

Teachers' Self-Efficacy in Action Research

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Abstract:

This study examined teachers' self-efficacy in action research as a basis for a capacity-building plan in public elementary schools in a large school division in central Philippines for the School Year 2024-2025. Using a descriptive research design, quantitative data were gathered from 140 teacher-respondents through a validated 60-item questionnaire adapted from Linaugo (2017). The questionnaire assessed self-efficacy across five areas: generating research questions, literature review, methodology, findings and analysis, and writing up. Statistical tools such as frequency count, percentage score, mean score, and the Mann-Whitney U test were used for analysis, comparing results based on age, educational attainment, teaching experience, and training participation. Findings revealed that older teachers, those with lower educational attainment, longer teaching experience, and fewer trainings were more prominent among respondents. Overall, teachers demonstrated moderate self-efficacy in most areas of action research but a high level in writing up. Additionally, significant differences were found in self-efficacy based on age, educational attainment, experience, and training, with higher self-efficacy observed among teachers with higher education, more experience, and greater training exposure. These results highlight the need for revitalized action research workshops and capacity-building programs to enhance teachers' research competencies. Aligning with national mandates, the Department of Education should strengthen initiatives that promote research writing among educators to improve the quality of basic education.

Keywords: Action research, self-efficacy, teachers

Introduction:

Nature of the Problem

Education serves as the foundation of societal growth, with teachers playing a pivotal role as 21st-century learning facilitators. As mandated by the Basic Education Research Agenda (BERA), teachers must conduct action research to inform planning, policy, and program development (Capullo, 2020). Action research enhances education by analyzing school environments to improve learning, address classroom issues, and foster global competence (Ryan, 2018). In line with Republic Act 9155, the Department of Education (DepEd) promotes national research initiatives through DepEd Order No. 43, s. 2015, institutionalizing BERA, and DepEd Order No. 16, s. 2017, which outlines research management guidelines and funding opportunities through the Basic Education Research Fund (BERF). Furthermore, Region VI - Western Visayas Regional Office issued Regional Memorandum No. 592, s. 2024, ensuring research aligns with DepEd's vision, mission, and national education development plans.

Despite its benefits, DepEd's mandate on action research presents challenges for teachers. Few educators submit action research proposals, and not all meet the required standards due to the demands of substantial knowledge and analytical skills. Many struggle to integrate research into their workload, impacting their confidence and capacity to conduct meaningful studies. Bandura's theory of self-efficacy highlights the importance of belief in one's ability to succeed, while Quidmas (2017) emphasizes that capacity building is essential for improving teachers' competencies. Strengthening support systems and training initiatives can help teachers overcome challenges and maximize the benefits of action research in education.

Hence, this has prompted the researcher to investigate the self-efficacy of public elementary teachers towards action research. With the findings of this investigation, it is anticipated that the insightful knowledge gathered from this research will serve as a framework for designing a specific, comprehensive, and inclusive capacity-building plan.

Current State of Knowledge

Self-efficacy is the belief in one's ability to achieve specific performance levels that influence outcomes (Bandura, 1997) and reflects confidence in navigating professional challenges using knowledge and resources (Alnoor et al., 2020). It involves assessing one's capability to perform tasks and successfully execute behaviors (Cheng et al.,

2020), playing a vital role in motivation, task performance, and academic outcomes. In education, teachers' self-efficacy refers to their confidence in managing professional responsibilities and delivering quality instruction (Barni et al., 2019; Skaalvik et al., 2016). It is positively linked to instructional quality, student motivation, and academic achievement, as well as teachers' commitment, perseverance, and creativity in the classroom (Achurra & Villardón, 2020; Berg & Smith, 2016).

A strong sense of self-efficacy enhances success and well-being by fostering resilience and viewing challenges as opportunities for growth, whereas low self-efficacy leads to anxiety and avoidance (Tolentino et al., 2023). Sustained self-efficacy can be developed through continuous learning and engagement in action research, reinforcing professional competence over time. Given its role in improving the teaching-learning process, the Department of Education should actively address classroom challenges by encouraging teachers to explore solutions through action research. Educational managers should also promote capacity-building programs and assess teachers' self-efficacy in action research to support professional development and strengthen the nation's educational system.

