

The Mediating Effect of Teaching Motivation on the Relationship between Teachers' Perceptions and Research Skills: A Sequential-Explanatory Approach

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Abstract

Research instruction plays a vital role in teachers' professional development and in fostering students' critical thinking skills. However, many teachers continue to face challenges related to limited time, inadequate research skills, and varying levels of teaching motivation, which may hinder their engagement in research activities. This study examined the relationship between teachers' research perceptions and research skills and investigated the mediating role of teaching motivation in this relationship. A sequential explanatory mixed methods design was employed. The quantitative phase involved a survey of 400 Senior High School teachers from public schools across Region XI, Philippines, followed by in-depth interviews and focus group discussions to further explain the quantitative findings. Quantitative data were analyzed using descriptive statistics, Pearson's correlation, multiple regression, and path analysis, while qualitative data were used to enrich the interpretation of the results. The findings revealed that teachers demonstrated a moderate level of research perception, while their research skills and teaching motivation were both at high levels. Significant positive relationships were found among research perception, research skills, and teaching motivation. Furthermore, path analysis indicated that teaching motivation partially mediated the relationship between teachers' research perceptions and research skills, suggesting that positive research perceptions contribute more strongly to teachers' research skills when supported by higher levels of teaching motivation. These findings highlight the importance of strengthening teachers' motivation through sustained professional development, institutional support, and research training initiatives to enhance teachers' research skills and improve the quality of research instruction.

Keywords: Research Perception, Research Skills, Teaching Motivation, Mediation Analysis, Sequential Explanatory Mixed Methods, Senior High School Teachers, Philippines

INTRODUCTION

Teachers' research skills have become increasingly important in contemporary education because they enable educators to engage in evidence-informed decision-making, improve instructional practice, and contribute to continuous professional development. Research engagement allows teachers to identify classroom challenges systematically, evaluate instructional strategies, and implement interventions that enhance student learning. Despite these recognized benefits, many teachers continue to encounter

difficulties in conducting and applying research because of inadequate knowledge, limited research training, insufficient institutional support, and underdeveloped research skills. These challenges restrict teachers' participation in research activities and may ultimately affect instructional quality and professional growth (Oestar, J. M., 226–242). Likewise, previous studies have identified persistent difficulties in teaching research methodology, data analysis, and research design, while limited time and insufficient research preparation remain significant barriers to teachers' research engagement (Oestar & Marzo, 95–104; Leonard & Wibawa, para. 39; Suyo-Vega et al., para. 49; Caingcoy, 1–11).

In response to the growing emphasis on research-oriented education, the Philippine educational system strengthened research instruction through the implementation of the K–12 curriculum. Senior High School teachers are responsible for teaching Practical Research, Inquiries, Investigations and Immersion, and Research or Capstone Project, while research competencies are likewise integrated into English and Filipino courses (DepEd, para. 18; DepEd, para. 19). These curricular reforms have expanded teachers' professional responsibilities and require them to possess adequate research skills and a comprehensive understanding of the research process to effectively guide students in conducting scholarly inquiry (Ducyao, 45–60).

Although previous studies have independently examined teachers' perceptions toward research, research skills, and teaching motivation, existing evidence has primarily focused on the direct relationships among these variables. Limited empirical studies have investigated whether teaching motivation functions as a mediating mechanism in the relationship between teachers' perceptions toward research and research skills, particularly among Senior High School teachers in the Philippine context. Furthermore, few studies have employed a sequential explanatory mixed methods approach to explain not only the statistical relationships among these variables but also the experiences that underlie these quantitative findings. Addressing these gaps provides a more comprehensive understanding of the factors that influence teachers' research skills and offers evidence for designing effective professional development initiatives.

The findings are expected to contribute to the growing body of literature on teacher research development and provide practical evidence for strengthening teachers' research skills through interventions that foster positive research perceptions and sustained teaching motivation.

Review of Related Literature and Studies

Research skills

Research skills are widely recognized as an essential component of teachers' professional development. Teachers who possess stronger research skills are better able to interpret educational evidence, solve classroom problems systematically, and improve instructional practices. Van (160–192) reported that teachers who received formal research training demonstrated significantly higher levels of educational research skills than those without training. Similarly, Tran et al. (110–117) emphasized that sustained participation in research workshops and professional development programs contributes to the continuous enhancement of teachers' research skills. International evidence likewise underscores the need to strengthen teachers' research skills because many educators continue to demonstrate lower-than-expected levels of research capability and experience difficulties in conceptualizing and conducting research (Celebi, 99–125; Toquero, 126–148).

Teachers' Research Perception

Teachers' perceptions toward research also play an important role in determining their willingness to engage in research activities. Ulla (797–810) found that teachers who hold positive perceptions toward

research are more likely to engage in reflective practice, examine classroom issues critically, and utilize research findings to improve teaching and learning. Positive perceptions likewise strengthen teachers' confidence and encourage active participation in research-related activities. Conversely, inadequate research preparation may reduce teachers' interest, confidence, and motivation to engage in research (Sauquillo, 137–145). Other studies have shown that unfavorable perceptions toward research are associated with inadequate guidance, limited research facilities, and misconceptions regarding the research process (Saini et al., 185–192; Panda et al., 106–118). Likewise, Budi Prasetyo A.P. (7) identified knowledge, research training, school culture, leadership, and teacher motivation as important factors influencing teachers' perceptions toward research.

