



MOTIVATION FOR READING, WRITING ATTITUDE AND PROFESSIONAL DEVELOPMENT: A STRUCTURAL MODEL ON RESEARCH SKILLS OF PUBLIC SCHOOL TEACHERS

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Abstract:

The objective of this study was to establish the most suitable model for public elementary school teachers in Region XI with respect to motivation for reading, writing attitude, and professional development in terms of research skills. This study was carried out with a quantitative descriptive-correlational and causal-predictive research design and analyzed with Structural Equation Modeling (SEM). The public elementary school teachers were selected using stratified random sampling, and 400 teachers were selected for the study from Region XI. Modified questionnaires were used to collect data, which were validated and reliable for content validity. Data analysis techniques were mean, standard deviation, Pearson product-moment correlation, multiple linear regression, and SEM. The results showed that the motivation for reading, writing attitude, professional development, and research skills are high. There were significant relationships found between each of the exogenous variables and research skills. From the three models generated, model 3 was determined as the best fit model, while writing attitude turned out to be the best predictor of research skills. Motivation for reading and professional development had nonsignificant direct effects, but were still important as they allow access to scholarly knowledge and learning conditions. This suggests that the research competence of teachers is closely related to their organization of thoughts, presentation of arguments, and effective communication of results. The conclusions suggest that improving the competence of teachers in terms of research training should involve improving writing attitudes and encouraging the continuation of research training and support programs for teachers. Schools should thus develop integrated programs for fostering writing skills, continuous learning, and useful involvement in educational research.

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1. Introduction

There is a continuing concern that the Research Skills of public-school teachers need to be strengthened as teachers are expected to investigate problems in their classrooms, evaluate instructional interventions, and rely on evidence in school improvement. But numerous teachers are still challenged by the difficulty in formulating research problems, finding and assessing literature, choosing suitable methods, interpreting and analyzing data, and reporting the results. Selecting a topic, planning, analyzing data, reflecting, and reporting were cited as being challenging for teachers in the stages of action research (Cortes & Reyes, 2021). Likewise, Abella *et al.* (2024) reported that teachers' perceived research competence was not always linked to the continual production of research. Additionally, Tagadiad *et al.* (2024) highlighted that the school's support, mentoring opportunities, resources, and application opportunities also have an impact on research competence. The results of this study suggest that the teaching and learning of Research Skills must not be limited to the learning of technical skills but also encompass the personal and professional circumstances that influence teachers' involvement in educational research.

Teachers' research skills are important in the study because the decisions in education become responsive when the teacher studies the needs of learners, instructional practices and concerns in the school. Evidence-informed school improvement focuses on utilising data and reflection to better understand the needs of learners, choose interventions, overcome barriers, and track progress (Sharples *et al.*, 2024). Deroncele-Acosta *et al.* (2024) identified research competence as the integration of epistemic understanding, methodological judgment and reflective decision-making, while Yerzhanova *et al.* (2025) highlighted the importance of building research competence in the process of professional preparation and development. The Basic Education Research Agenda (DepEd, 2016) and the Research Management Guidelines (DepEd, 2017) provide formal recognition to teachers to engage in research, share research findings, and apply research in policy and practice in the Philippine basic education system. Improving teacher research skills will support instructional improvement because it will enable teachers to utilize evidence and learner information, as well as reflection, to enhance their instructional practice and facilitate learner growth. This is in line with SDG 4: Quality Education, which calls for inclusive and equitable quality education and lifelong learning opportunities for everyone.

Research skills are closely linked to Motivation for Reading as research texts involve continuous interaction with theoretical, empirical, policy and methodological texts. Those teachers who can read difficult scholarly work are more inclined to identify gaps, compare views, assess evidence and set up the conceptual framework of a study. In their study, Griffin and Mindrila (2024) found that teachers have different reading-

motivation profiles, highlighting how efficacy, interest, value, and persistence affect the depth of their reading engagement. Similarly, van der Sande *et al.* (2023) found that reading motivation enhancement interventions positively affect reading motivation and when the interest of readers is stimulated, directly reading comprehension. The results indicate that motivated reading has the potential to facilitate the construction of knowledge and skills in problem conceptualization, searching for evidence, understanding the methods, and interpreting research results.

Recent writing-motivation literature suggests that attitude toward writing (ATW), writing self-efficacy (WSE), and perceived value (PV) are related motivational beliefs and affect writers' effort, cognitive engagement and writing quality (Skar *et al.*, 2023). Castillo-Martínez and Ramírez-Montoya (2021) also noted that research skills are tightly tied to academic reading and writing, as research involves critical engagement with academic texts and clear communication of ideas. To this end, Hyland (2021) stated that the academic writing process develops and shares disciplinary knowledge, not just the sharing of information. Despite having a good grasp of the significance of research, Philippine teachers still find it challenging to structure a research argument, to incorporate evidence, and to produce a research paper (Fajardo & Digo, 2023). A positive Writing Attitude, then, can reinforce teachers' perseverance and confidence during the research.

Through professional development, environmental and instructional support can be provided to develop and practice research skills. Research-based learning experiences could provide methodological knowledge, mentoring, peer feedback, technological resources, and research reporting in a guided way with a focus on proposal development, data analysis, and research reporting. Albalawi and Johnson (2022) found that teachers' action research competency was influenced by training and contextual support, while Fongkanta *et al.* (2022) proved that training that is connected to practical activities can strengthen teachers' research competency. Recently, Insorio (2026) found that structured online training in public school research enhanced the action-research skills of public school teachers. Similarly, Li and Xu (2024) revealed that the combination of all three (motivation, self-efficacy, institutional support) has an overall impact on teachers' research involvement. The results of these studies suggest that professional development can make a contribution to Research Skills, provided that it is ongoing, relevant, collaborative, and related to real professional issues.

But the results regarding the link between teacher-related variables and research skills are not clear-cut. Comon and Corpuz (2024) found that the teachers' research competence had a positive correlation with research engagement, indicating that teachers who have high research competence are more likely to be involved in research-related activities. In contrast, Cortes *et al.* (2025) concluded that the impact of action research training on teachers' action research skills was indirect, via research knowledge and attitude. The contrasting results show that motivation in reading, attitude of students in writing and professional development may lead to research skills, but professional development does not automatically lead to research competence unless it also enhances teachers' knowledge, confidence and attitude toward research.

In this context, motivation for reading is conceptualized as reading efficacy, reading challenge, reading curiosity, reading involvement, importance of reading, reading work avoidance, competition in reading, recognition for reading, reading for grades, social reasons for reading and compliance. They represent teachers' concepts of what they can read, their willingness to read challenging passages, their interest and absorption in reading, their appreciation of the worth of reading, their avoidance tendencies, and their internal, external and social motivations to read. The multidimensionality aligns with the findings of recent studies on reading motivation, which have shown that external purposes such as efficacy, value, involvement, recognition, challenge, compliance, and others are important dimensions of reading motivation (Griffin & Mindrila, 2024; van der Sande *et al.*, 2023). It is important to study these measures individually because teachers might have a high interest in reading, but vary in confidence, perseverance, social involvement and interest in reading challenging scholarly texts.

Based on this view, empirical studies indicate that reading motivation has a significant impact on reader interaction with challenging texts, and that the quality and function of reading motivation affect reader interaction with challenging texts. The results of Berba and Oliva (2022) showed that reading strategies were statistically significant with research skills, suggesting that effective reading strategies help in comprehending, analyzing, and engaging with research literature. Van der Sande *et al.* (2023) also found that reading motivation and understanding could be enhanced through sustained, interest-based motivational support, and Griffin and Mindrila (2024) found teacher reading profiles that reflect variations in perceived competence and value. Although self-efficacy and teachers' self-reflection were not the primary interests of Fathi *et al.* (2021), their study of teachers' work under challenging conditions did emphasize the need for self-efficacy and reflective engagement. Conclusions suggest that teachers who feel competent in reading scholarly material and who believe that it is purposeful are more likely to stay current with scholarly materials they are required to read for educational research.

The external and social aspects of Motivation for Reading may also impact on research engagement. These external factors of recognition, professional expectations, compliance and reading for performance-related objectives may lead the teacher to seek out scholarly resources even when there is not a strong intrinsic motivation. Simultaneously, working collaboratively on reading, discussing journal articles and sharing sources can enhance understanding and may lead to better understanding via interaction and feedback. Bahramnezhad and Keshmiri (2025) pointed out that meaningful objectives, collegial relationships, and facilitating working circumstances are important factors that promote sustained professional motivation. In other research situations, these conditions might enable teachers to move from a one-to-one use of reading to a collaborative professional use of reading. But external motives alone are not enough; they are more effective when teachers are also efficacious, involved, and understand the value of reading to enhance research and teaching/learning.

In this study, writing attitude is defined as teachers' affective involvement and willingness to involve themselves in writing activities, which include enjoyment and interest. This study uses two aspects of writing attitude, namely enjoyment and interest, which are considered as the affective involvement and willingness of the teachers to participate in writing activities. Value and utility are related to the degree to which teachers perceive writing as useful for instruction, documentation, school communication, publishing and school improvement. Cognitive competence is the teachers' confidence in structuring ideas, forming logical arguments and making connections of evidence to structure their academic writing. Skar *et al.* (2023) called attention to the affective responses to writing (enjoyment) as well as the cognitive evaluation of effort, competence, and quality of written products.

The attitude toward writing could also serve as the individual process by which reading and professional learning are manifested in observable research skills. Concepts and evidence can be gained from reading, methods and guidance can be obtained from professional development, but teachers need to organize and express what they have learnt. Perceived competence is particularly significant because Bandura (1986) posited that self-efficacy is the key factor to influence people's willingness to expend effort, persist through challenges, and rebound from failures. Huesmann (1991) and Deci and Ryan (2000) have also argued that feeling competent and finding personal meaning leads to prolonged participation. Consequently, teachers who value writing, find it useful, and feel competent at it are more likely to think about problems effectively, explain a procedure accurately, and communicate a finding effectively.

In this study, the subjects of Professional Development are thematic knowledge, learning environment, cooperation, educational technology, research base, educational planning, evaluation and human resource development. These indicators illustrate what teachers' ongoing professional learning content, conditions, processes, and outcomes ought to look like. The professional-development literature also has recently been defined as a multidimensional process of building teacher knowledge, establishing collaborative learning spaces, enabling evidence-based teaching, and facilitating teacher feedback, reflection, evaluation, and growth (de Jong *et al.*, 2022; Sims *et al.*, 2025). The indicators are applicable to research skills because research skills require teachers to have their own competencies and an environment to be able to inquire. Professional learning may not lead to usable research capability because of training content, access to research resources, collegial support, technological support, and opportunities for practice.