Action research plays a significant role in enhancing teachers' self-efficacy by providing insights into teaching practices and fostering professional growth (Liu, 2019). Research-based teaching is closely linked to higher self-efficacy, which positively impacts teachers' commitment, resilience, and approach to challenges (Cherry, 2020). Teachers with high self-efficacy are more likely to persevere through obstacles and adopt diverse instructional methods suited to classroom challenges (Butler & Lauermann, 2021). Additionally, action research supports teachers' professional development, identity formation, and empowerment (Edwards & Burns, 2016; Yuan & Burns, 2017; Dikilitaş et al., 2019), through its direct impact on self-efficacy remains underexplored. Teachers' values influence their goals and behaviors, reinforcing well-being and self-efficacy, which are crucial for academic success and a positive work environment (Barni, 2019).

Classroom action research plays a crucial role in addressing instructional challenges, fostering innovation, and improving teaching methods (Khasinah, 2024). As educators inherently engage in research, action research is deeply linked to their professional development, enabling them to experiment with strategies, assess resources, and design curricula tailored to their students' needs (Hine, 2013; Ulla, 2017). It also supports a learner-centered approach, reinforcing the value of each student in the educational process (Grima-Farrell, 2017). While some teachers embrace action research as a tool for growth, others see it as an obligation for career advancement (Wulandari, 2019). To maximize its benefits, capacity-building programs are recommended to enhance teachers' research skills, strengthen institutional effectiveness, and sustain commitment to educational improvement.

Mastery experiences not only enhance individual teacher self-efficacy but also contribute to collective self-efficacy within schools, as past achievements shape faculty perceptions of their abilities (Goddard et al., 2014). However, mastery experiences alone may not be sufficient; studies show that combining them with verbal persuasion and feedback leads to greater self-efficacy gains (Morris & Usher, 2014; Tschannen-Moran & McMaster, 2019). Professional development through training and seminars has also been shown to strengthen teachers' self-efficacy, particularly in action research (Kelm & McIntosh, 2014). Schools that implemented structured training programs fostered positive environments by allowing personnel to design effective, context-specific interventions (Sugai & Horner, 2019). Additionally, teacher education interventions can enhance self-efficacy early in a teacher's career, reinforcing the strength of the profession (Çelebi, 2014).

Limited local literature explores the impact of age, education, experience, and training on teachers' self-efficacy in action research. Studies indicate that teachers generally have moderate research self-efficacy (Gonzales et al., 2020), which can be strengthened through research training to improve classroom instruction (Corpuz, 2014). Professional development and capacity-building programs are essential for overcoming challenges in teaching and fostering continuous growth (Peña, 2018). While teachers recognize the importance of research foundations in implementing evidence-based practices (Samosa, 2021), full acceptance of a research culture in schools remains a challenge. Training needs assessments highlight a demand for extensive research training, with teachers exhibiting high self-efficacy, low anxiety, and positive attitudes toward action research. However, the overall research culture index in schools remains fair. Additionally, significant relationships exist between research self-efficacy, anxiety, and attitude, with notable differences observed among novice teacher-researchers based on their profiles.

Theoretical Underpinnings

This study is grounded in Albert Bandura's Social Cognitive Self-Efficacy Theory (1979), which explains how individuals' beliefs in their capabilities influence their thoughts, motivation, and behaviors. In the context of education, teachers' self-efficacy determines their ability to handle responsibilities, overcome challenges, and succeed in their roles (Caprara et al., 2006). This study examines teachers' self-efficacy in action research, as understanding their confidence levels can help administrators design capacity-building programs. Higher self-efficacy encourages teachers to engage in research-related activities, fostering a culture of inquiry in schools. Bandura (1977) identified four key sources of self-efficacy—mastery experiences, vicarious experiences, verbal persuasion, and somatic and affective states—emphasizing that self-efficacy depends on personal perceptions of these experiences

(Bandura, 1997). However, methodological limitations in existing literature have hindered a clear understanding of how each source independently affects teacher self-efficacy (Morris, Usher, & Chen, 2017).