Teaching Motivation

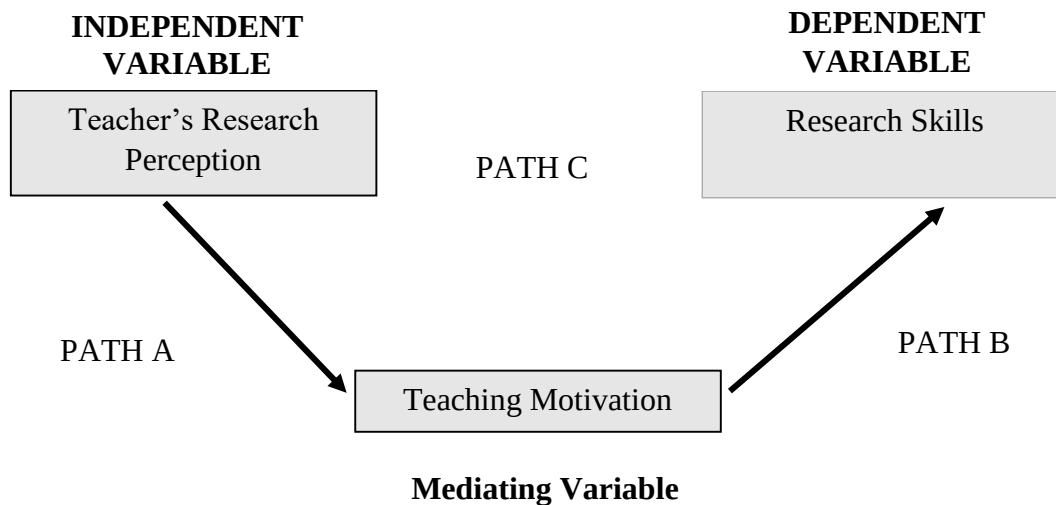
Teaching motivation has likewise been recognized as an important determinant of teachers' professional engagement and instructional effectiveness. Rudduck (281–289) argued that research participation enhances teachers' professional curiosity and commitment to continuous improvement. Similarly, Magnaye (170–176) reported that teachers with stronger research skills tend to demonstrate greater confidence and professional effectiveness. However, maintaining high levels of teaching motivation remains challenging because excessive workload, emotional exhaustion, and competing professional responsibilities frequently diminish teachers' enthusiasm for research-related activities (Madigan & Kim, 1–50; Bardach & Klassen, 283–297). These findings suggest that teaching motivation may strengthen the influence of teachers' perceptions toward research on the development of their research skills.

Theoretical Framework

This study is anchored on the Scientist–Practitioner Model, Student Involvement Theory, and Self-Concordance Theory, which collectively explain the relationships among teachers' perceptions toward research, research skills, and teaching motivation. The Scientist–Practitioner Model (Brent & Hodges, 55–60) provides the primary theoretical foundation by emphasizing the integration of research into teaching practice through the development and application of research knowledge and skills. This perspective is reinforced by Villegas Ardiles de Chavez and Chavez Solis (2–9), who highlighted the importance of research skills in teachers' professional development. Student Involvement Theory (Astin, 518–529) further suggests that active engagement in research-related activities promotes professional learning and strengthens teachers' research skills and positive perceptions toward research (Atibuni et al., 103–108). Finally, Self-Concordance Theory (Elliot et al., 1282–1299) explains the mediating role of teaching motivation, proposing that teachers whose professional goals align with their personal values are more likely to sustain motivation and develop stronger research skills. Nevertheless, contextual constraints, including limited time and heavy teaching workloads, may reduce teachers' motivation to engage in research activities (Jamoom & Al-Omrani, 135–146).

Conceptual Framework

Figure 1 presents the conceptual framework of the study, illustrating the hypothesized relationships among teachers' perceptions toward research (independent variable), research skills (dependent variable), and teaching motivation (mediating variable) among Senior High School teachers. The model proposes that teachers' perceptions toward research directly influence their research skills and indirectly influence them through teaching motivation.



Statement of the Problem

This study examined the mediating effect of teaching motivation on the relationship between teachers' perceptions toward research and research skills among Senior High School teachers using a sequential explanatory mixed methods approach. Specifically, it sought to:

1. determine the levels of teachers' perceptions toward research in terms of time, cost, image, technicality, and effort;
2. determine the level of teachers' research skills in terms of reading and understanding research literature, research data utilization, programming skills, research data analysis and interpretation, scientific communication, understanding of the research field and process, and confidence in conducting research;
3. determine the level of teaching motivation in terms of personal efficacy, interest, effort, teaching efficacy, and outcome efficacy;
4. examine the significant relationships among teachers' perceptions toward research, teaching motivation, and research skills;
5. determine the mediating effect of teaching motivation on the relationship between teachers' perceptions toward research and research skills;
6. explore the experiences and perspectives of teachers to explain the quantitative findings on teachers' perceptions toward research, research skills, and teaching motivation; and
7. develop an explanatory framework based on the integration of the quantitative and qualitative findings.

METHODOLOGY

This study employed a sequential explanatory mixed methods design, consisting of an initial quantitative phase followed by a qualitative phase to explain and enrich the quantitative findings. This section presents the research design, participants, research instruments, data collection procedures, data analysis, and ethical considerations adopted in the conduct of the study.

Population and Sampling

The participants were Senior High School teachers teaching research subjects in public schools across Region XI, Philippines. Eligible participants were teachers currently handling research subjects with at

least one year of teaching experience. Teachers from elementary schools, Junior High School, and Senior High School teachers not teaching research subjects were excluded.

For the quantitative phase, 400 teachers were selected using stratified random sampling, a probability sampling technique in which the population is divided into homogeneous groups and participants are randomly selected from each group to ensure adequate representation (Makwana et al., 763–768). The sample was proportionally allocated across the ten school divisions in Region XI using the Raosoft Sample Size Calculator. For the qualitative phase, 15 teachers were selected using purposive sampling, a non-probability sampling technique that selects participants with relevant characteristics or experiences based on the objectives of the study (Tajik et al., 1–9). The qualitative participants consisted of 10 teachers for in-depth interviews (IDI) and 5 teachers for a focus group discussion (FGD), representing different school divisions to capture diverse experiences and perspectives regarding research teaching (Bernard H.).

Research Instrument

The study employed three standardized questionnaires to measure teachers' perceptions toward research, research skills, and teaching motivation. All quantitative instruments utilized a five-point Likert scale, with higher mean scores indicating more positive perceptions toward research, higher levels of research skills, and stronger teaching motivation. Prior to data collection, the instruments underwent content validation by six experts, yielding an overall mean validity rating of 4.67, indicating excellent content validity. A pilot test was subsequently conducted to establish reliability. The instruments demonstrated high internal consistency, with Cronbach's alpha coefficients of 0.875 for teachers' perceptions toward research, 0.958 for research skills, and 0.852 for teaching motivation, indicating that all instruments were reliable for data collection.

