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Teachers' Level of Research Exposure and Competence: Its Influence on Teaching Practices of Research-Related Subjects in Senior High School

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Abstract

This study aimed to determine the research exposure, competence, and teaching practices of senior high school teachers handling research-related subjects. Employing an embedded research design, the study utilized quantitative and qualitative methods to understand the subject comprehensively. Participants included research teachers from selected schools in four districts, Baliwasan, Ayala, Labuan, and Sta. Maria, selected through purposive and cluster sampling. Data collection tools included surveys, classroom observations, and a written open-ended research questionnaire. Classroom observations offered insights into teachers' instructional strategies, while the written questionnaire, which replaced a planned interview at the participants' request, allowed teachers to express how their research background influenced their classroom practices.

Findings revealed that teachers had a low level of research exposure (M = 1.92), indicating limited participation in research-related activities. Their research competence was found to be average (M = 2.86), reflecting moderate confidence in executing research tasks. Significant differences were observed in teachers' levels of research exposure when grouped by educational attainment and grade level handled; however, no significant differences were noted in their research competence across demographic variables. Teachers demonstrated diverse instructional strategies, including interactive methods, integration of information and communication technologies (ICT), and student-centered approaches. Research exposure was found to influence teaching by encouraging self-directed learning and instructional flexibility, while research competence enabled structured planning, interactive learning design, and the simplification of research concepts.

In light of these findings, the study underscores the importance of strengthening research exposure and competence to improve research instruction. It recommends the implementation of differentiated and modular professional development, peer-led mentoring, and sustained support systems through school-based programs such as the proposed Advocating Research Culture (ARC) Program. This initiative aims to increase participation in research activities by making them more accessible and supportive for teachers across experience levels. Future studies may explore broader populations and assess the long-term impact of such interventions on teaching quality and student learning outcomes.

CHAPTER I
Introduction
Background

For many years, the Philippine educational system operated under a 10-year basic education cycle, which included six years of elementary and four years of high school education. This structure significantly changed in 2016 with the implementation of the Senior High School (SHS) Program under the K-12 educational reform. The reform introduced two major learning tracks: the Academic Track and the Technical-Vocational and Livelihood (TVL) Track. The Academic Track offered strands such as Accountancy, Business, and Management (ABM); General Academic Strand (GAS); Humanities and Social Sciences (HUMSS); and Science, Technology, Engineering, and Mathematics (STEM). On the other hand, the TVL Track included Home Economics (HE), Agri-Fisheries Arts (AFA), Industrial Arts (IA), and Information and Communication Technology (ICT).

As mandated by the Enhanced Basic Education Act of 2013, the SHS curriculum was designed to provide students with a well-rounded education that prepared them for a variety of exit points, whether in higher education, entrepreneurship, or employment. The curriculum placed a strong emphasis on developing problem-solving abilities, critical thinking, and technical skills. In support of this goal, research subjects were integrated into the curriculum: Practical Research 1 was offered to Grade 11 students, and Practical Research 2 was taught in Grade 12. These were complemented by Inquiries, Investigations, and Immersion (III), which allowed students to deepen their exploration of previously introduced research topics (Lucas et al., 2021).

According to Lucas et al. (2021), teaching research subjects at the senior high school level presented both opportunities and challenges for educators. Caraig (2022) identified several factors that contributed to the difficulty of teaching research: limited training during undergraduate years, lack of hands-on research writing experience, a shortage of qualified instructors, and the misalignment of teaching assignments with teachers' specializations. These issues underscore a significant gap in the system, the lack of dedicated programs for preparing teachers to effectively teach research. As a result, school leaders often struggled to assign capable and confident instructors to handle research-related subjects.

The importance of research exposure and competence among teachers is especially evident when it comes to delivering research instruction. As an English teacher pursuing a Master of Arts in English, the researcher recognizes the need to elevate educators' research capabilities and integrate them meaningfully into classroom practice. This study supports efforts to improve teaching practices in research-related subjects, not only in SHS but also in English education more broadly, where critical thinking and analytical skills are vital. This reflects a growing demand for educators who can cultivate students' research competencies in preparation for academic and professional advancement.