Action research is a valuable approach that enables teachers to identify, analyze, and address issues in their work environment, positioning them as researchers of their own practices (Dick, 2015). Self-efficacy plays a crucial role in this process, as teachers with high confidence levels are more likely to take initiative and achieve better outcomes, while those with low self-efficacy may struggle with self-doubt and hesitation (Hussain et al., 2022). Over the past four decades, research has consistently highlighted self-efficacy as a key factor in teaching effectiveness. Given its relevance, this study adopts Bandura's theory as a framework for assessing teachers' self-efficacy in action research, serving as a foundation for developing a capacity-building plan to enhance their research capabilities.

Objectives

This study aimed to determine the level of teachers' self-efficacy in action research in Public Elementary Schools in a large-sized school Division in central Philippines for the School Year 2024-2025 as the basis for a capacity-building plan. Specifically, this study sought to answer the following questions: 1) the level of self-efficacy of Public Elementary School Teachers in action research according to the area of generating research questions, literature review, methodology, findings and analysis, and writing up; and 2) the significant difference in Teachers' level of self-efficacy in action research when grouped and compared according to the aforementioned variables.

Methodology:

This section discusses the research design, the study's locale, respondents, data gathering instrument, data gathering procedure, research ethics, analytical schemes, and statistical tools.

Research Design

This research utilized descriptive research design to determine the level of self-efficacy of teachers in action research in a large school division in Central Philippines. Descriptive research design aims to accurately describe and analyze the characteristics, behaviors, or phenomena of a particular population or situation. It focuses on providing a detailed account of the research subject without attempting to establish cause-and-effect relationships (Sirisilla, 2023). The researcher considers descriptive research design appropriate for the study since it provides information and scientific judgment. It permits the collection and analysis of various points of view that the respondents provided for a better interpretation of the research. Furthermore, the study aimed to determine the teachers' self-efficacy level in action research as a basis for the capacity-building plan.

Study Respondents

The respondents of the study were the 140 public elementary school teachers in one of the District of Division of Negros Occidental during the School Year 2024-2025 from the total population of 216. Using stratified random sampling, the study respondents were selected. Using Slovin's Formula, the sample size was determined given the margin of error of 0.05. To distribute the number of respondents to each school proportionately, the researcher multiplied the percentage for each school by the sample size.

Instruments

The research instrument used to gather the data for the study is a validated Research Self-Efficacy Questionnaire adapted to Linaugo, 2017. This questionnaire has passed the test of validity and reliability. This is used to determine teachers' self-efficacy in action research for the S.Y. 2024-2025. This also served as the basis for a capacity-building plan. The data-gathering instrument administered to the respondents was composed of two (2) major parts. Part I is the respondent's personal information, which requires them to supply or check the needed information concerning their demographic profile, such as age, highest educational attainment, length of experience, and number of trainings. Part II of the instrument is the Research Self-Efficacy Questionnaire.

The respondents were required to answer 60 items that were distributed to five areas, namely generating research questions, literature review, methodology, findings and analysis, and writing up. The respondents were asked to rate their self-efficacy in action research to the items mentioned in the survey, and their responses ranged from 1-5, with 1 as a very low level of self-efficacy and 5 as a very high level of self-efficacy, varying degrees in between. The average rating of the three jurors was used as basis for the validity of the instrument. Validation average is 4.67, interpreted as "excellent". This showed that the research instrument was "Valid". And the reliability result was 0.980 which signifies that said instrument is highly reliable.

Data Gathering Procedure

In gathering information about the study, the researcher followed several procedures. The preliminary process consists of securing approval from the school's division superintendent to conduct the study. The researcher wrote a letter to the office of the superintendent of the school's division asking permission to administer the research instrument to the teachers. Upon approval, the researcher presented the letter to the district supervisor and school heads and asked permission to send the hard copy of the questionnaires to the respective schools. Respondents were instructed to complete the questionnaire and were assured that their responses would be kept confidential. The respondents were asked to rate each item using the five-point scale. The data gathered from the respondents' responses were tallied and tabulated using the appropriate statistical tools. The raw data were transformed into numerical code guided by a coding manual. This allowed computer processing, statistical derivations, and tabular presentation. Computer-generated software was used to process the encoded data.