For the qualitative phase, a semi-structured interview guide consisting of three major questions with corresponding probing questions was developed and validated by experts. The interview guide was used during the in-depth interviews (IDI) and focus group discussion (FGD) to elicit participants' experiences and perspectives related to teachers' perceptions toward research, research skills, and teaching motivation. Interview transcripts were analyzed using Colaizzi's (48–71) phenomenological method, and pseudonyms were assigned to protect participants' identities.

Data Collection

To ensure the systematic conduct of the study, the researcher first secured approval from the University of Mindanao and obtained permission from the Schools Division Superintendents and school heads of the participating public schools in Region XI. The research instruments were then subjected to content validation and pilot testing to establish their validity and reliability.

Treatment of Data

This study employed a sequential explanatory mixed methods design, which consists of two consecutive phases: a quantitative phase followed by a qualitative phase (Creswell, 209–240). This design was considered appropriate because it enabled the researcher to first examine the relationships among teachers' perceptions toward research, research skills, and teaching motivation through quantitative analysis and subsequently explain and enrich the quantitative findings using qualitative data.

During the quantitative phase, survey questionnaires were administered to determine the levels of teachers' perceptions toward research, research skills, and teaching motivation, as well as to examine their relationships and the mediating effect of teaching motivation (McMillan & Schumacher, 528). The quantitative data were analyzed using mean, Pearson's correlation coefficient, multiple regression, and path analysis. The qualitative phase followed to provide a deeper explanation of the quantitative results.

Using in-depth interviews (IDI) and a focus group discussion (FGD), the researcher explored participants' experiences and perspectives regarding teachers' perceptions toward research, research skills, and teaching motivation. The qualitative data were analyzed using Colaizzi's method to generate themes that enriched the interpretation of the quantitative findings (Patten & Newhart, 352).

Ethical Considerations

This study was conducted in accordance with the ethical standards of the University of Mindanao Ethics Review Committee (UMERC) and received ethical clearance prior to data collection. A copy of the ethics approval certificate is provided in the appendices. Participation in the study was voluntary, and informed consent was obtained from all participants before data collection. The confidentiality and anonymity of the participants were maintained through the use of pseudonyms, and all information gathered was treated with strict confidentiality and used solely for research purposes. The study also upheld the principles of academic integrity by properly acknowledging all sources and ensuring the originality of the manuscript.

RESULTS and DISCUSSION

This section presents the analysis and interpretation of the data in both quantitative and qualitative phases gathered from the participants.

Table 1 Level Teachers' Perceptions toward Research

Items	SD	Mean	Descriptive Level
Time	0.64	2.64	Moderate
Cost	0.78	2.67	Moderate
Image	0.56	3.98	High
Technicality	0.43	3.55	High
Effort	0.58	2.82	Moderate
Overall	0.40	3.13	Moderate

Table 1 presents the level of teachers' perceptions toward research across five dimensions: time, cost, image, technicality, and effort. Overall, teachers demonstrated a moderate level of perceptions toward research ($M = 3.13$, $SD = 0.40$), indicating that they generally recognize the importance of research in their professional practice but continue to encounter barriers that limit their full engagement in research activities.

Among the five dimensions, image obtained the highest mean ($M = 3.98$, $SD = 0.56$), suggesting that teachers perceive research as an avenue for enhancing their professional credibility, confidence, and professional standing. Conversely, time recorded the lowest mean ($M = 2.64$, $SD = 0.64$), indicating that teachers continue to perceive research as a demanding activity that competes with their teaching responsibilities and other school-related tasks. The findings suggest that although teachers hold generally positive perceptions regarding the professional value of research, practical constraints such as time demands and workload remain barriers to greater research engagement. This finding is consistent with the studies of Jamoom and Al-Omrani (135–146) and Caingcoy (1–11), who reported that insufficient time, heavy teaching responsibilities, and limited institutional support hinder teachers' active participation in research. Similarly, Ulla (797–810) emphasized that while teachers acknowledge the importance of

research for professional growth, sustained engagement requires adequate support, opportunities, and institutional commitment.

Table 2 Level of Teacher's Research Skills

Indicators	SD	Mean	Descriptive Level
Reading and understanding of research literature	0.47	4.10	High
Utilization of research data	0.48	3.96	High
Programming skills	0.67	3.65	High
Analyzing and interpreting of research data	0.56	3.92	High
Scientific communication	0.59	3.94	High
Understanding of the field and research process	0.51	3.93	High
Confidence in one's research abilities	0.53	3.92	High
Overall	0.41	3.92	High

Table 2 presents the level of teachers' research skills across seven dimensions. Overall, teachers demonstrated a high level of research skills ($M = 3.92$, $SD = 0.41$), indicating that they frequently exhibit the competencies necessary to conduct and apply research in their professional practice. Among the seven dimensions, reading and understanding research literature obtained the highest mean ($M = 4.10$, $SD = 0.47$), suggesting that teachers are proficient in locating, evaluating, and interpreting research literature to support evidence-based practice. In contrast, programming skills recorded the lowest mean ($M = 3.65$, $SD = 0.67$). Although this dimension was still rated high, the finding indicates that teachers may require additional training in using digital and statistical software for data management, analysis, and research applications. The findings indicate that teachers possess the fundamental research skills needed to engage in research activities, particularly in reviewing and interpreting scholarly literature. However, strengthening technical competencies, such as programming and the use of research software, may further enhance their research capability. These findings are consistent with Villegas Ardiles de Chavez and Chavez Solis (2–9), who emphasized that strong research skills, particularly in literature analysis and data utilization, are essential for teachers' professional development and the continuous improvement of academic practice. Likewise, Van (160–192) reported that teachers who received formal research training demonstrated significantly higher levels of research skills than those without such training, highlighting the importance of sustained professional development in strengthening teachers' research competence.

