; 2) Identify a researchable problem that requires action/basic research; 3) Design appropriate methodology for action/basic research; 4) Prepare a plan of action to address the identified problem; 5) Outline and write a research proposal ready for implementation.

Since writeshops are embedded in the design, each participant must bring a personal computer or laptop for the duration of the training. Appropriate software for data analysis will be installed as needed.

The following are the activities to be undertaken in the planning up to the implementation of the training programme: a) submission of activity proposal, b) issuance of Division Memorandum for teachers and school heads, c) submission of PR and canvass for supplies & accommodation, d) preparation of

materials and presentations, and f) training proper. A budget amounting to 296,000 pesos will be used to defray all expenses accruing from conducting the training, specifically for meals and snacks, honorarium and travel expenses of the speaker, and materials needed for the training.

The proposed training programme aims to enhance the teachers' skills in identifying assessment gaps for research work, identifying researchable problems that require action/basic research, designing appropriate methodology for action/basic research, preparing a plan of action to address the identified problem, and outlining and writing an action/basic research proposal ready for implementation, among others. This must be conducted with a series of training sessions and be sustained as recommended in the study of Cadorna et al. (2022).

5. Conclusions

Based on the findings, the following conclusions were drawn. While most teachers were middle-aged, predominantly female, married and living in rural areas, they possessed a solid foundation in teaching with bachelor's degrees and some with master's units. Despite their extensive experience, particularly in Grade VI and their positioning in the middle ranks within the DepEd, there was a need for further professional development. Given their generalist roles, limited specialisation and participation in primarily district-level research training, targeted professional development opportunities could enhance their skills and knowledge, enabling them to better meet evolving educational demands. There is a significant gap in research capacity and output among teachers, highlighting an urgent need for enhanced support and resources for a stronger research culture within the schools. The teachers had a Very Satisfactory level of research knowledge, a positive attitude towards research, and good research skills, but their research productivity remained low. There were significant correlations between the teachers' research competence and various demographic factors. These relationships suggest that personal and professional characteristics played a crucial role in shaping the teachers' research competence, attitudes and skills, emphasising the need for professional development programmes. The teachers identified a variety of challenges that hindered conducting research. The overwhelming teaching loads, paperwork, and numerous school activities primarily worsened the different challenges, indicating a need for targeted interventions to support and enhance research efforts among teachers. The developed enhancement training programme was designed to address the specific problems encountered by teachers in conducting research. This programme aims to equip them with the necessary tools and resources and improve their research productivity and effectiveness by focusing on areas such as motivation, skill development and support systems.

6. Recommendations

In light of the study's findings, the following is recommended. Schools should allocate a budget to acquire much-needed research resources. They may also establish linkages with other schools or universities with rich research resources so they can be given access to these resources. Research mentoring and coaching

should be provided to teachers to improve their research competence by regularly organising training/seminars on the various research areas to continuously improve their research competencies. Teahers should pursue advanced research-based studies to gain more exposure to research, both in theory and practice. The DepEd should consider reducing the load of faculty members to give them time to engage in research, especially since research is a laborious endeavour. Lastly, the research enhancement training programme is proposed for adoption, funding, and implementation to nurture a positive research culture among the schools in the First District of the schools division of Ilocos Sur.

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