Data Analysis and Statistical Treatment

Objective No. 1 also used the descriptive analytical scheme and mean to determine the level of self-efficacy of public elementary school teachers in action research according to the areas of generating research questions, literature review, methodology, findings and analysis, and writing up.

Objective No. 2 used the comparative analytical scheme and Mann-Whitney U test to determine whether or not significant differences exist in teachers' level of self-efficacy in action research when grouped and compared according to the aforementioned variables.

Ethical Consideration

This research paper strives to minimize the risk of harm to its target respondents by assuring them of the confidentiality of their responses and ensuring their anonymity throughout the entire research process. At the onset, this researcher secures their free, prior informed consent and assures them of their right to withdraw from their research participation if deemed necessary. No personal data compromising the respondents' identity was collected in adherence to the Data Privacy Act of 2012, specifically on accessing the data both by the researcher and the analyst. The respondents were assured that no information that discloses their identity was released or published without their consent, except when extremely necessary. All collected materials were appropriately disposed of by machine shredding or dissolved in water after the submission of the study. At the same time, soft copies of the data will be deleted, leaving no chance of future retrieval.

Results and Discussion:

This section presents, analyzes, and interprets the data that were gathered to carry out the pre-determined objectives of the study. The quantitative data gathered from the respondents' responses to the data-gathering instrument were tallied, tabulated, and subjected to statistical analysis and interpretation following the objectives of the investigation.

Table 1

Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Generating Research Questions

Items	Mean	Interpretation
1. I can realize the problems that may contribute to the field I work in.	3.69	High
2. I believe I am sufficient in creating hypotheses relevant to my research.	3.34	Moderate
3. I can explain my research problem by drawing the necessary relations with prior research results.	3.30	Moderate
4. I can find an appropriate title for my research.	3.61	High
5. I can formulate a clear research question or testable hypothesis.	3.34	Moderate
6. I can identify and report the limitations of the study.	3.43	Moderate
7. I can identify areas of needed research based on reading the literature.	3.50	High
8. I can develop a logical rationale for your particular research idea.	3.45	Moderate
9. I can generate researchable questions.	3.41	Moderate
10. I can organize my proposed research ideas in writing.	3.49	Moderate
Mean	3.45	Moderate

Table 1 shows the level of self-efficacy of public elementary school teachers in action research in the area of generating research questions. It was revealed in this study that teacher-respondents in this area were at a moderate level, as evidenced by the overall mean score of 3.45.

The data further reveals that the highest mean score of 3.69, interpreted as high level, was in item no. 1 (I can realize the problems that may contribute to the field I work in.) while the lowest mean score of 3.30, interpreted as

moderate level was in item No. 3 (I can explain my research problem by drawing the necessary relations with prior research results.). This implies that teacher-respondents have skills in identifying relevant problems or issues within their field of work. This suggests teachers' strong sense of self-efficacy in recognizing and addressing challenges within their professional domain. Moreover, teachers-respondents were having difficulty in establishing connections between their research problems and prior research findings.

This supports MacDonald and Jackson (2021) that accurately identifying research problems is crucial for developing effective solutions and advancing educational practices. Additionally, Ortega and Castro (2023) highlight that a clear identification of research issues is essential for the success of action research projects in the Philippine context.

Table 2

Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Literature Review

Items	Mean	Interpretation
1. I can effectively edit my writing to make it logical and concise.	3.50	High
2. I am good at writing the introduction and literature review of a research manuscript.	3.42	Moderate
3. I can effectively carry out the literature survey using various channels (internet, library, etc.).	3.49	Moderate
4. I systematically keep a record of the results of the literature survey.	3.47	Moderate
5. I can do effective electronic database searching of the scholarly literature	3.47	Moderate
6. I can review a particular area of educational theory and research and write a balanced and comprehensive literature review	3.33	Moderate
7. I can read and understand research findings and discussions in academic journals	3.37	Moderate
8. I can brainstorm areas in the literature to read about.	3.33	Moderate
9. I can decide when to quit searching for related research/writing.	3.37	Moderate
10. I can decide when to quit generating ideas based on my literature review.	3.37	Moderate
11. I can synthesize current literature.	3.29	Moderate
Mean	3.40	Moderate