Table 3 Level of Motivation in Teaching

Items	SD	Mean	Descriptive Level
Personal Efficacy	0.45	4.05	High
Interest	0.47	3.93	Very High
Effort	0.42	4.38	Very High
Teaching Efficacy	0.64	3.86	High
Outcome Efficacy	0.55	4.25	Very High
Overall	0.35	4.09	High

Table 3 presents the level of teachers' teaching motivation across five dimensions. Overall, teachers demonstrated a high level of teaching motivation ($M = 4.09$, $SD = 0.35$), indicating that they consistently exhibit positive attitudes, commitment, and enthusiasm in teaching research. Among the five dimensions, effort obtained the highest mean ($M = 4.38$, $SD = 0.42$), suggesting that teachers are highly committed to investing their time, energy, and abilities to effectively fulfill their instructional responsibilities and continuously improve their teaching practices. In contrast, teaching efficacy recorded the lowest mean ($M = 3.86$, $SD = 0.64$). Although still rated high, this finding suggests that some teachers perceive that students' learning outcomes are also influenced by factors beyond their instructional efforts, such as students' abilities and other contextual conditions. The findings indicate that teachers maintain a strong level of teaching motivation despite the challenges associated with teaching research. However, the comparatively lower rating for teaching efficacy suggests that external factors affecting student learning may influence teachers' confidence in the impact of their instruction. These findings are consistent with Wangdi and Tharchen (990–1005), who reported that positive perceptions toward research are associated with higher teaching motivation. Nevertheless, they also emphasized that limited time, heavy academic workloads, and insufficient research knowledge may hinder teachers' ability to sustain high levels of motivation. Likewise, Rudduck (281–289) argued that engagement in research strengthens teachers' professional curiosity and commitment to continuous instructional improvement, while Madigan and Kim (1–50) identified excessive workload as a major factor that may diminish teachers' teaching motivation.

Table 4 Significant Relationship Between Teachers' Perceptions Toward Research and Research Skills

Research Skills	Teachers' Perspectives on Research							
	<i>RURL</i>	<i>URD</i>	<i>PS</i>	<i>AIRD</i>	<i>SC</i>	<i>UFRP</i>	<i>CRA</i>	Overall
Time	.211**	.156**	.206**	.125*	.086	.186**	.039	.190**

	.000	.002	.000	.012	.085	.000	.434	.000
Cost	.236**	.216**	.170**	.077	.074	.188**	.083	.192**
	.000	.000	.001	.125	.137	.000	.096	.000
Image	.157**	.146**	.109*	.258**	.281**	.045	.258**	.237**
	.002	.003	.030	.000	.000	.372	.000	.000
Technicality	.197**	.246**	.290**	.211**	.159**	.297**	.221**	.305**
	.000	.000	.000	.000	.001	.000	.000	.000
Effort	.222**	.214**	.184**	.260**	.183**	.172**	.199**	.268**
	.000	.000	.000	.000	.000	.001	.000	.000
Overall	.309**	.289**	.277**	.262**	.221**	.259**	.222**	.344**
	.000	.000	.000	.000	.000	.000	.000	.000

Legend:

RURL = Reading and Understanding of Research Literature;

URD = Utilization of Research Data;

PS = Programming Skills;

AIRD = Analyzing and Interpreting Research Data;

SC = Scientific Communication;

UFRP = Understanding of the Field and Research Process;

CRA = Confidence in One's Research Abilities

Table 4 shows a significant positive relationship between teachers' perceptions toward research and research skills ($r = 0.344$, $p < .001$), indicating that teachers with more positive perceptions toward research tend to demonstrate higher levels of research skills. Among the dimensions, technicality exhibited the strongest relationship with research skills ($r = 0.305$, $p < .001$). This finding suggests that teachers who perceive research as manageable and believe they receive adequate guidance throughout the research process are more likely to demonstrate stronger research skills. Conversely, time showed the weakest, although still significant, relationship with research skills ($r = 0.190$, $p < .001$), indicating that time-related constraints, such as heavy teaching responsibilities and limited time for research, have a relatively smaller influence on teachers' research skills than other dimensions of research perception. Overall, the findings suggest that positive perceptions toward research are associated with stronger research skills among teachers. This supports the study of Ghalley (1–10), who reported that teachers with more favorable perceptions toward research are more likely to possess stronger research capabilities. However, practical constraints, including limited time and competing professional responsibilities, may still restrict teachers' active engagement in research activities despite their positive perceptions.

Table 5 Significant Relationship Between Teaching Motivation and Research Skills

Research Skills	Motivation in Teaching							Overall
	RURL	URD	PS	AIRD	SC	UFRP	CRA	
Personal Efficacy	.470**	.378**	.354**	.436**	.416**	.356**	.458**	.537**
	.000	.000	.000	.000	.000	.000	.000	.000
Interest	.290**	.269**	.133**	.182**	.189**	.148**	.114*	.243**
	.000	.000	.008	.000	.000	.003	.023	.000

<i>Effort</i>	.204** .000	.235** .000	.005 .918	.162** .001	.224** .000	.105* .036	.148** .003	.196** .000
<i>Teaching Efficacy</i>	.127* .011	.165** .001	.151** .002	.237** .000	.132** .008	.143** .004	.250** .000	.227** .000
<i>Outcome Efficacy</i>	.168** .001	.204** .000	.242** .000	.281** .000	.312** .000	.165** .001	.317** .000	.322** .000
Overall	.351** .000	.355** .000	.262** .000	.380** .000	.362** .000	.263** .000	.380** .000	.440** .000

Legend:

RURL = Reading and Understanding of Research Literature;

URD = Utilization of Research Data;

PS = Programming Skills;

AIRD = Analyzing and Interpreting Research Data;

SC = Scientific Communication;

UFRP = Understanding of the Field and Research Process;

CRA = Confidence in One's Research Abilities.