Professional development is ongoing, collaborative, action-oriented, and teacher-focused. Sims *et al.* (2025) concluded that learning is more effective when professional learning is built around insight, meaningful goals, evidence-informed practices, and opportunities for practice and feedback. Similarly, Sims *et al.* (2025) identified effective professional development as a process that leads to insight, motivation to change, practice of new techniques, and embedding of the new practice by way of feedback, action planning, and repetition in the context of the classroom. De Jong *et al.* (2022) demonstrated how collaboration might improve professional learning by having teachers share their expertise and take on shared responsibility. These ideas suggest that

professional development for research should not be one-shot and should offer multiple experiences to craft proposals, review literature, choose methods, interpret evidence and develop written products.

A few recent studies also highlight the benefits of research-based PD. According to Dokmai *et al.* (2023), professional learning communities can facilitate teachers' classroom action-research competence by providing shared inquiry and training together. Fongkanta *et al.* (2022) determined that structured professional development was effective in enhancing research competence for non-formal education teachers, and Insorio (2026) indicated that online research training could boost action research competence among public school teachers. Kang and Yang (2022) stated that meaningful support and opportunities for engagement with teacher research in institutions boost the engagement of teacher research. Sims *et al.* (2025) also demonstrated that effective professional development that is effective incorporates evidence-based content, goal setting, practice, and feedback. In summary, all of these results indicate that professional development to enhance research skills is best when delivered in a research-based, accessible, ongoing, and classroom-realistic format.

Empirical research has demonstrated that teachers do not have the same research competencies at different stages of inquiry – problem identification and conceptualization, seeking evidence, research methodology, quantitative analysis, data interpretation, and writing and reporting research results. However, Cortes and Reyes (2021) discovered that teachers had problems in selecting topics, planning, analyzing data, reflecting and writing a report, suggesting that there is not a uniform research competence across each of the research tasks. In the same way, Lacson and Dejos (2022) provided a statement that teachers' research capacity relies on their skill in applying the concepts of problem, methodology, analysis, and reporting. Additionally, Abella *et al.* (2024) found that perceived research competence does not correlate with sustained research productivity, and Tagadiad *et al.* (2024) noted that mentoring, resources, and school support are important components in promoting teachers' research engagement and output. At the same time, reading and writing strategies were found to show a significant association with research skills and influence research skills, as reported by Berba *et al.* (2022); and research skills developed in parallel with academic reading and writing skills, Castillo-Martínez and Ramírez-Montoya (2021). The results indicate that research skills should be studied as a multi-dimensional phenomenon, involving individual skills and institutional facilities.

Research Skills can be delivered inconsistently, as certain steps may need more specialized knowledge and practice than others. The teacher might have a problem finding a statistical procedure, a problem interpreting results or a problem with writing a complete report. Abella *et al.* (2024) noted that there is a disconnect between perceived competence and actual research productivity, and Cortes and Reyes (2021) found that data analysis and data reporting are among the challenges in conducting action research. In addition, both Kang and Yang (2022) found that methodological confidence, time, institutional expectations, and opportunities for dissemination have a negative effect on the research engagement of teachers. These findings reinforce the need to consider

Research Skills as a multi-dimensional phenomenon when making assumptions about competence at one stage to imply competence through the research process.

Moreover, teachers' context also has an impact on developing research skills. Competence can be strengthened or constrained by school support systems, mentoring, opportunities to access resources, workload, and opportunities to apply research. Abella *et al.* (2024) and Tagadiad *et al.* (2024) pointed out that institutional support plays an important role in shaping teachers' research capability. Deroncele-Acosta *et al.* (2024) made it clear that epistemic competence is essential to making defensible decisions in research, and Yerzhanova *et al.* (2025) emphasized the need for systematic preparation for the development of future teachers' research competence. The following are just some of the perspectives that suggest that research skills are a blend of knowledge, motivation, confidence, writing ability, guided practice, and organizational support.

The study is mainly based on social cognitive theory, a theory developed by Bandura (1986), which is used as the main theoretical foundation of the study. According to the theory, the functioning of humans is a reciprocal process among personal factors, behavior, and environmental factors. In the context of the present study, the motivational factors of reading and writing attitude are defined as personal and behavioral factors that affect teachers in their interaction with scholarly texts and research writing, while professional development is defined as an environmental factor that models, feeds back, provides resources, and guides teachers in research writing. Self-efficacy is important because the teacher's confidence in being able to read difficult texts, write scholarly arguments, and conduct research procedures will impact how hard they will work on a task and how long they will persist if the task is challenging. These personal beliefs and professional conditions may interact to affect research skills, via what is known as reciprocal determinism.

Another theoretical basis is that Self-Determination Theory supports the model in this study because it explains the motivational conditions behind teachers' involvement in reading, writing and research. Deci and Ryan (1985, 2000) introduced the concept that three conditions—autonomy, competence, and relatedness—facilitate more internalized and sustained involvement. Readers of scholarly texts and accomplished research writers are more likely to do so when they see the professional relevance of the task, have choice and ownership over the task, feel capable of accomplishing the task, and receive constructive feedback from fellow teachers and mentors. These psychological needs can be interpreted as conditions enabling reading involvement, writing enjoyment, value and utility, cognitive competence, learning environment and cooperation in the model. This theory provides an understanding of why meaningful, competence-enhancing and socializing activities can enhance teachers' research competence.

Furthermore, in this study, the Theory of Planned Behavior is used to further account for the variables of attitudes and professional conditions in terms of research involvement. Ajzen (1991) believed that attitudes toward the behavior, subjective norms, and perceived behavioral control affect behavioral intentions. Writing attitude is a reflection of teachers' judgment of writing as helpful, controllable, and significant for a professional. Motivation for Reading can foster their desire to look for and employ

information, and Professional Development can augment perceived behavioral control by providing them with knowledge, mentoring, technology and practice. The norms may also be created from the expectations of school leaders, research coordinators, and professional communities, which can encourage teachers to do and complete research. Therefore, teachers who are more likely to hold favorable attitudes and have greater perceived control are likely to be more likely to use their Research Skills.

Furthermore, the preceding theories are complemented by Adult Learning Theory or andragogy, which emphasizes teacher learning as an adult. Adult learning is best when self-directed, experience-based, problem-centered, relevant, and immediately applicable, according to Knowles (1980, 1984). Professional development is more meaningful if teachers study real school issues, formulate research plans, search and summarize the literature, gather and analyze data, get feedback and make revisions to research reports. This theory, thus, makes it possible to explain how the learning process is carried out practically, collaboratively and orientated to application to make students' motivation to read, the attitude of writing and research skills stronger.

The four theories can be used together to explain the proposed structural relationships. The overall explanation for the interaction between personal beliefs, behavior and professional environments is provided by the Social Cognitive Theory. The Self-Determination Theory provides insights into the internal and social factors that allow for research engagement, the Theory of Planned Behavior elucidates the role of attitudes, norms, and perceived control on intentions to engage in research, and Adult Learning Theory provides insights into how relevant experiences in the adult world are translated into practical competence. Together, the theories suggest that teachers' research skills are shaped by their motivation to read in a scholarly manner, their attitudes to writing, and the professional learning opportunities that they have access to.

Presented in Figure 1 is the conceptual framework of the study. The inter-relationships among motivation for reading, writing attitude, professional development, and research skill of teachers are shown in the diagram. The exogenous variables are the motivation for reading, writing attitude and professional development, which are regarded as significant factors that affect teachers' research skills.

The dimensions of reading efficacy, reading challenge, reading curiosity, reading involvement, importance of reading, reading work avoidance, competition in reading, recognition for reading, reading for grades, social reasons for reading, and compliance are the motivational dimensions that motivate teachers to engage in the reading related activities. Writing attitudes include attitude towards writing as a source of enjoyment, interest in writing, value and utility of writing, and cognitive competence in writing which are related to teachers' attitudes and perceptions towards writing. Professional development refers to thematic knowledge, learning environment, cooperation, educational technology, research base, educational planning, evaluation and development of human resources, with the emphasis on professional competency and learning experiences that help teachers to grow and become more effective.

The exogenous variables are assumed to have direct effect on the endogenous variable, research skills which is related to teachers' research skill. It is assumed that

teachers' research skills are developed and improved by their high motivation for reading, positive attitude to writing and improved professional development.

Problem identification and conceptualization skills, information and evidence seeking skills, research methodology skills, statistics or quantitative analysis and evidence evaluation skills, research methods and data analysis, writing and reporting of results, and problem conceptualization are all considered to be research skills. The framework suggests that each exogenous variable has a relationship with and possibly predicts the research skills, and then the configuration that has the best representation of the observed relationship is determined by Structural Equation Modeling. This helps ensure consistency in research objectives, conceptual structure, hypotheses, measures, and analytical procedures, as required by a coherent relationship between research objectives, conceptual structure, and hypotheses (Panda & Mohapatra, 2024).

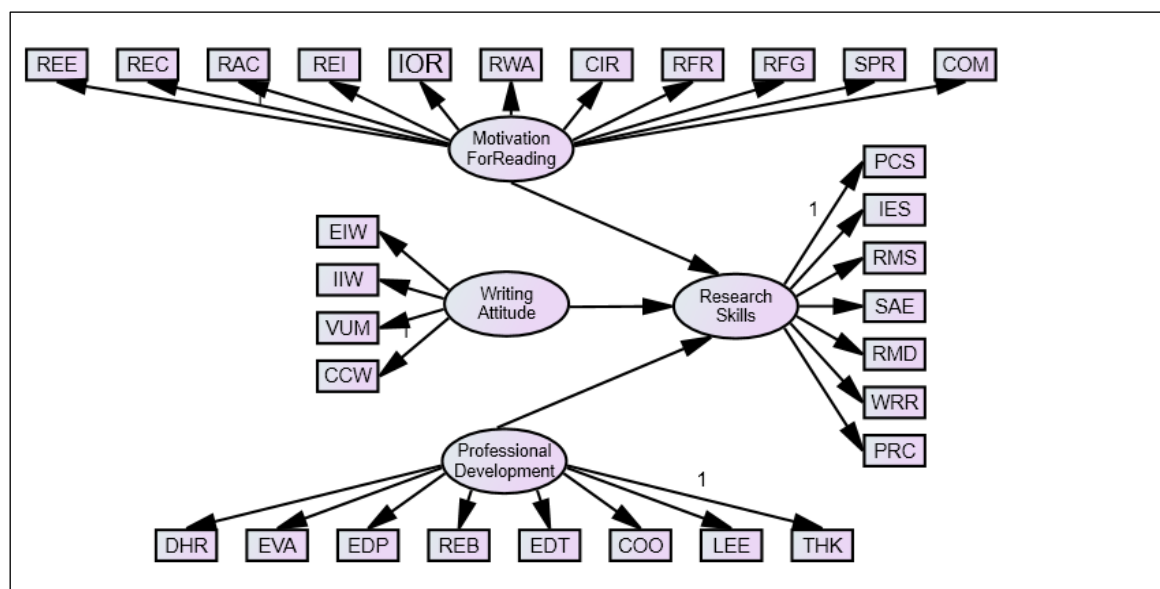


Figure 1: Conceptual Framework of the Study

The literature that has been reviewed indicates that there is a gap in the research on the skills of research, reading motivation, writing attitude and professional development within one explanatory model. While several studies have discussed teachers' research competence, barriers to action research, reading motivation, writing strategies, academic reading and writing competencies, and research-oriented professional training, most have examined these factors individually, rather than exploring how they interact when it comes to teachers' research skill (Abella *et al.*, 2024; Berba & Oliva, 2022; Castillo-Martínez & Ramírez-Montoya, 2021; Cortes & Reyes, 2021; Fongkanta *et al.*, 2022; Griffin & Mindrila, 2024).