Table 2 shows the level of self-efficacy of public elementary school teachers in action research in the area of literature review. Results reveal that all items in the area of literature review registered only a moderate level except for item no. 1; therefore, teachers had a moderate level of self-efficacy in action research, as evidenced by the overall mean score of 3.40. Moreover, the data reveals that the highest mean score of 3.50, interpreted as a high level, is evident in item No. 1 (I can effectively edit my writing to make it logical and concise.) while the lowest mean score of 3.29, interpreted as the moderate level is evident in item no. 11 (I can synthesize current literature). The findings imply that teachers can revise their literature review to ensure it is clear and organized and remove unnecessary words to express ideas efficiently and directly. However, teachers had difficulty combining information and insights from different sources of the literature review and creating a cohesive summary of the literature review.

Evans and Brown (2021) argue that organizing literature based on relevance is essential for building a strong research base. Additionally, this supports Javier and Hernandez (2022) that organizing citations effectively is critical for producing coherent and well-structured research. Furthermore, this also supports Taylor and Smith (2023) that a well-organized literature review is fundamental for the credibility and depth of research studies.

Table 3

Level of Self-Efficacy of Public Elementary School Teachers in Action Research in The Area of Methodology

Items	Mean	Interpretation
1. I can decide which approaches to use for my research problem, be it quantitative or qualitative, or self-standing or incorporating various approaches together.	3.30	Moderate
2. I am flexible in developing alternative research strategies.	3.30	Moderate
3. I can choose a research design that will answer a set of research questions and/or test a set of hypotheses	3.32	Moderate
4. I can define the appropriate sampling method for my research.	3.38	Moderate
5. I can choose the appropriate data collection method necessary for my research.	3.32	Moderate
6. I can test the validity and reliability of my research data through appropriate methods.	3.37	Moderate
7. I can choose appropriate statistical methods to test or respond to my research hypotheses.	3.26	Moderate

8.	I can design and implement the best measurement approach for the study.	3.25	Moderate
9.	I can follow the ethical principles of research.	3.52	High
10.	I can train assistants to collect data.	3.30	Moderate
11.	I can ensure data collection is reliable across trials, raters, and equipment.	3.27	Moderate
12.	I can perform experimental procedures.	3.24	Moderate
13.	I can design and implement the best data analysis strategy for the study	3.22	Moderate
14.	I can organize collected data for analysis.	3.20	Moderate
15.	I can manipulate data to get it onto a computer system.	3.20	Moderate
16.	I can use an existing computer package to analyze data (i.e., MS Excel, Spreadsheet).	3.32	Moderate
17.	I know how to solve mean, standard deviation, frequency	3.20	Moderate
18.	I know simple statistics (e.g., <i>t</i> -test, ANOVA, correlation).	3.17	Moderate
19.	I know multivariate statistics (e.g., multiple regression, factor analysis, etc.).	3.13	Moderate
20.	I know how to use statistical packages (e.g., SPSS).	3.25	Moderate
Mean		3.28	Moderate

Table 3 shows the level of self-efficacy of public elementary school teachers in action research in the area of methodology. The data reveal that all items in the above-mentioned area registered a moderate level only, except for item number 9. Hence, teachers had a moderate level of self-efficacy in the area of methodology, as evidenced by the overall mean score of 3.28. The data further reveal that the highest mean score of 3.52, interpreted as a high level, was evident in item no. 9 on following ethical principles of research, while the lowest mean score of 3.13, interpreted as a moderate level, was evident in item no. 19 on multivariate statistics, e.g., multiple regression, and factor analysis. The findings imply that teachers regard research ethics and principles by abiding by ethical standards and procedures; however, they are challenged with multivariate statistics as some teachers are not well-versed in examining the relationship between two or more variables simultaneously.

This supports Salazar et al. (2021), who state that adherence to ethical practices and the use of appropriate statistical tools are critical for the success of research endeavors. Additionally, Cruz and Lazo (2022) argue that ethical considerations and proper statistical analysis contribute to the reliability of research outcomes and the protection of participants' rights in the Philippines. Moreover, Anderson and Taylor (2023) emphasize that balancing ethical practices with methodological rigor ensures high-quality research results.