UNESCO (2017) stresses that qualified and competent teachers are key to sustaining educational development. The Enhanced Basic Education Act of 2013 (Republic Act No. 10533) further affirms this by mandating the inclusion of practical research subjects in the curriculum, demonstrating the Department of Education's commitment to raising teaching standards. To support this mandate, it becomes essential to ensure that teachers assigned to teach research are equipped with the necessary knowledge, skills, and training. This study, therefore, investigated the levels of research exposure and competency among teachers handling Practical Research and Inquiries, Investigations, and Immersion (III) across selected senior high schools in four districts of Zamboanga City. While past research has primarily focused on students' research competencies, limited attention has been given to the teachers' side of the equation. For

example, Abinan (2021) explored students' exposure, attitudes, and competencies in research, pointing out three critical aspects among teachers: their exposure to research-related activities, their attitudes toward research, and their competence in teaching research. However, her study did not explore teachers' actual proficiency in research writing, an area crucial to effective instruction and deserving of closer examination.

Teachers' capability to teach research writing well significantly influences students' learning outcomes. In an interview with Badeo (2019), the Education Program Supervisor for Research in Zamboanga City, it was revealed that most teachers specialized in qualitative research, while quantitative research was usually handled by science teachers. He also noted that the assignment of teachers to research classes was often overlooked due to the many challenges in public senior high schools.

In many cases, English teachers are tasked with teaching research subjects, largely based on the assumption that their writing expertise makes them suitable for the role. Ballesteros (2019), a senior high school principal, argued that English teachers possess the necessary reading and writing skills to handle such subjects. He stated, "We are what we read. Our conceptual capacity is directly related to how much and what we read. When we cannot write, it means we need to read more." This perspective implies that teaching research requires both mastery of language and an understanding of technical research processes. Since writing is one of the most challenging skills to teach, this study focused on English teachers and their significant role in shaping students' research proficiency.

The SHS Program brought notable changes to the Philippine educational system. While integrating research subjects was intended to build students' research skills, several implementation issues arose. Caraig (2022) identified recurring problems such as inadequate teacher training, lack of direct research experience, a shortage of qualified instructors, and mismatched teaching assignments. These hindered the successful delivery of research instruction and signaled a need for deeper investigation.

Teachers' attitudes and competencies in research greatly influence student achievement. When teachers feel unprepared or view research as a difficult subject, these sentiments often transfer to students, affecting their engagement and motivation. Aguiran et al. (2014) emphasized that while students may have the necessary skills and knowledge, their performance is heavily shaped by the classroom environment and the attitudes modeled by their teachers.

Lucas et al. (2021) further suggested that cultivating a positive research culture among teachers could encourage students to become more engaged and interested in research. Conversely, if teachers see research as intimidating or overly demanding, students are likely to mirror these attitudes, which can hinder academic progress.

In a preliminary interview conducted by the researcher, SHS teachers shared their experiences teaching research. Some had actively participated in trainings, research presentations, and publications, while others struggled due to lack of institutional support, limited training, and time constraints. These varied experiences underscore the need to examine how research exposure and competence influence teaching practices across different contexts.

To address these challenges, school administrators and policymakers need to prioritize professional development focused on enhancing teachers' research capabilities. This includes offering targeted training in both qualitative and quantitative research, establishing mentorship programs, and ensuring teachers are assigned to research subjects that align with their expertise. While Abinan (2021) acknowledged the value of research exposure and positive attitudes toward research, her study did not extensively explore research writing proficiency, an area this study seeks to examine more closely.

This study was undertaken to explore how teachers' research exposure and competency levels affect their effectiveness in teaching. As Babu and Mendro (2023) note, teachers are among the most significant school-related factors affecting student achievement. Goodwin et al. (2017) add that effective teachers must have a deep understanding of the subjects they teach. For research teachers, this includes mastering research methodology and writing.

Ultimately, this study sought to determine teachers' level of exposure to research and their competence in teaching research subjects. Its findings contribute to improving the delivery of research instruction in senior high schools and offer insights that can inform future curriculum development and education policy decisions.

Review of Related Literature

This section presents a review of related literature and studies sourced from articles, journals, theses, and dissertations published online. It focuses on the competency levels of teachers in teaching practical research subjects and examines various factors that influence their research proficiency.