In a similar way, Insorio (2026) drew attention to the importance of professional learning to empower teachers' involvement in research. However, the relationship between the variables (motivation for reading, writing attitude, professional development, research skills) remains under researched; particularly among the public elementary school teachers in DepEd Region XI. Therefore, this study aims to fill the gap

by considering these variables together and applying the best model by using Structural Equation Modeling. The need for this study comes as a result of the rising demand for public school educators to employ evidence-based teaching, engage in action research, and participate in school decision-making. Although DepEd has policies to encourage and support educational research (DepEd, 2017), the mere existence of these policies does not ensure that teachers have the time, confidence, research writing skills, mentoring, and access to research resources needed to be successful in engaging in research activities. Thus, understanding the conditions of research skills in Region XI can become a local foundation for developing capacity-building initiatives beyond compliance to stimulate rigorous, useful, and sustainable studies of teachers.

This study aims to ascertain the level of motivation for reading when analyzed by reading efficacy, reading challenge, reading curiosity, reading involvement, importance of reading, reading work avoidance, competition in reading, recognition for reading, reading for grades, social reasons for reading, and compliance; to assess the level of writing attitude when grouped by enjoyment in writing, interest in writing, value and utility of writing, and cognitive competence in writing; to evaluate the professional development when analyzed by thematic knowledge, learning environment, cooperation, educational technology, research base, educational planning, evaluation, and development of human resources; to find out the level of research skills when grouped by problem identification and conceptualization skills, information and evidence seeking skills, research methodology skills, statistics or quantitative analysis and evidence evaluation skills, research methods and data analysis, writing and reporting of results, and problem conceptualization.

In addition, the purpose of this study is to identify a significant relationship between motivation for reading, writing attitude and professional development with the research skills of public elementary school teachers. Specifically, it aims to find out which of the exogenous variables significantly affects teachers' research skills and to know the structural model that is suitable for the research skills of public elementary school teachers.

All the null hypotheses were tested at a 0.05 level of significance. The following hypothesis of the study was proposed: There are no significant relationships between the following variables: (1) motivation for reading and research skills, (2) writing attitude and research skills and (3) professional development and research skills; There is no significant exogenous variable in influencing research skills; No structural model fit the research skills of public elementary school teachers in DepEd Region XI.

The findings from this study support the Sustainable Development Goals (SDGs) 4 (Quality Education), 8 (Decent Work and Economic Growth) and 17 (Partnerships for the Goals) by fostering teacher competence, lifelong learning, professional productivity and collaboration in learning (United Nations, 2015). The study enhances teachers' research skills, which in turn enables evidence-based teaching, continuous professional development, and production of research-informed educational practices that can lead to an enhancement in learning outcomes. Moreover, it assists the Department of Education's 5-point Agenda on the welfare of teachers by giving conclusive evidence of the effects of

motivation for reading, writing attitude and professional development on teachers' competence in research and their professional growth. The results can inform policies and professional development efforts for increasing teachers' involvement in research, quality of teaching, and a culture of research and innovation in schools.

This study can serve as a reference for further research by future researchers related to teachers' research skills. It can be used as a guide when exploring other personal, professional and organizational factors that affect research competence in various educational contexts. The proposed model can also be validated, refined, or extended with other populations or research designs in future studies. Thus, future studies can help to further the development of teacher education, develop research skills and support the application of evidence in educational practice and policy development.

2. Method

This section describes various study methods, including research design, research locale, population and sample, research instruments that will be used to measure constructs of interest, data collection, statistical tools, and ethical considerations.

2.1 Research Respondents

The study was conducted in DepEd Region XI, where 11 Schools Division Offices were visited, and 25,695 permanent public elementary school teachers were targeted. Using the Raosoft sample size calculator at a 95% confidence level, a 5% margin of error and a 50% distribution of responses, the sample size of teachers was found to be 400 (Raosoft, 2004). According to Kline (2023) and Piriyaikul (2021), the number of participants in the survey was deemed to be sufficient for survey research and SEM for the purposes of this study.

The number of respondents that were sampled, 400, was considered sufficient for applying Structural Equation Modeling (SEM) because the number of respondents is greater than the recommended minimum number of respondents for estimation of models in SEM. Recent SEM literature highlights that the sample size should be in relation to the model complexity, number of model parameters, and estimation needs; and that the larger the sample size, the more stable the model estimates will be (Kline, 2023; Piriyaikul, 2021).

Proportionate Stratified Random Sampling was used to ensure representation from all the Schools Division Offices. A total of 111 teachers from Davao City, 63 teachers from Davao de Oro, 41 teachers from Davao del Norte, 41 teachers from Davao del Sur, 32 teachers from Davao Occidental, 45 teachers from Davao Oriental, 14 teachers from Digos City, nine teachers from the Island Garden City of Samal, 13 teachers from Mati City, 14 teachers from Panabo City, and 17 teachers from Tagum City were selected as the final sample. The sampling frames were updated lists of eligible permanent teachers, and the participants were randomly selected in each stratum. The use of stratification was suitable, since it helped to maintain the proportional contribution of both large and small

divisions and limited the risk of high population locations dominating the sample (Creswell & Creswell, 2023).

The selection and inclusion of respondents were based on stringent parameters for the validity and appropriateness of the findings of the study. The study sampled permanent public elementary school teachers in DepEd Region XI with age ranges 23-55 years old, three years or more of teaching experience, who had participated in various professional seminars and training programs with substantial classroom exposure, were actively teaching during the data collection period and who signed the Informed Consent Form. Inclusion criteria were used so that the respondents had a minimum of 3 years of teaching experience, had participated in Continuous Professional Development (CPD) and were currently engaged in classroom activities, as they are able to contribute their opinions and experiences about their motivation for reading, attitude to writing, CPD and research skills.

Temporary, contractual, job-order, locally funded, administratively assigned personnel were not included in the study, nor were teachers who had completed fewer than three years of teaching assignments, or those on extended leave during the study's time of data collection. To make the data obtained as relevant, consistent and reliable as possible, only teachers with stable employment, professional experience and active classroom responsibilities were included in the study, according to these criteria, making the exclusion.

Participants could refuse, skip any item that caused discomfort, or drop-out at any time without financial, professional, or administrative repercussions. If a chosen participant declined to complete the questionnaire, a further eligible teacher in the same stratum was randomly chosen to ensure the intended allocation of participants.

2.2 Materials and Instrument

In this study, four (4) questionnaires were used and adapted from various validated questionnaires by different authors. The first questionnaire assessed reading motivation and was modified from Wigfield and Guthrie (1997). It had 53 items on the following dimensions: reading efficacy, reading challenge, reading curiosity, reading involvement, importance of reading, reading work avoidance, competition in reading, recognition for reading, reading for grades, social reasons for reading, and compliance.

The second questionnaire was used to determine the writing attitude and was adapted from Hall *et al.* (2016). It included 36 items covering the following aspects: enjoyment in writing, interest in writing, value and utility of writing, and cognitive competence in writing.

The third questionnaire assessed professional development and was adapted from Ayyoobi *et al.* (2016). It included 47 questions in the following dimensions: thematic knowledge, learning environment, cooperation, educational technology, research base, educational planning, evaluation, and HR development.

The fourth questionnaire assessed research skills and was based on the research skills questionnaire used by Lacson and Dejos (2022). It included 79 items covering the following areas: problem identification and conceptualization skills, information and

evidence seeking skills, research methodology skills, statistics or quantitative analysis and evidence evaluation skills, communication and language skills, research methods and data analysis, writing and reporting of results, and problem conceptualization. Altogether, 215 items were used across the four questionnaires with the respondents. The instruments were rigorously examined for pilot testing with thirty (30) respondents, expert validation, and reliability and validity, with the use of Cronbach's alpha for assessment of robustness.

Five ordered gradations were used in the evaluation of the levels of motivation for reading, writing attitude, professional development, and research skills, with the correspondence of the mean ranges and descriptive interpretations of the indicators being used. A very high level (Very High) of motivation for reading, positive writing attitude, active participation in professional development, and strong research skills corresponds to the mean range of 4.20–5.00 for the indicators of the variables. A mean range of 3.40–4.19 (High) indicates that these indicators are frequently present, which means that the respondents typically exhibit the desired characteristics, but with some variability in their levels of consistency.

A mean range between 2.60–3.39 (Moderate) means that the indicators are sometimes demonstrated, suggesting the presence of the expected attributes but not consistently. A mean range between 1.80 and 2.59 (Low) indicates that the indicators are not often observed; this means that there is limited evidence of the constructs measured. Finally, a mean score between 1.00 and 1.79 (Very Low) indicates that the indicators are seldom observed, suggesting that there is very little evidence of the constructs studied reflected in those indicators.

The adapted instruments were piloted with a panel of experts to ensure that they were relevant to the study, understandable, coherent, appropriate, and aligned with the study variables and indicators. The entire questionnaire was then subjected to a pilot test in a sample of public-school teachers that shared characteristics that were similar to those of the teachers in the study but were not participating in the study. These instruments were extensively pre-tested on thirty (30) respondents, were expertly validated, and had reliability and validity assessed employing Cronbach's alpha, which gives a robust assessment. The overall validation result of the questionnaires was very good (4.57). The Cronbach's alpha coefficients confirmed that each of the results showed a high internal consistency across each of the components. The reliability coefficient for Part I (Motivation for Reading) was .958 (N = 53), which is very good. Part II (Writing Attitude) had a Cronbach's alpha of .970 for 36 items, which indicated excellent reliability. Part III (Professional Development) also had an excellent coefficient of .970 (47 items), and Part IV (Research Skills) had an excellent Cronbach's alpha of .989 (79 items). In overall conclusion, the results indicate that both instruments were found to have a fairly high level of reliability and are appropriate for further data collection, so that the measurement of the constructs being measured is accurate, consistent and reliable.