Table 5 presents the relationship between teaching motivation and research skills. The results revealed a significant positive relationship between teaching motivation and research skills, indicating that teachers with higher levels of teaching motivation tend to demonstrate stronger research skills. Among the dimensions, personal efficacy exhibited the strongest relationship with research skills ($r = 0.537$, $p < .001$). This finding suggests that teachers with stronger research skills are more confident in their ability to plan, implement, and improve instruction while effectively supporting students' learning. Their competence in reviewing research literature, utilizing and analyzing research data, engaging in scientific communication, and conducting research may strengthen their confidence in performing their instructional responsibilities. In contrast, effort demonstrated the weakest, although still significant, relationship with research skills ($r = 0.196$, $p < .001$). This finding indicates that teachers' effort is influenced not only by their research skills but also by other factors, such as personal commitment, school responsibilities, workload, and organizational support. Overall, the findings suggest that higher levels of teaching motivation are associated with stronger research skills among teachers. These results support the findings of Toquero (126–148), who emphasized that developing teachers' research skills enhances their ability to address students' diverse learning needs through reflective and evidence-based instructional practices. Consequently, teachers become more motivated to continuously improve their teaching and professional practice.

Table 6 Relationship Between Teachers' Perceptions Toward Research and Teaching Motivation

Motivation in Teaching	Teachers' Perspectives on Research					
	Personal Efficacy	Interest	Effort	Teaching Efficacy	Outcome Efficacy	Overall
Time	.062 .219	.172** .001	-.008 .869	.118* .019	.005 .919	.106* .034
Cost	.228**	.193**	-.008	-.018	-.046	.088

	.000	.000	.868	.723	.360	.078
Image	.261** .000	.265** .000	.313** .000	.256** .000	.356** .000	.425** .000
Technicality	.226** .000	.242** .000	.093 .064	.150** .003	.223** .000	.274** .000
Effort	.212** .000	.224** .000	.060 .228	.242** .000	.147** .003	.268** .000
Overall	.291** .000	.320** .000	.118* .018	.203** .000	.173** .001	.322** .000

Table 6 presents the relationship between teachers' perceptions toward research and teaching motivation. The results revealed a significant positive relationship between teachers' perceptions toward research and teaching motivation, indicating that teachers with more positive perceptions toward research tend to exhibit higher levels of teaching motivation. Among the dimensions, interest demonstrated the strongest relationship with teachers' perceptions toward research ($r = 0.320$, $p < .001$). This finding suggests that teachers who are more interested in their profession and committed to continuously improving their instructional practices are more likely to develop positive perceptions toward research. They recognize research as a valuable tool for professional growth and instructional improvement. Conversely, effort showed the weakest, although still significant, relationship with teachers' perceptions toward research ($r = 0.118$, $p = .018$). This finding indicates that teachers' effort in teaching is influenced not only by their perceptions toward research but also by other factors, including personal commitment, teaching experience, institutional support, and professional responsibilities. Overall, the findings suggest that teachers with more favorable perceptions toward research tend to demonstrate higher levels of teaching motivation. These results are consistent with the findings of Suyo-Vega et al., who reported that teachers with greater professional interest are more likely to develop positive perceptions toward research and integrate it into their professional practice. Similarly, Oestar and Marzo (95–104) emphasized that institutional support, workload, and school-related responsibilities may influence teachers' motivation and sustained engagement in research-related activities.

Table 7 Regression Analysis of the Mediating Effect of Teaching Motivation on the Relationship Between Teachers' Perceptions Toward Research and Research Skills

Step	Path	B	S.E.	β
1	c	.353	.048	.344***
2	a	.277	.041	.322***
3	b	.438	.055	.368***
4	c'	.231	.047	.225***

* $p < 0.05$, ** $p < 0.01$, *** $p = 0.000$

The regression analysis revealed that teachers' perceptions toward research significantly predicted research skills (total effect: $B = 0.353$, $\beta = 0.344$, $p < .001$). Teachers' perceptions toward research also significantly predicted teaching motivation ($B = 0.277$, $\beta = 0.322$, $p < .001$), while teaching motivation significantly predicted research skills ($B = 0.438$, $\beta = 0.368$, $p < .001$). When teaching motivation was included in the regression model, the direct effect of teachers' perceptions toward research-on-research

skills decreased from $\beta = 0.344$ to $\beta = 0.225$ but remained statistically significant. This reduction indicates that teaching motivation partially mediates the relationship between teachers' perceptions toward research and research skills. The findings suggest that positive perceptions toward research not only exert a direct influence on teachers' research skills but also enhance research skills indirectly by increasing teachers' motivation to teach. These findings support the study of Sidharta (183–194), who reported that teaching motivation serves as an important mechanism through which teachers' perceptions contribute to the development of research skills. The results also align with the Self-Concordance Theory of Elliot et al. (1282–1299), which posits that individuals are more likely to sustain effort and achieve professional goals when these are aligned with their personal values and intrinsic interests. In the present study, teachers with more positive perceptions toward research demonstrated higher teaching motivation, which, in turn, strengthened the development of their research skills.

Table 8 Results of statistical analysis on the presence (or absence) of mediating effect

Combination of Variables	Sobel z	p-value	Mediation
perspective → motivation in teaching → skills	5.165597	$p < 0.05$	Partial mediation