Teachers' Competency in Research Instruction

Several factors are directly linked to teachers' competency in research instruction. A teacher's success in teaching research is often reflected in their familiarity with research methodologies, personal experience in conducting research projects, and participation in professional development programs such as training and workshops. According to Niemi and Sihvonen (2006), research competency is essential for developing students' scientific thinking and processing skills. Additionally, research competence enables teachers to effectively impart knowledge, skills, and attitudes necessary for research education. Niemi and Sihvonen emphasized that such competency encompasses understanding research methods, designing studies, and conducting research within one's field of expertise.

While Niemi and Sihvonen provide valuable insights into the technical skills required for research instruction, their study does not fully address how teachers' attitudes and emotions toward research impact their teaching effectiveness. Teachers who experience anxiety or uncertainty about research may inadvertently transfer these sentiments to their students, potentially affecting engagement and enthusiasm for the subject. Therefore, the study explored both the skills and attitudes of teachers toward research to determine how these factors influence students' learning outcomes.

The literature underscores the critical role of research competency in empowering teachers to effectively guide students through the research process. Niemi and Sihvonen (2006) present a strong case for the technical knowledge required to develop students' scientific skills, yet their focus is limited to cognitive and procedural aspects. What emerges as equally significant, but often overlooked, is the emotional and attitudinal dimension of research instruction. Teachers' anxieties, confidence levels, and personal attitudes toward research can deeply influence how they teach the subject and how students perceive it. This calls for a broader understanding of competency—one that integrates both skill and mindset. The current study recognizes this gap and aims to explore how the interplay of teachers' knowledge and attitudes ultimately shapes students' learning experiences in research.

Teachers' Exposure to Research Conduct

Teachers' exposure to research plays a significant role in shaping their instructional approach. Research exposure enhances teachers' understanding of constructivist principles, such as those introduced by Piaget (1950), who emphasizes that learning is an active process in which individuals construct knowledge through experience. This theoretical foundation allows teachers to create more effective and engaging learning environments that promote student-centered learning (Efgivia et al., 2021).

Efgivia et al. (2021) support the notion that constructivist approaches empower teachers to become facilitators of learning, guiding students in developing critical thinking and problem-solving skills. However, while this study underscores the benefits of constructivist teaching, it does not fully address the challenges teachers face in implementing these methods, particularly in diverse classroom settings. Not all teachers may have the necessary training or resources to adopt constructivist strategies effectively. The study was built on Efgivia et al.'s findings by examining how teachers' exposure to research not only informs their understanding of constructivism but also helps them overcome barriers in applying these methods.

Abinan (2021) conducted a study on senior high school teachers' exposure to, attitudes toward, and competency in research. The findings indicated that higher levels of competence were associated with greater exposure to conducting research. Teachers with experience in research—whether through undergraduate theses, master's theses, doctoral dissertations, institutional research, or action research—demonstrated greater proficiency in instructing students. In connection with this, the Department of Education (2024a) launched Project FIRM (Frontrunners on Innovative Research Management), a program designed to strengthen teachers' capacity to manage and conduct school-based research. It provides direct support in developing research proposals and understanding research policies, which equips teachers with the tools necessary for effective instruction. However, while Abinan's study established a link between research exposure and competency, it does not explore how teachers' attitudes toward research influence their teaching. Teachers who hold positive beliefs about research may be more motivated and effective in teaching the subject, even if their direct experience is limited. The study addressed this gap by examining how both research experience and attitudes shape instructional effectiveness.

Further, Abinan (2021) analyzed the extent of teachers' research exposure and found that among 32 Participants, the most common research experience involved writing undergraduate theses, followed by master's theses (22 teachers), action research (6 teachers), dissertations (5 teachers), and institutional research (3 teachers). Notably, 13 teachers reported having no research experience. While this data highlighted the varying degrees of research exposure among teachers, it did not assess how these experiences impact their confidence and ability to teach research. This current study extended this work by examining the relationship between teachers' research experiences and their effectiveness in research instruction.