2.3 Design and Procedure

The study employed a quantitative, nonexperimental, descriptive-correlational, and predictive research design. Data were gathered in naturally occurring settings without manipulating the study variables or randomly assigning participants to groups; therefore, the design was appropriate for describing the levels of the variables, examining their statistical relationships, and determining predictive associations rather than causal effects (Creswell & Creswell, 2023; Slater & Hasson, 2025). The levels of the four variables were decided in the descriptive component, the strength and direction of their relationships were determined in the correlational component, and the exogenous variables that contributed significantly to the research skills were determined in the causal-predictive component, but the associations found were interpreted as predictive associations rather than causal associations.

Several simultaneous relationships that can be tested between motivation for reading, writing attitude, professional development, and research skills are analyzed simultaneously, and the best-fit model is obtained after considering the measurement error (Hair *et al.*, 2019; Kline, 2023). Data were checked for completeness, coding errors, missing values, outliers, normality, linearity and multicollinearity prior to model estimation. The overall model fit was assessed with the chi-square probability, CMIN/DF, GFI, CFI, NFI, TLI, RMSEA and P-Close. The criteria were used in accordance with the criteria used in the study (Arbuckle & Wothke, 1999; Browne & Cudeck, 1993), and the results are as follows: Nonsignificant model probability, CMIN/DF below 2, GFI, CFI, NFI, and TLI greater than .95, RMSEA less than .05, and P-Close greater than .05.

Ethical approval for the conduct of the study was obtained prior to the study from the University of Mindanao Ethics Review Committee (UMERC) with the protocol number U MERC-2026-005. After getting the ethical clearance, the researcher obtained the endorsement from the DepEd Regional Office XI and the written permission of each of the eleven (11) participating Schools Division Offices (SDOs) in the Davao Region. The researcher followed up with the division coordinator and school coordinator for help in identifying eligible respondents utilizing the approved sampling frame. The researcher personally distributed the survey questionnaires (along with the informed consent form) to the identified respondents. The study was voluntary, and respondents were asked to sign informed consent before answering the survey instruments. To minimize disruption to their teaching responsibilities, respondents were given one week to complete the questionnaires. In January 2026, data collection began and continued until the survey was administered in all the participating schools. The completed questionnaires were then scrutinised for completeness and accuracy upon retrieval and then coded, encoded, tabulated and ready for statistical analysis.

To describe the levels of motivation for reading, writing attitude, professional development, and research skills, the means and standard deviations were calculated. Pearson's product-moment correlation coefficients were calculated to determine the significance, strength, and direction of the relationships between each of the exogenous variables and the research skills. Multiple linear regression was used to determine the significant unique predictors of research skills. The proposed multivariate relationships

were then assessed using Structural Equation Modeling, the generated models were compared, and the model that best represented the observed data was determined.

The study was conducted in accordance with the ethical standards of the University of Mindanao Ethics Review Committee and Republic Act No. 10173 (2012), otherwise known as the Data Privacy Act of 2012. Respondents were able to refuse to participate, skip questions, or drop out at any time without incurring any penalty for their decision. There was no monetary compensation, and the study was of little risk. All data elements were anonymized with identification codes; completed questionnaires and electronic files were kept securely, access was restricted to authorised researchers, and results were only presented as group totals. The procedures were reported accurately along with the results obtained, and all adapted instruments and sources of scholarly information are cited appropriately according to the APA 7th edition.

3. Results and Discussion

This chapter presents and discusses the findings of the public-school teachers in Region XI on motivation for reading, writing attitude, professional development, and research skills. It gives an interpretation of the levels and relationships of the study variables, together with their contributions to research skills and the selection of the best model to address the research objectives.

3.1 Motivation for Reading

Table 1 shows that teachers' overall level of motivation for reading is high, with a mean score of 3.82 and a standard deviation of 0.44, indicating that teachers have a high level of motivation for reading and are likely to participate in reading activities. Importance of reading had the highest mean of 4.50, with a standard deviation of 0.65, interpreted as very high; reading curiosity had the second highest mean of 4.16, with a standard deviation of 0.63, interpreted as very high; reading for grades had the third highest mean of 3.95, with a standard deviation of 0.56, interpreted as high, suggesting that these aspects are also commonly manifested by teachers. Social reasons for reading registered the lowest mean of 3.11, with a standard deviation of 0.82, interpreted as moderate, suggesting that social influences are also less common in motivating teachers to read. In fact, the rest of the indicators were rated high, meaning that teachers tend to exhibit reading efficacy, challenge, involvement, limited work avoidance, competition, recognition, and compliance in reading activities.

Table 1: Level of Motivation for Reading of Public School Teachers

Indicator	SD	Mean	Descriptive Equivalent
Reading Efficacy	0.45	3.75	High
Reading Challenge	0.56	3.85	High
Reading Curiosity	0.63	4.16	High
Reading Involvement	0.68	3.87	High
Importance of Reading	0.65	4.50	Very High
Reading Work Avoidance	0.65	3.91	High

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Competition in Reading	0.68	3.60	High
Recognition for Reading	0.80	3.62	High
Reading for Grades	0.56	3.95	High
Social Reasons for Reading	0.82	3.11	Moderate
Compliance	0.64	3.71	High
Overall	0.44	3.82	High

These results have implications for teachers' reading engagement in that it was largely motivated by their perceptions of the significance of reading in the classroom, their interest in information, and reading for purposes related to performance. The high scores indicate that they frequently read to gain knowledge, to fulfill professional requirements, and for instructional and research activities. The moderate rating for social reasons for reading suggests that reading, sharing reading materials, or reading in collegial interaction was not as consistently practiced. Journal circles, professional reading groups, and shared literature review activities can then contribute to transforming individual reading motivation into shared inquiry by a profession.

Consistent with the implications of the present findings, recent reading-motivation studies support the role of motivation in strengthening teachers' engagement with scholarly texts. Griffin and Mindrila (2024) identified teacher reading motivation as involving dimensions such as importance, recognition, occupational effectiveness, challenge, and self-efficacy, while van der Sande *et al.* (2023) showed that interest-focused reading interventions can improve motivation and comprehension. Xiao (2023) likewise demonstrated that affective and cognitive reading attitudes and reading self-concept are linked to reading amount and achievement. Thus, the high overall result indicates a favorable motivational base for scholarly reading, while the lower social dimension suggests the need for collegial reading practices that make literature engagement collaborative and purposeful.

3.2 Writing Attitude

The results in Table 2 reveal that the patterns of Writing Attitude of public school teachers were relatively high with a mean value of 3.72 and a standard deviation of 0.48, indicating that teacher attitudes toward writing were mostly positive and that teachers routinely engage in writing activities. The highest mean (3.93) with the lowest standard deviation (0.61) was for Value and Utility of Writing, which suggests that it is common for teachers to exhibit this indicator, interpreted as high. Interest in Writing and Cognitive Competence in Writing were the second highest with mean scores of 3.67 and 0.64 and 0.60 and 0.60, respectively, also interpreted as high. On the other hand, Enjoyment in Writing which has the lowest mean 3.63 and standard deviation 0.64, teachers generally enjoy writing though less intensely when compared to the other dimensions of writing attitude, though it is still in the high descriptive level. The results suggest that teachers understand and appreciate the value and usefulness of writing and have positive attitudes towards their writing skills but these positive attitudes towards writing are slightly less evident than the other areas of the writing attitude.

Table 2: Level of Writing Attitude of Public School Teachers

Indicators	SD	Mean	Descriptive Equivalent
Enjoyment in Writing	0.64	3.63	High
Interest in Writing	0.64	3.67	High
Value and Utility of Writing	0.61	3.93	High
Cognitive Competence in Writing	0.60	3.67	High
Overall	0.48	3.72	High

The implication of these results is that writing was most highly valued by teachers for its instructional usefulness, documentation, professional communication, and research purposes. They were interested in writing and cognitively competent, suggesting that they were generally motivated to write and felt they were able to organize and communicate their thoughts. However, the least manifested dimension was Enjoyment in Writing, indicating that teachers might write because they feel it is a more consistent professional requirement than because they find writing enjoyable. Writing, research journaling, collaborative writing, and the opportunity to share and receive constructive feedback may help teachers make writing a more manageable and rewarding profession than simply a compliance item.

In accord with this interpretation, the recent literature on writing motivation has tended to focus on the role that writers' confidence and attitudes have on their efforts and involvement. Skar *et al.* (2023) determined that writing self-efficacy and attitude toward writing affect the effort, cognitive resources and involvement that goes into writing tasks. The strong rating for Value and Utility of Writing was also attributed to academic writing's ability to create, organize, and present disciplinary knowledge, as noted by Hyland (2021). The findings also correspond to Social Cognitive Theory (Bandura, 1986), which states that perceived capability influences effort and persistence, and to Self-Determination Theory (Deci & Ryan, 2000), which states that competence and internalized value are foundations for sustained engagement. In general, teachers' positive attitude towards writing was found to be important for the foundation of writing research and professional communication.

3.3 Professional Development

The overall level of professional development of public-school teachers was high, with a mean of 3.95 and a standard deviation of 0.48, meaning that public school teachers had a good level of professional development and participated in a high number of professional development activities. The highest mean was 4.16 with a standard deviation of 0.63 (high) for learning environment, followed by cooperation with a mean of 4.15 and a standard deviation of 0.60 (high); educational technology with a mean of 4.06 and a standard deviation of 0.62 (high); and thematic knowledge with a mean of 4.03 and a standard deviation of 0.64 (high). Research base, however, was the lowest mean, 3.42, and standard deviation, 0.68, with still a high level, indicating that research-related professional learning is less apparent. On the whole, teachers have good access to PD, good access to collaborative resources, and access to technology for teaching and learning, although the participation in research-based PD is less expressed.

Table 3: Level of Professional Development of Public School Teachers

Indicator	SD	Mean	Descriptive Equivalent
Thematic Knowledge	0.64	4.03	High
Learning Environment	0.63	4.16	High
Cooperation	0.60	4.15	High
Educational Technology	0.62	4.06	High
Research Base	0.68	3.42	High
Educational Planning	0.68	3.95	High
Evaluation	0.70	3.88	High
Development of human resources	0.67	3.96	High
Overall	0.48	3.95	High

These results have implications that emphasize how teachers typically had supportive conditions for professional learning that enabled collaboration, knowledge building, planning, evaluation, and technology use. High ratings for learning environment and cooperation indicate that collegial support and the opportunities to work with others was a salient aspect to their professional life. The relative low research base score, however, suggests that systematic interaction with research evidence, research production, and inquiry-based professional learning were less evident than other development activities. Professional-development programs need to offer greater opportunities, however, for sustained analysis of studies, development of proposals, investigation, data interpretation, and application of study findings in classroom and school decisions.