Table 4

Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Findings and Analysis

Items	Mean	Interpretation
1. I can interpret and understand statistical printouts	3.40	Moderate
2. I can appropriately report on my analysis results.	3.38	Moderate
3. I can discuss my research findings within a conceptual framework.	3.46	Moderate
4. I can effectively present findings both verbally and in written form	3.47	Moderate
5. I can identify the implications of my present study for future research	3.49	Moderate
6. I can present my research idea orally or in written form to an advisor or group.	3.47	Moderate
7. I can write the discussion section for a research report.	3.42	Moderate
8. I do not find it difficult at all to compare the results of my research to prior research results.	3.38	Moderate
Mean	3.43	Moderate

Table 4 shows the data on the level of self-efficacy of public elementary school teachers in action research in the area of findings and analysis. The data reveal that all items in the above-mentioned area registered a moderate level, as evidenced by the overall mean score of 3.43. Moreover, the data reveal that the highest mean score of 3.49, interpreted as a moderate level, was evident in item no. 5 (I can identify the implications of my present study for future research). In contrast, the lowest mean score of 3.38, interpreted as a moderate level, was evident in item no. 2 (I can appropriately report on my analysis results) and item no. 8 (I do not find it difficult at all to compare the results of my research to prior research results). The findings imply that teachers are well-versed in identifying the future research implications of their studies yet face challenges when it comes to effectively reporting their analysis results and comparing their findings with previous research.

This supports the study of Bullo et al. (2021), which found that teachers find it hard to analyze not only the qualitative data but also the quantitative data. Moreover, this contradicts Cortes et al. (2021) that teachers are competent in data analysis and presentation.

Table 5

Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Writing Up

Items	Mean	Interpretation
1. I can create an appropriate titling system when writing up my research.	3.38	Moderate
2. I can utilize appropriate referencing in my research, whether direct or indirect.	3.45	Moderate
3. I can write an abstract for my research with ease.	3.39	Moderate
4. I can use various technological advances effectively in carrying out research.	3.45	Moderate
5. I am confident that I have the overall ability to complete a significant project.	3.45	Moderate
6. I can participate in generating collaborative research ideas.	3.49	Moderate
7. I can work interdependently in a research group.	3.52	High
8. I can discuss research ideas with peers.	3.69	High
9. I consult senior researchers for ideas.	3.70	High
10. I can utilize criticism from reviews of my ideas.	3.69	High
11. I can effectively write a research article on my own.	3.52	High
Mean	3.52	High

Table 5 shows the level of self-efficacy of public elementary school teachers in action research in the area of writing up. The data reveal that teachers had a high level of self-efficacy in the area stated above, as evidenced by the overall mean score of 3.52. Moreover, the data reveals that the highest mean score of 3.70, interpreted as a high level, was evident in item no. 9 on consulting senior researchers for ideas, while the lowest mean score of 3.38, interpreted as a moderate level, was evident in item no. 1 on creating an appropriate titling system when writing up my research.

The findings imply that teachers highly regard consulting senior researchers for guidance and input, indicating a reliance on expert advice to strengthen their research process. However, the relatively lower score for creating an appropriate titling system suggests that teachers find it challenging to organize and structure their research content. Thus, indicating a potential area for improvement in research presentation and organization. This supports Anderson and Taylor (2018), who argue that collaboration with experts or senior researchers improves research design and methodology.

Table 6

Difference in the Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Generating Research Questions When Grouped and Compared According to the Aforementioned Variables

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	Sig. level	Interpretation
Age	Younger (below 38 years old)	67	56.78	1526.500	0.000	0.05	Significant
	Older (38 years old & above)	73	83.09				
Highest Educational Attainment	Lower (Bachelor's Degree)	89	54.57	852.000	0.000	0.05	Significant
	Higher (Master's & Doctorate Degrees)	51	98.29				
Length of Experience	Shorter-tenured (below 9 years)	69	56.83	1506.000	0.000	0.05	Significant
	Longer-tenured (9 years & above)	71	83.79				
Number of trainings	Few (below 2)	89	56.78	1048.000	0.000	0.05	Significant
	Many (2 & above)	51	94.45				