The reviewed literature collectively affirms that research exposure significantly enhances teachers' instructional strategies, particularly through the lens of constructivist teaching. By engaging in research, teachers are better positioned to create learner-centered environments that foster critical thinking and independent learning. Yet, despite these theoretical advantages, the practical application of constructivist principles often remains uneven due to disparities in training, resources, and support. Abinan's (2021) findings and the DepEd's Project FIRM further emphasized that experience in conducting research correlates with instructional proficiency. However, what remains insufficiently explored is the internal dimension—how teachers' perceptions, beliefs, and motivation influence their delivery of research

instruction. This synthesis suggests that while technical competence and exposure are essential, they must be paired with a positive attitude and a sense of self-efficacy to truly elevate teaching effectiveness. Thus, the present study sought to bridge this insight by investigating both the quantitative and qualitative facets of research engagement among teachers.

Challenges in Teachers' Research Engagement

Hine (2013) asserted that research engagement, particularly through action research, is valuable for teachers' professional development. However, Caingcoy (2020) found that many senior high school teachers in the Department of Education (DepEd) lacked sufficient opportunities and motivation to develop their research-writing skills, which hindered their ability to complete research projects. To address these issues, the Teacher Effectiveness and Competencies Enhancement Project (TEACEP) was introduced in 2024. This initiative, developed through a partnership between DepEd and the World Bank, offers training for teachers in regions such as Zamboanga Peninsula and BARMM to improve their skills in literacy, numeracy, and research instruction (Manila Bulletin, 2024). This contrast highlights a critical gap in professional development: while research exposure benefits teachers, institutional barriers such as limited training opportunities and a lack of incentives may prevent them from acquiring the necessary skills. The study examines the impact of institutional support, or the lack thereof, on teachers' ability to engage in research and integrate it into their instruction.

Bullo et al. (2021) identified several challenges faced by teacher-researchers, including time constraints, anxiety about research writing, and the perception of research as an additional workload. Their study has also noted difficulties in analyzing both quantitative and qualitative data. However, they found that participation in Division Training, graduate studies, and Learning Action Cell (LAC) sessions helped teachers enhance their research skills. While their study highlighted the struggles of teacher-researchers, it did not explore how attitudes toward research affect engagement and effectiveness. This current study was built on Bullo et al.'s findings by assessing how addressing these challenges can improve teachers' research instruction.

Similarly, Ulla (2018) examined the experiences of public school teachers in conducting research, revealing that their motivations were primarily personal rather than professional. Despite recognizing the benefits of research for improving teaching practices and career development, teachers faced challenges such as a lack of financial support, heavy workloads, insufficient research skills, and limited access to resources. While Ulla's study shed light on these barriers, it did not explore how personal motivations can be translated into professional goals. This current study investigated strategies for transforming teachers' research interests into sustained professional engagement.

The literature highlights a persistent tension between the recognized value of research engagement and the structural or personal barriers that hinder its practice among teachers. Hine (2013) and Ulla (2018) both affirmed that research can enhance professional development and teaching effectiveness, yet studies by Caingcoy (2020) and Bullo et al. (2021) emphasized that teachers often face limited opportunities, a lack of motivation, and overwhelming workloads.

These findings suggest that while the intent to engage in research may exist, it is frequently undermined by systemic constraints such as inadequate institutional support and insufficient access to resources. Programs like TEACEP attempt to address these gaps through targeted training, but participation alone may not fully resolve deeper issues like research anxiety or lack of confidence. Moreover, teachers' personal motivations, though genuine, often remain disconnected from long-term professional goals due

to these recurring challenges. Collectively, these studies point to the need for a more holistic and sustained approach to supporting teacher-researchers. This study aimed to explore this intersection by examining how institutional support, personal attitudes, and contextual challenges jointly influence teachers' ability and willingness to incorporate research into their instructional practice.

Research Competency and Student Performance

Cua, Lacson, and Mara (2021) conducted a study involving 60 senior high school teachers in North Negros, found out that teachers had low research exposure and very low research competence. Surprisingly, despite their teachers' limited research proficiency, students achieved very satisfactory academic performance in research subjects. This suggests that factors beyond teacher competency, such as student motivation or alternative teaching methods, may contribute to student success. However, Cua et al.'s study did not explore these alternative influences. This current study was anchored on their work by identifying additional factors that contribute to student achievement in research subjects, beyond teacher competency alone.