The present results are supported by the literature on professional development which underscores the importance of sustained, collaborative, and practice-based learning to enhance teachers' professional and research related skills. Sims *et al.* (2025) noted that effective professional learning (PL) facilitates insight, inspires change, provides evidence-based strategies, and supports practice through feedback and repetition. When teachers share practices, give feedback, and cooperate on school-based professional learning, they benefit from the support of other teachers and collaborative learning, as demonstrated by De Jong *et al.* (2022). Other studies by Fongkanta *et al.* (2022), Dokmai *et al.* (2023) and Insorio (2026) have also shown that practical, collaborative and mentored learning can enhance teachers' research skills. Research Base outcome is comparatively low so this is an area for capacity development.

3.4 Research Skills

The general level of research skills among public school teachers was high with mean score of 3.42 among teachers with a standard deviation of 0.58, indicating satisfactory levels of research skills and high frequency of involvement in research-related activities. The mean for information and evidence seeking skills was the highest, at 3.55 with a standard deviation of 0.76 (high); followed by problem identification and conceptualization skills and research methodology skills, with a mean of 3.50 and standard deviation of 0.74 (high); and statistics skill or quantitative analysis, problem conceptualization, writing and reporting of results, research methodology and data analysis, with a mean of 3.39, 3.35, 3.34, 3.32 respectively and standard deviation of 0.73,

0.77, 0.74, 0.72 respectively (moderate). In general, teachers' competencies in research problem identification and seeking information are relatively good, while the data analysis, statistics and reporting of the research are less competent.

Table 4: Level of Research Skills of Public School Teachers

Indicators	SD	Mean	Descriptive Equivalent
Problem Identification & Conceptualization Skills	0.58	3.50	High
Information and Evidence Seeking Skills	0.76	3.55	High
Research Methodology Skills	0.68	3.50	High
Statistics/Quantitative Analysis and Evidence Evaluation Skills	0.70	3.39	Moderate
Research Methods and Data Analysis	0.67	3.32	Moderate
Writing and Reporting of Results	0.63	3.34	Moderate
Problem Conceptualization	0.63	3.35	Moderate
Overall	0.58	3.42	High

The meaning of these results indicated that teachers' skill in searching for information, finding research problems, and basic methodological work was relatively high compared to their advanced analytical and reporting skills. Moderate ratings indicate that the use of and sensitivity to statistical methods, interpretation of evidence, incorporation of methods into data analysis, development of problem conceptualization, and presentation of findings in a full scholarly report were sometimes demonstrated. These phases involve practice, technical advice and feedback in a repeating manner. Research clinics, data analysis laboratories, writing workshops and extended mentoring programs can then support teachers' progress from being familiar with research to consistent and autonomous work throughout the entire inquiry process.

The results of this inquiry are corroborated by recent empirical literature that explores teachers' research competence. However, Cortes and Reyes (2021) found that planning, analysis, reflection and reporting were challenging aspects of teacher action research and Abella *et al.* (2024) reported that perceived competence in research does not necessarily lead to continued research productivity. Lacson and Dejos (2022) pointed out that problem conceptualization, methods, analysis and reporting are all included in research competence, while Tagadiad *et al.* (2024) have noted the importance of mentoring, resources and school support in enhancing teachers' engagement in research and outputs. Furthermore, Castillo-Martínez and Ramírez-Montoya (2021) highlighted that the ability to read and write in academic contexts is vital aspects of research skills. The research literature as a whole indicates a need for more institutional focus, practice, and intervention on the technical aspects of research.

3.5 Relationship between Motivation for Reading and Research Skills

Motivation for reading was significantly and positively related to research skills among public school teachers ($r = .305$, $p < .001$). Social reasons for reading had the strongest association with overall research skills ($r = .353$). Compliance, reading involvement, competition, work avoidance, reading for grades, reading efficacy, recognition, and

reading challenge also showed significant relationships. However, reading curiosity ($r = .009$) and reading importance ($r = .014$) were not significantly related to research skills.

Problem conceptualization, including identifying research problems and understanding relevant literature, had the highest correlation with overall reading motivation ($r = .451$). The findings suggest that reading motivation is strengthened by social interaction, recognition, and meaningful engagement with academic materials. Thus, collaborative sharing, discussion, and application of research literature may improve teachers' ability to formulate well-informed research problems and enhance their research skills.

Table 5: Relationship between Motivation for Reading
and Research Skills of Public School Teachers

Motivation for Reading	Research Skills							
	PCS	IES	RMS	SAE	RMD	WRR	PRC	Overall
Reading Efficacy	.214** < .001	.258** < .001	.172** .001	.139** .005	.100* .045	.066 .190	.108* .030	.174** < .001
Reading Challenge	.195** < .001	.096 .055	.082 .104	.032 .520	.134** .007	.091 .069	.089 .076	.115* .022
Reading Curiosity	.088 .078	.058 .246	-.033 .513	-.070 .162	.062 .219	-.028 .572	-.013 .801	.009 .853
Reading Involvement	.268** < .001	.315** < .001	.113* .024	.216** < .001	.288** < .001	.202** < .001	.182** < .001	.260** < .001
Importance of Reading	.120* .017	-.004 .943	-.129** .010	-.054 .279	.096 .055	.042 .399	.038 .444	.014 .784
Reading Work Avoidance	.334** < .001	.282** < .001	.271** < .001	.141** .005	.136** .007	.035 .482	-.004 .943	.197** < .001
Competition in Reading	.384** < .001	.271** < .001	.269** < .001	.125* .012	.158** .002	.108* .031	.094 .060	.229** < .001
Recognition for Reading	.452** < .001	.370** < .001	.373** < .001	.239** < .001	.214** < .001	.165** .001	.134** .007	.318** < .001
Reading for Grades	.353** < .001	.323** < .001	.215** < .001	.081 .107	.049 .333	.046 .359	.059 .241	.184** < .001
Social Reasons for Reading	.426** < .001	.317** < .001	.355** < .001	.208** < .001	.338** < .001	.265** < .001	.263** < .001	.353** < .001
Compliance	.412** < .001	.273** < .001	.229** < .001	.244** < .001	.306** < .001	.242** < .001	.243** < .001	.316** < .001
Overall	.451** < .001	.353** < .001	.272** < .001	.185** < .001	.267** < .001	.177** < .001	.168** .001	.305** < .001

Legend:

PCS - Problem Identification & Conceptualization Skills,
RMD -Research Methods and Data Analysis,
IES - Information and Evidence Seeking Skills,
WRR - Writing and Reporting of Results,
RMS - Research Methodology Skills,
PRC - Problem Conceptualization,
SAE - Statistics/Quantitative Analysis and Evidence Evaluation Skills.

The impact of these results has led to the conclusion that research competencies were related more to the active, social and professionally sanctioned approach to reading than to curiosity and perceived significance. Collaborations, recognition, institutional expectations and sustained involvement may encourage teachers to read research literature, compare evidence and apply information in the definition of educational problems. The highest level of connection with the problem identification and conceptualization skills indicates that there is a strong relationship between teachers' regular interaction with written sources and their ability to identify problems, clarify concerns and set the direction of an investigation. But the value of reading or curiosity to read may not be enough unless these beliefs are translated into reading actions that have purpose and consistency.

These results are consistent with the Social Cognitive Theory, which states that competence is created through the reciprocal effect of personal, behavioral and environmental reinforcement (Bandura, 1986). This is further supported by recent studies on reading motivation that highlight the importance of motivation factors such as teacher efficacy, value, recognition, and challenge in the reading process (Griffin & Mindrila, 2024), as well as the role of motivational support in enhancing reading engagement and comprehension (van der Sande *et al.*, 2023). Similarly, Berba and Oliva (2022) found that reading strategies were found to be significantly correlated with research skills, implying that comprehension, literature engagement, and analytical reading are related to research competence. Therefore, Motivation for Reading has an impact on Research Skills when the teacher is actively involved in scholarly information and is provided with social and professional support in this activity.

3.6 Relationship between Writing Attitude and Research Skills

The results of this study are summarized in Table 6, which shows that there exists a significant positive correlation between writing attitude and research skills in public school teachers with overall $r = .326$, $p < .001$, indicating that the more positive the writing attitudes, the higher the researcher skills. The overall research skills had the strongest positive association with cognitive competence in writing ($r = .336$), then with value and utility of writing ($r = .267$), enjoyment in writing ($r = .247$), and interest in writing ($r = .169$). The strongest correlation with writing attitude was obtained with problem identification/conceptualization skills ($r = .517$), followed by information/evidence seeking skills ($r = .331$), research methodology skills ($r = .303$), research methods and data analysis ($r = .249$), writing and reporting of results ($r = .234$), problem conceptualization ($r = .216$), and statistics/quantitative analysis and evaluation of evidence skills ($r = .171$). The results show that teachers' positive attitudes towards writing tend to have better research competencies, especially in terms of research problem identification and conceptualization. This implies that writing can facilitate teachers' thinking, research concerns, and communicating evidence. It also suggests that confidence in writing can help teachers in their proposal preparation, literature review and presentation of findings. Furthermore, teachers who have a positive attitude towards writing may be more likely to edit and publish research products. A positive writing attitude can also

maintain resolution in difficult times of research. Therefore, this may be a possible way of enhancing teachers' writing confidence, academic writing ability and appreciation of writing, which can contribute toward enhancing research ability.

Table 6: Significance of the Relationship between Writing Attitude and Research Skills of Public School Teachers

Writing Attitude	Research Skills							
	PCS	IES	RMS	SAE	RMD	WRR	PRC	Overall
Enjoy in Writing	.328** < .001	.206** < .001	.254** < .001	.034 .498	.199** < .001	.251** < .001	.274** < .001	.247** < .001
Interest in Writing	.380** < .001	.232** < .001	.185** < .001	-.011 .829	.079 .116	.073 .146	.122* .015	.169** .001
Value and Utility of Writing	.382** < .001	.262** < .001	.203** < .001	.216** < .001	.229** < .001	.201** < .001	.151** .002	.267** < .001
Cognitive Competence in Writing	.521** < .001	.332** < .001	.305** < .001	.309** < .001	.275** < .001	.207** < .001	.121* .016	.336** < .001
Overall	.517** < .001	.331** < .001	.303** < .001	.171** .001	.249** < .001	.234** < .001	.216** < .001	.326** < .001

Legend:

PCS - Problem Identification & Conceptualization Skills,
RMD - Research Methods and Data Analysis,
IES - Information and Evidence Seeking Skills,
WRR - Writing and Reporting of Results,
RMS - Research Methodology Skills,
PRC - Problem Conceptualization,
SAE - Statistics/Quantitative Analysis and Evidence Evaluation Skills.