* $p < 0.05$

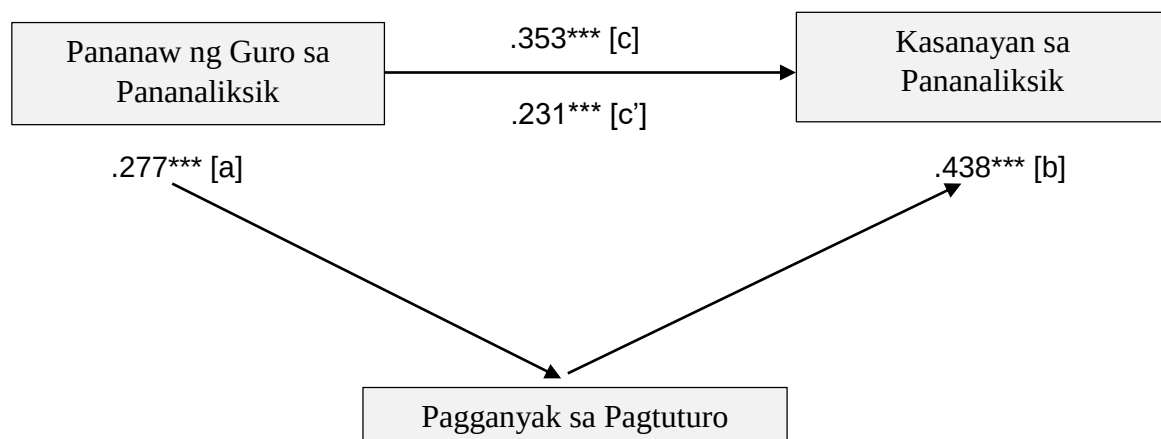


Table 8 presents the results of the Sobel test, which confirmed the mediating role of teaching motivation in the relationship between teachers' perceptions toward research and research skills. The analysis yielded a Sobel test statistic of $z = 5.17$ ($p < .05$), indicating that the indirect effect was statistically significant. These findings provide evidence that teaching motivation partially mediates the relationship between teachers' perceptions toward research and research skills. The results suggest that teachers' positive perceptions toward research not only have a direct influence on the development of research skills but also exert an indirect effect by enhancing teaching motivation. This finding highlights the importance of fostering teachers' motivation as a mechanism for strengthening their research skills and professional development. The present findings are consistent with Bergmark (427–444), who emphasized that teachers' motivation is strengthened through active engagement in research activities, leading to continuous professional growth and improved instructional effectiveness. Likewise, the results further support the Self-Concordance Theory of Elliot et al. (1282–1299), which explains that individuals are more likely to sustain effort and achieve professional goals when these align with their personal values and intrinsic motivation.

Themes Explaining the Mediating Role of Teaching Motivation in the Relationship Between Teachers' Perceptions Toward Research and Research Skills

1. Perspectives on Teachers' Toward Research

Themes

Complex Yet Meaningful

The Need for Time, Effort, and Resources

Students' Abilities and Learning Environment

1.1 Complex Yet Meaningful

The first theme, Research as a Challenging Yet Meaningful Endeavor, highlights teachers' recognition that although teaching research is complex and demanding, it remains an essential component of their professional practice. Participants acknowledged that research instruction extends beyond teaching concepts and plays a vital role in developing students' critical thinking, analytical skills, and independent learning while fostering their own professional growth.

One participant shared:

FGD_01_1. "Well, bilang guro ang pagtuturo ng pananaliksik ay isang hindi madaling gawain ngunit ito'y mahalaga sa aking trabaho." (As a teacher, teaching research is not an easy task, but it is an important part of my profession.)

Another participant emphasized:

FGD_02_1. "Hindi lamang ito pagtuturo ng konsepto kundi paghubog rin sa kakayahan ng mag-aaral na mag-isip ng kritikal." (It is not merely about teaching research concepts; it is also about developing students' ability to think critically.)

These narratives suggest that although teachers encounter considerable challenges in teaching research, they continue to value its contribution to students' critical thinking and to their own professional development. Rather than discouraging them, these challenges motivate teachers to strengthen their knowledge and instructional competence. This finding complements the quantitative results, which demonstrated high levels of research skills and teaching motivation among the respondents. The findings are consistent with DiLucchio and Leaman (1–27), who described research instruction as a demanding professional responsibility because of teachers' multiple roles and responsibilities. Likewise, Al-Khataybeh (434–446) emphasized that research serves as an important tool for improving instructional practice and fostering students' critical thinking, making it an essential component of teachers' professional development.

1.2. The Need for Time, Effort, and Resources

The second theme, The Need for Time, Effort, and Resources, underscores that teaching research requires substantial time, careful preparation, sustained commitment, and adequate instructional resources. Participants consistently identified limited time and insufficient resources as major challenges that affect the effective delivery of research instruction.

One participant shared:

IDI_02_1.1. "Teaching research requires enough time, patience and effort... kinahanglan siguro nilag dugang oras." (Teaching research requires enough time, patience, and effort. I think teachers need more time to effectively teach the subject).

Another participant remarked:

IDI_05_1.1. "Dako nga part sa akong time ang magasto sa pagprepare sa materials." ("A significant portion of my time is spent preparing instructional materials.)

The participants' accounts indicate that teaching research extends beyond classroom instruction and involves extensive preparation, continuous mentoring, and close supervision of students throughout the research process. Many teachers also reported utilizing their own resources to ensure the effective implementation of research activities. These qualitative findings support the quantitative results, which showed moderate levels of teachers' perceptions regarding time and cost, suggesting that these factors remain significant challenges in research instruction. The findings are consistent with Wulyani et al. (362–388), who identified time constraints as one of the greatest challenges teachers face in conducting and teaching research because of competing instructional and administrative responsibilities. Likewise, Jamoom and Al-Omrani (135–146) emphasized that institutional support, including sufficient time, funding, and instructional resources, is essential for strengthening teachers' engagement in research and improving research-related practices.

1.3. Students' Abilities and Learning Environment

The third theme, Students' Abilities and Learning Environment, highlights how differences in students' abilities, interests, and learning conditions shape teachers' approaches to research instruction. Participants emphasized that these differences require them to adopt flexible and adaptive teaching strategies to address students' diverse learning needs.

One participant shared:

FGD_03_1: "Challenging dahil sa kakulangan ng resources at interest ng mga mag-aaral." (Teaching research is challenging because of the lack of resources and the students' limited interest.)

Another participant explained:

FGD_04_1.2. "Differences ng kakayahan ng mga students... kailangan kong mag-adjust." (Students have different ability levels, so I need to adjust my teaching accordingly.)