Table 6 shows that significant differences existed in the level of self-efficacy of public elementary school teachers in action research in the area of generating research questions when grouped and compared according to age, highest educational attainment, length of experience, and number of trainings, as evidenced by the p-value of 0.000. Since the p-values for age, highest educational attainment, length of experience, and number of trainings are less than 0.05, the null hypothesis is rejected. This implies that age, educational attainment, length of experience, and number

of trainings significantly influence the self-efficacy of public elementary school teachers in generating research questions. This highlights the importance of these factors in developing teachers' confidence and competence in action research.

This supports Motshidisi's (2018) study that the teacher's age and length of experience had significantly influenced teachers' self-efficacy. Similarly, the results agree with Zee & Koomen (2016) that teacher's educational attainment and professional development programs have an impact on their self-efficacy in writing action research.

Table 7

Difference in the Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Literature Review When Grouped and Compared According to the Aforementioned Variables

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	Sig. level	Interpretation
Age	Younger (below 38 years old)	38	67	55.69	1453.000	0.000	Significant
	Older (38 years old & above)	73	84.10				
Highest Educational Attainment	Lower (Bachelor's Degree)	89	53.20	730.000	0.000	0.05	Significant
	Higher (Master's Degree & Doctorate Degrees)	51	100.69				
Length of Experience	Shorter-tenured (below 9 years)	9	69	54.45	1342.000	0.000	Significant
	Longer-tenured (9 years & above)	71	86.10				
Number of trainings	Few (below 2)	89	58.94	1240.500	0.000		Significant
	Many (2 & above)	51	90.68				

Table 7 shows that significant differences existed in the level of self-efficacy of public elementary school teachers in action research in the area of literature review when grouped and compared according to age, highest educational attainment, length of experience, and number of trainings as evidenced by the p-value of 0.000. Since the p-values for age, highest educational attainment, length of experience, and number of trainings are less than 0.05, the null hypothesis is rejected. The findings imply that age, educational attainment, length of experience, and number of trainings significantly impact the self-efficacy of public elementary school teachers in conducting literature reviews. This underscores the need to consider these factors when designing capacity-building programs to enhance teachers' action research capabilities.

This supports Dimitrios and Koustelios's (2016) study in Greece and other European countries, indicating that teachers' age affects their self-efficacy. Additionally, the findings support Shaukat and Iqbal (2014), who state that teachers with higher education have a higher sense of self-efficacy. Moreover, it agrees with Hafner (2024) that years of experience and engagement in training predict levels of teachers' overall self-efficacy.

Table 8

Difference in the Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Methodology When Grouped and Compared According to the Aforementioned Variables

Technology, When Grouped and Compared According to the Above-mentioned Variables								
Variable	Category	N	Mean Rank	Mann Whitney U	p-value	Sig. level	Interpretation	
Age	Younger (below 38 years old)	67	58.55	1645.000	0.001	0.05	Significant	

Highest Educational Attainment		Older (38 years old & above)	73	81.47	760.000	0.000	Significant
		Lower (Bachelor's Degree)	89	53.54			
		Higher (Master's & Doctorate Degrees)	51	100.10			
Length of Experience		Shorter-tenured (below 9 years)	69	56.53	1485.500	0.000	Significant
		Longer-tenured (9 years & above)	71	84.08			
		Few (below 2)	89	58.10			
Number of trainings		Many (2 & above)	51	92.14	1166.000	0.000	Significant

Table 8 shows that significant differences existed in the level of self-efficacy of public elementary school teachers in action research in the area of methodology when grouped and compared according to highest educational attainment, length of experience, and number of trainings as evidenced by the p-value of 0.000 and 0.001 for age. Since the p-values for age, highest educational attainment, length of experience, and number of trainings are less than 0.05, the null hypothesis is rejected. The findings imply that age, educational attainment, length of experience, and number of trainings significantly affect the self-efficacy of public elementary school teachers in action research methodology. This highlights the importance of these factors in shaping teachers' action research skills and their ability to effectively apply research methods.