The implications of these findings emphasize that the teachers who experienced high levels of self-efficacy in organizing ideas and communicating information were more likely to demonstrate high levels of Research Skills. Teachers' cognitive competence can be used to formulate research problems, synthesize literature, explain procedures, interpret evidence, and revise written outputs. The significant correlation between the value and utility of writing suggests that teachers who were more likely to see writing as professionally meaningful were more likely to engage in research tasks; enjoyment and interest might help to maintain persistence in the drafting and revision of writing. The high correlation between problem identification and conceptualization skills indicates that writing as a process may be particularly beneficial in helping teachers identify and conceptualize learning issues and in translating issues into researchable problems.

Theoretical and empirical research studies support the above findings, highlighting the importance of writing attitudes and perceived competence for research involvement. Bandura (1986) noted that perceived competence encourages persistence in challenging tasks, and a sense of competence, autonomy and internalized value maintains engagement (Deci & Ryan, 1985; 2000). Skar *et al.* (2023) established that writing self-efficacy and attitude predict effort, engagement and writing quality; and Hyland (2021) defined writing as a knowledge-construction and knowledge-

communication process. Likewise, Berba and Oliva (2022) and Castillo-Martínez and Ramírez-Montoya (2021) affirmed that writing strategies and academic writing are important for the development of research skills. Hence, it could be concluded that Writing Attitude was positively correlated with the research competence in all the variables.

3.7 Relationship between Professional Development and Research Skills

The overall correlation of $r = .271$, $p < .001$, among public school teachers in Table 7 points to a significant positive correlation between Professional development and research skills, indicating that professional development is positively correlated with research skills. According to each indicator which was related to the overall research skill, research base had the highest positive correlation with the overall research skill ($r = .605$), followed by learning environment ($r = .205$), cooperation ($r = .171$), evaluation ($r = .170$), thematic knowledge ($r = .140$), educational technology ($r = .116$), and development of human resources ($r = .100$), and all these relations were considered significant and positive. However, Educational Planning was not significantly correlated with Overall Research Skills ($r = .093$, $p = .062$). Furthermore, problem identification and conceptualization skills were most closely related to overall professional development ($r = .444$), followed by information/evidence seeking skills ($r = .326$) and then Research Methodology Skills ($r = .285$). The results show that teachers who get better professional development, especially in research-based learning, are more competent at research, especially in identifying the research problem and looking for information that is relevant to the research.

Table 7: Significance of the Relationship between Professional Development and Research Skills of Public School Teachers

Professional Development	Research Skills							
	PCS	IES	RMS	SAE	RMD	WRR	PRC	Overall
Thematic Knowledge	.351** < .001	.148** .003	.079 .114	.164** .001	.089 .075	.026 .606	.020 .683	.140** .005
Learning Environment	.297** < .001	.321** < .001	.279** < .001	.183** < .001	.104* .037	.026 .607	.017 .737	.205** < .001
Cooperation	.292** < .001	.277** < .001	.189** < .001	.190** < .001	.076 .127	.008 .880	-.006 .903	.171** .001
Educational Technology	.324** < .001	.176** < .001	.132** .008	.130** .009	.019 .707	-.022 .660	-.043 .393	.116* .021
Research Base	.713** < .001	.532** < .001	.586** < .001	.568** < .001	.538** < .001	.403** < .001	.366** < .001	.605** < .001
Educational Planning	.152** .002	.178** < .001	.130** .009	-.013 .801	.046 .359	.018 .719	.057 .258	.093 .062
Evaluation	.247** < .001	.166** .001	.095 .059	.004 .939	.211** < .001	.159** .001	.180** < .001	.170** .001
Development of human resources	.263** < .001	.136** .006	.192** < .001	-.016 .747	-.027 .594	.014 .786	.072 .152	.100* .045
Overall	.444** < .001	.326** < .001	.285** < .001	.202** < .001	.182** < .001	.110* .027	.117* .019	.271** < .001

Legend:

PCS - Problem Identification & Conceptualization Skills,
RMD - Research Methods and Data Analysis,
IES - Information and Evidence Seeking Skills,
WRR - Writing and Reporting of Results,
RMS - Research Methodology Skills,
PRC - Problem Conceptualization.

The implications from these findings suggest that when the professional development involved direct research evidence, inquiry, and scholarly practice, the relationship was strongest between professional development and research skills. A supportive learning environment and cooperation can offer teachers mentoring, peer feedback and shared resources, as well as opportunities for solving research problems together. The significant relationships between knowledge and evaluation, between knowledge and thematic knowledge, between knowledge and educational technology and between knowledge and development of human resources also suggest that the research competency is strengthened by continuing capacity development, digital tools, assessment and professional knowledge. Planning in general education, however, does not necessarily enhance research skills unless planning activities incorporate methodological instruction, evidence use, and application of research activities.

Recent literature reports confirm the findings that relevant, collaborative and practice-based professional learning is essential to the development of teachers' research competence. The results are understandable within the framework of Adult Learning Theory, which encompasses the following principles: activities should be relevant; problem-centred; collaborative learning; experience-based; and immediately applicable (Knowles, 1980, 1984). Research Base provides a direct link between professional learning and authentic inquiry, and learning environment and cooperating assists peers in learning, mentoring, and reflecting. Sims *et al.* (2025) highlighted the importance of ongoing, evidence-based, and work-based professional development, and Fongkanta *et al.* (2022), Dokmai *et al.* (2023), and Insorio (2026) showed the importance of applied research training. Based on this, Li and Xu (2024) emphasized the influence of institutional support on teachers' research involvement. The results thus indicate that there is a correlation between professional development and research skills if it offers a resource to practice research.

3.8 Influence of Motivation for Reading, Writing Attitude, and Professional Development on Research Skills

The three variables together accounted for the research skills of public-school teachers ($F = 45.939$, $p < .001$), indicating that the three do explain some variance in teachers' research skills. The resulting model had $R = .508$ and $R^2 = .258$, indicating that the three predictors together accounted for 25.8% of the variance in research skills, and the adjusted R^2 was .253. Of the predictors', Writing Attitude was the strongest significant predictor ($\beta = .345$, $t = 6.173$, $p < .001$), followed by professional development ($\beta = .211$, $t = 3.801$, $p < .001$), which means that these variables are significant predictors of teachers' research skills.

When the effects of the other predictors were controlled, however, motivation for reading did not make a significant unique contribution ($\beta = .016$, $t = .324$, $p = .746$). These results suggest that the three variables together can explain research skills, but teacher writing attitude and professional development have significant and unique effects on teachers' research skills. This indicates that teachers' writing and organizing their thoughts and professional learning abilities have more impact on research competence than reading motivation alone. Professional development can offer teachers opportunities, strategies, and supports to use knowledge and skills related to research. Therefore, the overall null hypothesis was rejected, while the null hypothesis for the effect of motivation for reading was not rejected.

Table 8: Significance of the Influence of Motivation for Reading, Writing Attitude and Professional Development on Research Skills of Public School Teachers

Research Skills					
(Variables)		<i>B</i>	β	<i>t</i>	<i>Sig.</i>
Constant		1.084		3.464	.001
Motivation for Reading		.029	.016	.324	.746
Writing Attitude		.415	.345	6.173	< .001
Professional Development		.271	.211	3.801	< .001
R	.508				
R²	.258				
ΔR^2	.253				
F	45.939				
q	< .001				

When predictors were examined together, the implications of these findings highlighted that positive writing dispositions and professional learning opportunities were more directly, uniquely linked to research skills than was reading motivation. Writing was more likely to be valued and enjoyed, to be cognitively competent, and more likely to be organized, methods explained, evidence synthesized, and findings communicated by teachers who valued and enjoyed writing and who felt competent themselves. Professional development was provided by providing knowledge, guidance, resources, and opportunities for practice. Motivation for reading was strongly related to research skills, but may have been confounded by the knowledge and dispositions measured by writing attitude and professional development. Therefore, reading motivation cannot be considered as an independent predictor in the regression model, but may indirectly affect the research. Thus, reading motivation can be considered as a background variable or affecting the research indirectly without being considered as an independent predictor in the regression model.

The results can be further understood based on the integrated model of Self-Determination Theory and Theory of Planned Behavior, where teachers' attitudes, perceived behavioral control, self-efficacy and subjective norms play an important role in the formation of their readiness to engage in research. According to Ren (2024), teachers' attitudes, subjective norms, and perceived behavioral control mediate the

relationship between teachers' autonomous and controlled motivations and their research intentions, revealing that attitudes and supportive conditions at the workplace can boost teachers' research engagement.

Perceived control may be enhanced by training, mentoring, collaboration, and resources, which can be facilitated by Writing Attitude, as measured by teachers' assessment of writing as meaningful and manageable.

The findings obtained from the study conducted by Skar *et al.* (2023) indicate that writing attitude and self-efficacy can be regarded as a factor that affects the level of effort and quality of writing produced. Berba and Oliva (2022) also found that writing strategies had a significant impact on research skills. Additionally, Li & Xu (2024) reported that institutional support also influences teachers' participation in research, and Sims *et al.* (2025) highlighted evidence-informed, sustainable and practical development. The findings can thus be taken as evidence that positive attitudes and facilitating working environments are crucial in the realization of the demonstrated competence from the intention of the researcher.

3.9 Best Fit Model of Research Skills

This section presents the interrelationships among motivation for reading, writing attitude, professional development, and research skills using Structural Equation Modeling. Three structural models were generated and evaluated through established goodness-of-fit indices. Models 1 and 2 did not meet the acceptable criteria. Model 1 showed poor fit, with CMIN/DF = 5.039, GFI = .801, CFI = .827, NFI = .811, TLI = .888, RMSEA = .188, and p and P-Close values below .001. Model 2 showed some improvement but remained unacceptable, with CMIN/DF = 4.109, GFI = .820, CFI = .862, NFI = .845, TLI = .892, RMSEA = .181, and p and P-Close values below .001.

Table 9: Summary of Goodness-of-Fit Measures of the Three Generated Models

Model	P-value (>0.05)	CMIN / DF (0<value<2)	GFI (>0.95)	CFI (>0.95)	NFI (>0.95)	TLI (>0.95)	RMSEA (<0.05)	P-close (>0.05)
1	< .001	5.039	.801	.827	.811	.888	.188	< .001
2	< .001	4.109	.820	.862	.845	.892	.181	< .001
3	.163	1.521	.962	.981	.970	.969	.032	.089

Legend:

CMIN/DF – Chi-Square/Degrees of Freedom;
GFI – Goodness-of-Fit Index;
CFI – Comparative Fit Index;
NFI – Normed Fit Index;
TLI – Tucker–Lewis Index;
RMSEA – Root Mean Square Error of Approximation.