These narratives indicate that effective research instruction requires teachers to accommodate learners' varying levels of understanding, motivation, and access to learning resources. Participants emphasized the importance of providing differentiated instruction, additional guidance, and appropriate learning support to help students successfully complete research tasks. The findings suggest that teachers' effectiveness in teaching research depends not only on their research skills but also on their ability to respond to the diverse needs of their students. These qualitative findings complement the quantitative results, which demonstrated high levels of research skills and teaching motivation, suggesting that teachers utilize these competencies to adapt their instructional practices despite the challenges posed by diverse student learning needs. The findings are consistent with Froehlich et al. (1–6), who emphasized that effective research instruction requires teachers to adapt their instructional approaches to accommodate students' diverse needs and learning contexts. Similarly, Bullo et al. (67–75) reported that limited time and instructional resources may constrain teachers' ability to provide individualized guidance, particularly for students who require additional support in conducting research.

2. Qualitative Explanation of the Quantitative Findings

Themes

Research as a Challenging Yet Meaningful Endeavor

The Need for Time, Effort, and Resources

Adapting Research Instruction to Students' Diverse Needs

2.1. Research as a Challenging Yet Meaningful Endeavor

The first theme, Teachers' Competence and Professional Disposition, highlights the importance of teachers' research knowledge, experience, communication skills, and time management in facilitating effective research instruction. Participants emphasized that these competencies enable them to explain research concepts more clearly, organize lessons effectively, and respond to students' learning needs.

One participant shared:

FGD_02_2.1: "Sa akong experience kay naapektuhan ... nagiging malinaw ang aking pagpapaliwanag." (Based on my experience, it has influenced my teaching because I am able to explain the concepts more clearly.)

Another participant explained:

IDI_06_2.1: "For me, my knowledge and experience sa research is a major factor sa akong teaching... mas mahimong effective ang akong way of explaining." (For me, my knowledge and experience in research are major factors in my teaching because they make my way of explaining more effective.)

The participants' narratives indicate that teachers' competence extends beyond research knowledge alone. Their ability to communicate complex concepts effectively, draw from research experience, and manage instructional time contributes to more meaningful research instruction. These findings complement the quantitative results, which demonstrated a high level of research skills among the respondents, suggesting that strong research competencies support effective classroom practice. The findings are consistent with Saro and Taray (21–41), who reported that teachers' active engagement in research enhances instructional effectiveness through the application of evidence-based teaching strategies. Similarly, Floris et al. (2–9) emphasized that research bridges theory and practice, contributing to teachers' professional growth and improving the quality of instruction.

2.2. The Need for Time, Effort, and Resources

The second theme, Teaching Approaches and Instructional Preparedness, highlights the importance of thorough preparation, well-organized lesson planning, and systematic instructional approaches in delivering effective research instruction. Participants emphasized that careful planning enables them to present research concepts more clearly and organize learning activities more effectively.

One participant shared:

IDI_06_2: "The result reflects my teaching approach... kung mas systematic ang approach mas maayos ang flow ng pagtuturo." (The results reflect my teaching approach. The more systematic my approach is, the smoother the flow of instruction becomes.)

Another participant explained:

IDI_08_2: "The result is connected to my preparation bilang teacher... kapag mas prepared mas clear at organized ang teaching." (The results are closely related to my preparation as a teacher. When I am well-prepared, my teaching becomes clearer and more organized.)

The participants' narratives indicate that effective research instruction depends largely on teachers' preparedness and the use of systematic teaching strategies. Careful lesson planning and organized instructional delivery enable teachers to facilitate students' understanding of research concepts more effectively. At the same time, participants acknowledged that limited time and instructional resources may constrain the quality of research instruction. These findings complement the quantitative results, which showed moderate levels of teachers' perceptions regarding time and cost, suggesting that these remain significant challenges in teaching research. The findings are consistent with Afriza et al. (269), who reported that careful instructional planning and comprehensive lesson preparation contribute to improved teaching quality. Likewise, Mediatati and Jati (422–431) emphasized that teachers' preparedness is essential for maintaining organized, effective, and high-quality learning experiences.

2.3. Adapting Research Instruction to Students' Diverse Needs

The third theme, The Dynamics of Teaching Motivation, highlights the reciprocal influence of teachers' and students' motivation on the teaching and learning process. Participants emphasized that teachers' enthusiasm and commitment to teaching research inspire students to become more engaged, persistent, and motivated in completing their research tasks despite the challenges they encounter.

One participant shared:

FGD_04_2.3: "Mirrored ang motivation... ang motivation ng guro ay nakakaapekto rin sa motivation ng mga students." (Motivation is mirrored. The teacher's motivation also influences the students' motivation.)

Another participant explained:

FGD_02_2.3: "Ang motivation makatabang para malagpasan ang kalisud sa paghimo ug research paper." (Motivation helps students overcome the challenges of writing a research paper.)

The participants' narratives indicate that teachers' motivation plays a vital role in fostering students' persistence and engagement throughout the research process. Participants perceived that motivated teachers create a positive learning environment that encourages students to actively participate and persevere in completing research-related tasks. These qualitative findings reinforce the quantitative results, which demonstrated that teaching motivation partially mediated the relationship between teachers' perceptions toward research and research skills. The findings suggest that teaching motivation serves as an important mechanism through which positive perceptions toward research are translated into stronger research skills. The findings are consistent with Li and Zhang (1–17), who described motivation as a dynamic process shaped by continuous interactions between teachers and students, playing a crucial role in sustaining learning. Similarly, Sidharta (183–194) emphasized that teachers with higher levels of motivation demonstrate better instructional performance and are more likely to strengthen their professional and research competencies.

3. Key Insights and Recommendations from Teachers' Experiences in Research Instruction Themes

Systematic and Guided Research Instruction

Adaptive Teaching Strategies

Teachers' Professional Development

3.1. Systematic and Guided Research Instruction

The first theme, Systematic and Guided Research Instruction, highlights the importance of organized inst

struction, continuous guidance, and timely feedback in enhancing students' learning experiences and improving the quality of their research outputs. Participants emphasized that systematic teaching practices and sustained mentoring enable students to better understand the research process while fostering a more effective learning environment.