This supports Cunniën et al. (2019) that age, educational attainment, and length of work experience matter to the level of self-efficacy. Furthermore, this agrees with Zhou et al. (2023) that professional development programs, specifically training in action research, significantly influence teachers' self-efficacy.

Table 9

Difference in the Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Findings and Analysis When Grouped and Compared According to the Aforementioned Variables

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	Sig. level	Interpretation
Age	Younger (below 38 years old)	67	60.31	1762.500	0.004	0.05	Significant
	Older (38 years old & above)	73	79.86				
	Lower (Bachelor's Degree)	89	55.13				
Highest Educational Attainment	Higher (Master's & Doctorate Degrees)	51	97.32	901.500	0.000	0.05	Significant
	Shorter-tenured (below 9 years)	69	57.58				
	Longer-tenured (9 years & above)	71	83.06				
Length of Experience	Few (below 2)	89	58.57	1558.000	0.000	0.05	Significant
	Many (2 & above)	51	91.32				
Number of trainings				1207.500	0.000	0.05	Significant

Table 9 shows that significant differences existed in the level of self-efficacy of public elementary school teachers in action research in the area of findings and analysis when grouped and compared according to highest educational attainment, length of experience, and number of trainings as evidenced by the p-value of 0.000 and 0.004 for age. The null hypothesis is rejected since the p-values for age, highest educational attainment, length of experience, and number of trainings are less than 0.05. The findings imply that age, educational attainment, length of experience, and number of trainings significantly influence the self-efficacy of public elementary school teachers in the area of

findings and analysis. These factors play a crucial role in shaping teachers' self-efficacy in analyzing and interpreting research results.

This supports Barbosa et al. (2019) that age and training influence high self-efficacy. However, this contradicts Anub (2020) that teachers exhibit a high level of self-efficacy in action research regardless of their educational attainment.

Table 10

Difference in the Level of Self-Efficacy of Public Elementary School Teachers in Action Research in the Area of Writing Up When Grouped and Compared According to the Aforementioned Variables

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	Sig. level	Interpretation
Age	Younger (below 38 years old)	67	61.67	1854.000	0.013		Significant
	Older (38 years old & above)	73	78.60				
Highest Educational Attainment	Lower (Bachelor's Degree)	89	55.02	891.500	0.000	0.05	Significant
	Higher (Master's & Doctorate Degrees)	51	97.52				
Length of Experience	Shorter-tenured (below 9 years)	69	60.72	1775.000	0.005		Significant
	Longer-tenured (9 years & above)	71	80.00				
Number of trainings	Few (below 2)	89	58.02	1158.500	0.000		Significant
	Many (2 & above)	51	92.28				

Table 10 shows that significant differences existed in the level of self-efficacy of public elementary school teachers in action research in the area of writing up when grouped and compared according to highest educational attainment and number of training as evidenced by the p-value of 0.000, 0.005 for the length of experience and 0.013 for age. The null hypothesis is rejected since the p-values for age, highest educational attainment, length of experience, and number of trainings are less than 0.05. The findings imply that age, educational attainment, length of experience, and number of trainings significantly affect the self-efficacy of public elementary schools in the area of writing up. These factors are essential in enhancing teachers' abilities to write and present their action research findings effectively.

This supports Bullo et al. (2021), who stated that teachers' educational attainment influences their self-efficacy. Moreover, this also supports the claims of Hill et al. (2014), Hoi et al. (2017), and Ross and Bruce (2017), who found that trainings significantly contribute to the sources of teachers' self-efficacy in action research.

Conclusions:

The study concludes that the research environment is more prominent among older teachers with lower educational attainment, longer experience, and fewer trainings. While teachers exhibit moderate self-efficacy in key research components and high self-efficacy in writing, those with higher education, more experience, and extensive training demonstrate greater research confidence. However, despite their preparedness, teachers still lack the necessary skills to conduct action research. Significant differences in self-efficacy levels were observed across demographic groups. To address these gaps, the study recommends expanding the scope of research variables, organizing training programs, providing technical assistance, developing a capacity-building plan, engaging research experts for year-round workshops, encouraging teacher participation in research-focused programs, and creating a sustainable initiative to strengthen teachers' self-efficacy in action research.

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