In contrast, Model 3 satisfied all goodness-of-fit criteria and was identified as the best-fit model. It obtained p = .163, CMIN/DF = 1.521, GFI = .962, CFI = .981, NFI = .970, TLI = .969, RMSEA = .032, and P-Close = .089. These values met the thresholds used in the study: CMIN/DF below 2; GFI, CFI, NFI, and TLI above .95; RMSEA below .05; and P-

Close above .05. The evaluation is consistent with the use of multiple indices to assess model adequacy (Arbuckle & Wothke, 1999; Browne & Cudeck, 1993; Kline, 2023). Model 3 therefore provided a very good representation of the observed data.

The acceptance of Model 3 indicates that the retained relationships and indicators adequately represented the research skills of public elementary school teachers. In the final structural model, writing attitude showed the strongest and only statistically significant direct effect on research skills, whereas motivation for reading and professional development had nonsignificant direct effects. This pattern supports Social Cognitive Theory because writing-related beliefs and perceived competence can directly influence persistence and performance in demanding research tasks (Bandura, 1986). Recent writing research supports this interpretation, as Skar *et al.* (2023) showed that writing self-efficacy and attitude influence effort, cognitive engagement, and writing quality. Berba and Oliva (2022) also showed that writing strategies significantly influenced research skills, reinforcing the importance of writing competence in research production. Teachers who believe that they can organize ideas, construct arguments, and communicate evidence are better positioned to complete the conceptual and written demands of research.

The role of Writing Attitude is also well explained by the theory of Self-Determination Theory. Enjoyment, interest, perceived value, and cognitive competence are internalized motivations and feelings of competence that can be maintained as students draft, revise, interpret, and report (Deci & Ryan, 1985, 2000). The result is also consistent with the Theory of Planned Behavior, which suggests that a positive attitude towards writing can boost teachers' intentions to conduct research, and that competence and professional support can enhance perceived behavioral control (Ajzen, 1991). Although it did not play a major part in the final configuration, Adult Learning Theory (ALT) holds that relevant, experiential, and problem-centered learning are vital elements of the continuing role of Professional Development (PD) (Knowles, 1980, 1984). This finding aligns with that of Li and Xu (2024), who highlighted how motivation, self-efficacy and institutional support contribute to teacher research engagement. After model refinement, it is seen that the system of motivation for reading, writing attitude and professional development is interconnected in terms of the direct contribution of each to the other. Motivation for reading may be used to access scholarly information, and professional development may offer guidance and resources, but writing attitude seems to be the immediate mechanism by which teachers organize, interpret, and communicate research knowledge. This interpretation is in line with the beliefs of Berba and Oliva (2022) that related reading and writing strategies to research skills and Castillo-Martínez and Ramírez-Montoya (2021), who stressed academic reading and writing as components of research competence. The model thus highlights the significance of reinforcing writing-related confidence and value, interest and enjoyment, as well as continuing activities of scholarly reading and research-oriented professional learning within collaborative and practice-based professional development.

In this first model (Model 1), the direct effects of motivation for reading, writing attitude, and professional development on research skills were examined, with little

interaction between the three predictor variables. The professional development is a minimal negative direct effect, $\beta = -.02$, with Writing Attitude having a positive direct effect of $\beta = .17$, and Motivation for Reading positively affecting direct effect with the highest value, $\beta = .37$. While direct relationships can be seen, the interconnections between the exogenous variables are insufficiently complicated to explain the relationship with teachers' Research Skills, and this is why the fit indices are not very satisfactory.

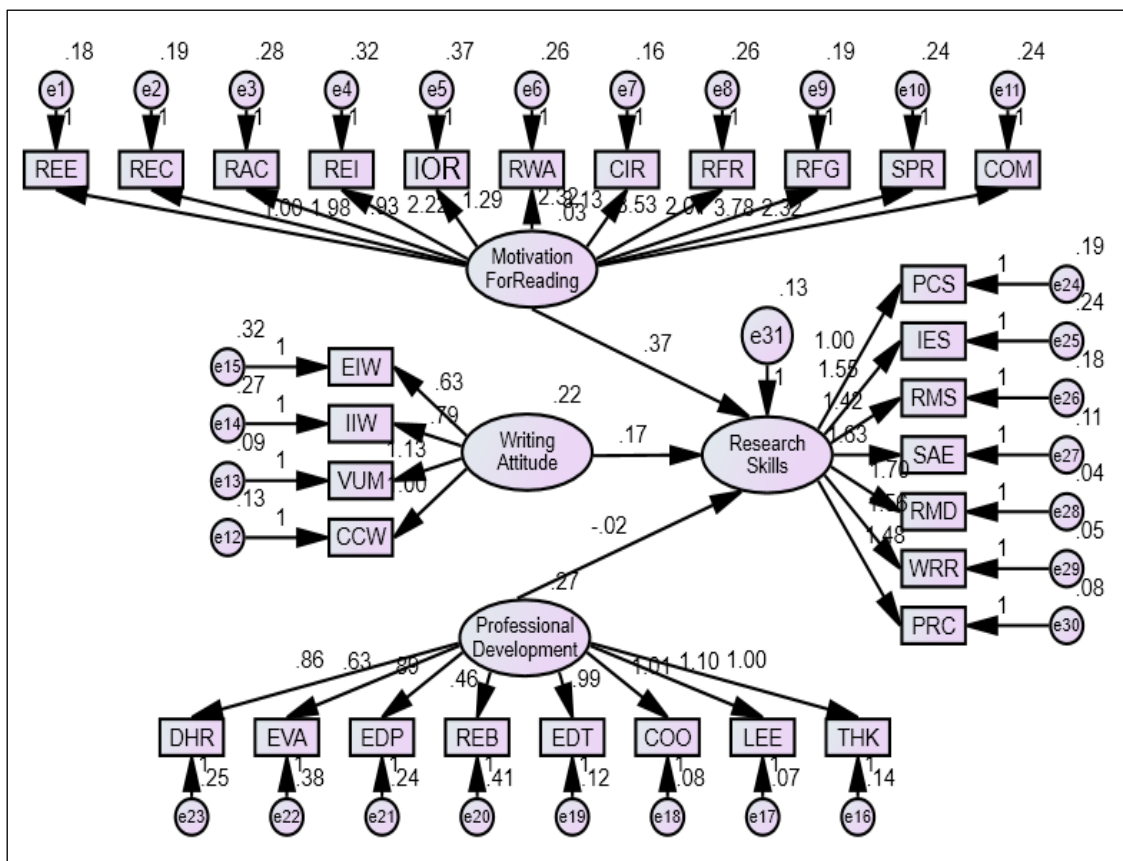


Figure 2: Model 1 in Standard Solution

The initial structural model is displayed in Figure 2, which indicates that direct links between motivation for reading, writing attitude, and professional development exist with research skills. Motivation for reading was the most direct and positive, suggesting that teachers' motivation to read may be related to their research-related activities. A positive direct effect was also obtained in writing attitude, indicating that positive attitudes of students towards writing may facilitate their teachers to arrange ideas and write procedures, and present the results. The direct impact of professional development was very small and negative, suggesting the influence of professional development was not clearly established in this initial model. The lack of covariances indicates that Model 1 does not fully represent the interdependency of teachers' personal and professional attributes, and additional changes were needed.

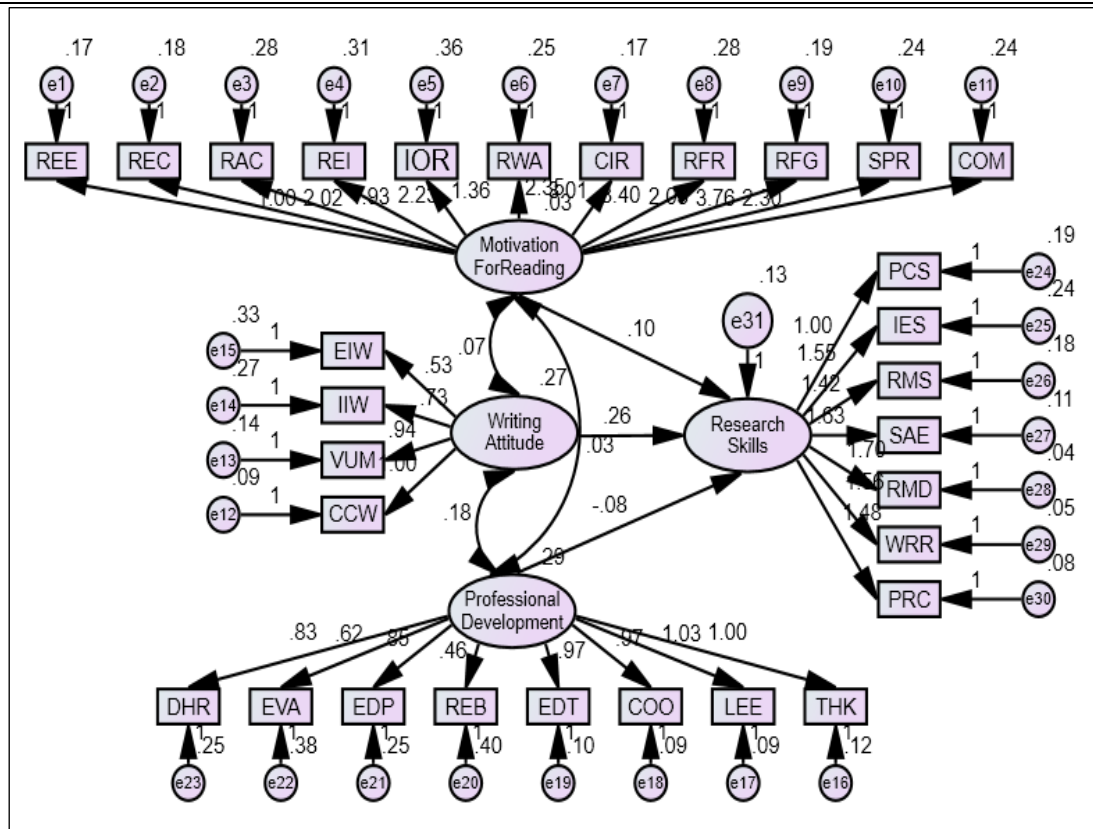


Figure 3: Model 2 in Standard Solution

In contrast, Model 3 satisfied all the criteria for model fit and is therefore identified as the best-fit model. It obtained $p = .163$, CMIN/DF = 1.521, GFI = .962, CFI = .981, NFI = .970, TLI = .969, RMSEA = .032, and P-Close = .089. Reflected in Figure 4 are the standardized estimates of the best-fit model, showing that writing attitude has the strongest positive direct effect on research skills at .66, followed by motivation for reading at .04, while professional development has a small negative direct effect of $-.06$. This indicates that teachers' writing attitude plays the most important role in explaining their research skills in the final model. Although motivation for reading and professional development remained part of the model, their direct effects were weaker after model refinement. Thus, Model 3 provides the most acceptable and parsimonious explanation of Research Skills among public school teachers.