One participant shared:

FGD_01_3: "Sa akin, mahalaga ang pagiging matiyaga at orderly sa pagtuturo ng research... mahalaga rin ang pagkakaroon ng positibong pananaw." (For me, being patient and organized in teaching research is essential. Maintaining a positive attitude is equally important.)

Another participant explained:

IDI_06_3: "Continuous feedback is very important as part of teaching... sa improvement ng teaching strategies." (Continuous feedback is an essential part of teaching because it helps improve instructional strategies.)

The participants' narratives indicate that systematic lesson planning, clear instructional guidance, and continuous feedback facilitate students' understanding of the research process while enabling teachers to refine their instructional practices. These findings complement the quantitative results, which demonstrated high levels of research skills and teaching motivation, suggesting that teachers' competence and motivation are reflected in their use of organized and supportive instructional practices. The findings are consistent with Van Rompay-Bartels and Geessink (1–17), who emphasized that feedback is a critical mechanism for enhancing student learning. Likewise, Attiogbe et al. (153–172) and Yang et al. (821–824) reported that continuous feedback strengthens teacher–student interaction, promotes self-regulated learning, and improves students' academic performance.

3.2. Adaptive Teaching Strategies

The second theme, Adaptive Teaching Strategies, highlights the importance of teachers' ability to adjust their instructional approaches according to students' diverse needs, abilities, and learning contexts. Participants emphasized that flexibility in teaching enables them to create more meaningful learning experiences and improve the effectiveness of research instruction.

One participant shared:

IDI_07_3: "Mahalaga ang pagiging adaptable bilang guro... kailangang i-adjust ang teaching methods depende sa sitwasyon upang mapanatili ang pagiging epektibo." (Being adaptable as a teacher is important. Teaching methods need to be adjusted according to the situation to maintain instructional effectiveness.)

Another participant explained:

FGD_03_3: "Mahalaga ang adaptability ng guro dahil iba-iba ang kakayahan ng mga estudyante kaya kailangang mag-adjust sa strategies." (Teacher adaptability is important because students have different ability levels, making it necessary to adjust instructional strategies.)

The participants' narratives indicate that teachers recognize the importance of adapting their instructional practices to accommodate students' diverse abilities, learning needs, and classroom situations. By modifying teaching strategies and learning activities, teachers create more engaging and accessible learning experiences that support students' understanding of research concepts. These findings complement the quantitative results, which demonstrated a high level of teaching motivation, suggesting that motivated teachers are more willing to refine and adapt their instructional practices to enhance student

learning. The findings are consistent with Patac and Doronio (1257–1269), who emphasized that adaptability and flexibility are essential characteristics of effective teachers. Likewise, Davis and Lee (88–101) reported that teachers who adapt their instructional approaches foster more positive learning experiences, greater student engagement, and higher levels of teacher satisfaction.

3.3. Teachers' Professional Development

The third theme, Teachers' Professional Development, highlights the importance of continuous learning, reflective teaching, and participation in seminars and professional training as essential strategies for enhancing teachers' instructional competence and research capabilities.

One participant shared:

IDI_03_3.3: "Mahalaga na patuloy ang pagkatuto ng mga guro... dapat dumalo sa seminars at training upang mapalawak ang kaalaman." (Continuous learning is essential for teachers. They should attend seminars and training programs to broaden their knowledge.)

Another participant explained:

IDI_08_3: "Ang pagiging reflective sa teaching ay mahalaga upang malaman kung ano ang epektibo at ano ang dapat pagbutihin." (Reflective teaching is important because it helps teachers identify what is effective and what aspects of their instruction need improvement.)

The participants' narratives indicate that professional development is a continuous process that enables teachers to expand their knowledge, strengthen their instructional practices, and enhance their research competencies. Participants emphasized that engaging in seminars, professional training, and reflective teaching provides opportunities to improve classroom practice and remain responsive to evolving educational demands. These findings complement the quantitative results, which demonstrated that positive perceptions toward research and high levels of teaching motivation contribute to the development of teachers' research skills. Collectively, the qualitative and quantitative findings suggest that sustained professional development supports teachers in translating positive attitudes and motivation into improved research competence. The findings are consistent with Jamoom and Al-Omrani (135–146), who emphasized that professional development encourages teachers to engage more actively in research and strengthens their research capabilities. Similarly, Perez and Ortega-Dela Cruz (112–119) reported that continuous participation in seminars and professional development programs enhances teachers' classroom management, communication skills, and overall instructional effectiveness.

CONCLUSION

The findings revealed that Senior High School teachers demonstrated moderate perceptions toward research and high levels of research skills and teaching motivation. Although teachers recognized the value of research and possessed the competencies and motivation to teach it effectively, time, resource, and workload constraints remained significant challenges. The study further established significant positive relationships among teachers' perceptions toward research, research skills, and teaching motivation. More importantly, teaching motivation partially mediated the relationship between teachers' perceptions toward research and research skills, indicating that positive perceptions are more likely to translate into stronger research skills when accompanied by high levels of teaching motivation.

IMPLICATIONS

The qualitative findings revealed that teaching research is a challenging yet meaningful endeavor that requires systematic preparation, adaptive teaching strategies, sufficient time and resources, and continuous professional development. Participants emphasized that organized instruction, ongoing guidance, and reflective practice contribute to improving the quality of research instruction. These findings underscore the importance of institutional support through mentoring, professional development programs, and the provision of adequate time and resources to strengthen teachers' research capabilities. Future studies may extend this work by examining additional variables, such as institutional support, research culture, research self-efficacy, and technological competence, across different educational contexts and levels.

RECOMMENDATIONS

Based on the findings, the Department of Education and school administrators should strengthen teachers' research engagement by providing dedicated research time, institutional support, and adequate research resources, including funding, online databases, statistical software, and reliable internet access. Mentoring programs, collaborative research initiatives, and capability-building activities should also be implemented to enhance teachers' research competencies and reduce barriers related to time, workload, and limited resources.

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