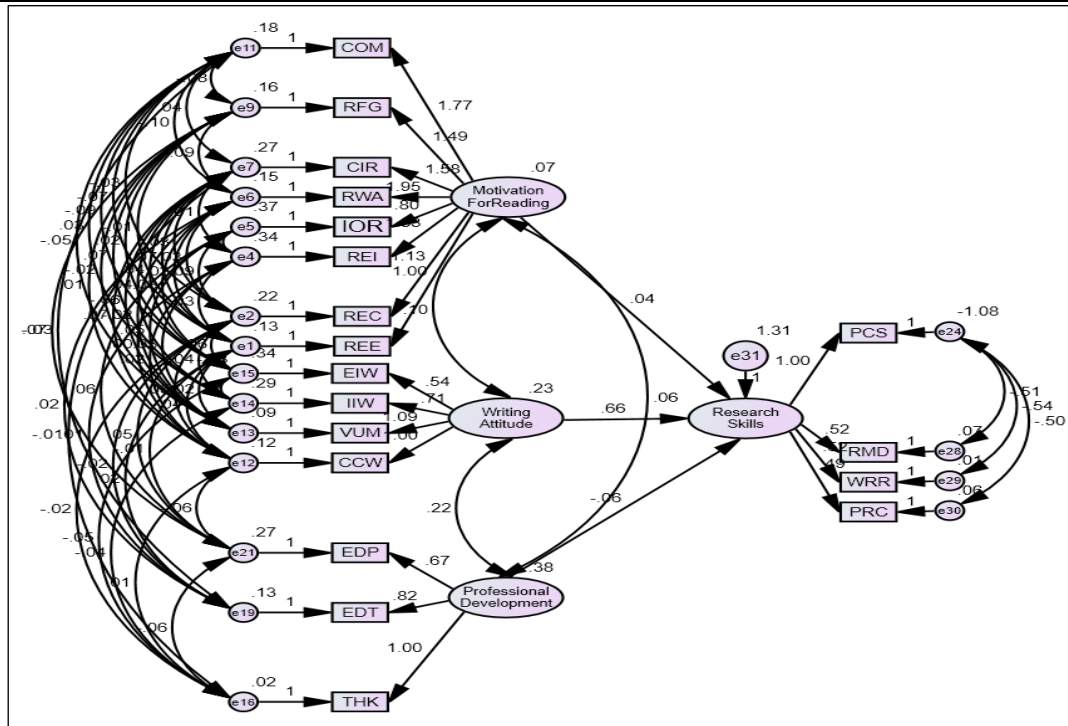


Figure 4. Model 3 Best-Fit Model in Standard Solution

The best-fit model validates the theoretical assumptions of the study. The role of self-efficacy, persistence and behavioral engagement in Social Cognitive Theory, as cited by Bandura (1986), is what explains the high level of influence of writing attitude. According to Self-Determination Theory, enjoyment, interest, value and competence are factors that can maintain research writing through teacher autonomy and meaningful professional purpose (Deci & Ryan, 1985, 2000). Theories of planned behavior (Ajzen, 1991) and adult learning theory (Knowles, 1980, 1984) are grounded in the relationship between beneficial writing assessments and researched writing behaviors, and meaningful experiences and problems to foster continued competence. In this regard, some recent studies on writing motivation, academic reading and writing, and research engagement provide supporting evidence, such as the study of writing attitude, writing strategies, research-related reading, self-efficacy, institutional support, and practice-based professional learning on teachers' research participation (Berba & Oliva, 2022; Castillo-Martínez & Ramírez-Montoya, 2021; Li & Xu, 2024; Sims *et al.*, 2025; Skar *et al.*, 2023). When teachers' confidence, motivation and professional learning are all set, their research skills are enhanced. The high importance of writing attitude also indicates that there is a high level of dependence of research competence not only on knowledge of methods but also on the skills of teachers in organizing, expressing, and communicating ideas effectively. The motivation to read and continue learning is still significant as they enable access to knowledge in scholarly texts and facilitative learning environments. The final model indicates that scholarly reading, positive writing orientations, specific professional-development dimensions, and core research skills interact with each other. Therefore, the model offers a unified sense of the competencies that teachers need to acquire to do research.

Table 10 shows the regression weights of the exogenous variables in the three models generated. The strongest significant regression weight (estimate = .369, $p < .01$) was for motivation for reading, followed by writing attitude (estimate = .169, $p < .001$), and a negative but non-significant weight was for professional development (Estimate = $-.025$). Model 2 showed that writing attitude was the only significant predictor (estimate = .256, $p < .05$), with the estimates for motivation for reading (estimate = .100) and professional development (estimate = $-.078$) being nonsignificant. In Model 3, writing attitude is the strongest predictor, with a regression weight (estimate) of .665 ($p < .001$), and is the only significant predictor, while estimates of motivation for reading (estimate = .044) and professional development (estimate = $-.061$) are not significant.

Table 10: Regression Weights of the Three Generated Models

Model	Exogenous Variables to Endogenous Variables		
	Motivation for Reading	Writing Attitude	Professional Development
1	.369**	.169***	$-.025$ NS
2	.100 ^{NS}	.256*	$-.078$ NS
3	.044NS	.665***	$-.061$ NS

* $p < .05$, ** $p < .01$, *** $p < .001$; NS = not significant.

Overall, the three produced models that suggest that the intensity and importance of the direct effects varied with the level of refinement of the structural configuration. The final statistical model indicates that the only statistically significant direct factor affecting research skills is writing attitude. The research process and motivation for reading and professional development are conceptually and statistically linked, but the direct paths are not significant when the indicators and interrelationships retained in the analysis are taken into account. There is, however, still a role for reading motivation in supporting research, as it is important for teachers to be able to access and understand scholarly texts, and in terms of professional development, it can offer strategies, materials, and practice opportunities. Thus, educational institutions should continue to foster scholarly reading, mentoring, research training, and research resources, but must place a greater emphasis on ongoing writing development, as seen by Berba and Oliva (2022), Castillo-Martínez and Ramírez-Montoya (2021), Skar *et al.* (2023), Li and Xu (2024), and Sims *et al.* (2025).

4. Conclusion

Public school teachers in general were highly motivated to read, highly positive in terms of attitude towards writing, highly positive in terms of professional satisfaction, and highly positive in terms of research skills. Reading-motivation factors were stronger for reading than for other factors, with the most significant indicator being the importance of reading, while social reasons for reading were moderately low and were among the least significant indicators. The highest writing attitude rating was for the value and utility of writing and the lowest was for enjoyment in writing, but still high. Learning environment and cooperation showed the highest rating as indicators of professional development, with the lowest rating being research base. The information and evidence

seeking, problem identification and conceptualization, research methodology skills were moderate to high, with teachers demonstrating a higher level on information and evidence seeking, compared to research methodology skills, statistics or quantitative analysis and evidence evaluation, problem conceptualization, writing and reporting of results, and research methods and data analysis.

Significant positive relationships were also found between each of the exogenous variables and research skills. In multiple regression, the other predictors (writing attitude and professional development) made significant unique contributions, with writing attitude being the strongest predictor, while motivation for reading did not make a significant unique contribution when the other predictors were controlled. Model 3 was confirmed as the best fit model using SEM. Writing attitude exerted the strongest direct effect on research skills, and nonsignificant direct effects were seen for motivation for reading and for professional development, in the final configuration. The results suggest that reading motivation is relevant, but that the writing dispositions are the most direct and immediate in the model.

The results are in the direction of the strongest direct connection in the model, which is perceived writing ability and persistence of teachers, thus supporting the social cognitive theory of Bandura (1986). Self-Determination Theory is a theory that addresses the factors that contribute to sustaining enjoyment, interest, competence, and internalized value, which in turn sustains engagement in research writing (Deci & Ryan, 1985, 2000). Writing evaluations that are positive and perceived control that is favorable support the translation of intentions into research behavior in accord with the Theory of Planned Behavior (Ajzen, 1991), and positive writing experiences, collaborative writing, and problem-centered writing contribute to research competence through relevant, collaborative, and problem-centered writing experiences (Knowles, 1980, 1984). None can be considered without the others, as they are all important in the development of Research Skills when combined as they are in this paper.

To conclude, it can be said that the research skills of public-school teachers is explained by a structural system which includes motivation for reading, attitude towards writing, and professional development. The purpose of writing attitude is that it is the most influential direct role, as teachers should organize concepts, explain methods, interpret evidence and communicate findings through writing. Motivation for reading enables access to scholarly knowledge; professional development provides guidance, resources, collaboration, and opportunities to practice. The results thus suggest a need for an integrated strategy to build up writing confidence, interest, and maintain research-based reading and professional learning.

5. Recommendation

The results should be used by school leaders and administrators to develop a long-term research-capability program, directly targeted to the relatively weak research base rating and the moderate research skills indicators. The programme should include a series of workshops on research problem development, methodology, statistical analysis,

evaluation of the evidence, and reporting research, as well as regular data-analysis and writing workshops, mentoring by experienced researchers, review schedules for proposals and for research manuscripts, and opportunities for teachers to complete research output in protected time. Activities should be based on real concerns of the classroom and school, making learning relevant, problem-based and readily applicable. Professional learning communities, journal clubs, collaborative literature reviews, and research-reading sessions should all be used to further develop social motivations for reading, especially for teachers. These activities should include sharing of sources, comparing of results, summarizing evidence from literature, and relating literature to classroom problems. Teachers should collaborate on writing, participate in research journaling and peer writing groups, and do low-stakes writing before writing full manuscripts to improve enjoyment in writing. Feedback and positive reinforcement for outputs can assist teachers in building competence, interest and confidence.

The Department of Education should base its policy and programme for integrated research-capability work on the best-fit model, especially in Region XI. Support can encompass access to scholarly databases and statistical software, division-level research mentors, technical assistance teams, research writing and data analysis clinics, presentation and publication opportunities, and monitoring systems that track teachers from the development of a research proposal through research use. Programs should be ongoing, not just one-time seminars, and give meaningful choices, collegial support, guided practice, and feedback.

Further work is needed to explore factors that have not been studied in this research which have the potential to account for the variance not explained by these factors, such as support from the institution, workload, research incentives, leadership, access to mentors, technological resources, and prior research experience. Longitudinal and mixed-method studies might help to clarify how readers' motivation, writers' attitudes, and professional development evolve over time, and how teachers turn these into completed writing products. Replication across other areas and other levels of education can also assess the stability and generalizability of the best-fit model.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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