Cua et al.'s (2021) findings challenged the common assumption that teacher competency alone dictates student success in research subjects. Despite the documented low research exposure and competence among teachers, students still managed to perform well academically, suggesting the presence of other influential factors. This calls attention to the possibility that student-driven elements, such as intrinsic motivation, peer collaboration, or adaptive instructional strategies, might also play a significant role in academic outcomes. However, these potential contributors remain unexplored in the existing literature. The current study intends to address this gap by examining a broader range of variables that may impact student performance in research, recognizing that teacher competency is only one piece of a more complex educational puzzle.

Teachers' Exposure to Research Presentation

The Joint Quality Initiative (2004) defined the competencies required to present information effectively to an audience, emphasizing the importance of clear communication skills. These skills are essential not only for students but also for teachers in educational settings. Chan (2011) built on this concept by highlighting the specific steps necessary for developing oral presentation competence. His work suggests that educators can apply practical methods to help individuals improve their presentation abilities.

While both studies offer valuable insights into the significance of presentation skills, they did not provide concrete strategies for cultivating these skills in real classroom settings. Although understanding the theoretical aspects of presentation competence is crucial, practical applications are equally important. This current study addressed this gap by exploring specific techniques and training programs designed to enhance oral presentation skills among both teachers and students. By identifying actionable strategies, this research aims to contribute to better communication skills in educational environments.

Several researchers, including IRIS (2017), noted that teachers who engage in research presentations are not necessarily doing so for career advancement. Instead, they are often committed to fostering a strong research culture within their institutions. This perspective underscores the intrinsic value of teachers' participation in research activities, emphasizing professional growth and institutional development rather than personal promotion.

Similarly, Jamieson and Saunders (2020) evaluated presentation skills in research courses, stressing the importance of research competencies. They argued that effective researchers require both hard skills

(technical knowledge and task-related abilities) and soft skills (interpersonal and communication skills). Their findings align with previous studies, which have linked visual learning opportunities to the development of these essential competencies (White et al., 2000; Berner & Adams, 2004).

While these studies highlighted the significance of various competencies in research and presentation, they failed to offer detailed strategies for teachers to improve these skills in practice. Understanding that both hard and soft skills are necessary is valuable, but educators would benefit from specific guidance on how to cultivate these competencies effectively.

This current study aimed to build upon these findings by investigating practical methods to enhance teachers' and students' research presentation skills. This focus led to actionable strategies that strengthen the research culture within educational institutions. Ultimately, the dedication of teachers to research and the development of essential communication skills provides a strong foundation for further research on effective teacher training and professional development programs.

The reviewed literature collectively affirms the value of communication and presentation skills as essential components of research competence for both teachers and students. While theoretical frameworks by the Joint Quality Initiative (2004) and Chan (2011) laid the groundwork for understanding these competencies, there is a noticeable gap in translating theory into practical classroom application. Similarly, studies by IRIS (2017) and Jamieson and Saunders (2020) reinforced the need for both hard and soft skills in research education but fall short of offering concrete, implementable strategies for skill development. What emerges is a clear need for research that goes beyond defining competencies and instead focuses on practical, scalable techniques to improve presentation proficiency. This current study sought to fill this void by identifying effective approaches and training practices that can be adopted in educational settings, ultimately contributing to a stronger research culture and better-prepared educators and learners alike.

Teachers' Exposure to Research Publication

Existing studies indicate that research plays a crucial role in reinforcing the publication of research outputs in education. Various journal articles have proposed pedagogical implications that enable teachers to assess the relevance of research findings within their own teaching contexts (Chappelle, 2007). However, while these studies emphasized the importance of research publication, they lacked detailed guidance on how teachers can effectively integrate research findings into their instructional practices. Simply acknowledging that teachers should consider research relevance is useful, but providing specific strategies or examples would make this process more accessible for educators.

This current study sought to bridge this gap by investigating ways to help teachers better utilize published research in their teaching. This may include exploring methods for translating research findings into classroom practices and identifying barriers that hinder teachers from applying research in their instruction. By addressing these aspects, the study aims to generate valuable recommendations that enable teachers to connect research outputs with their teaching, ultimately enhancing student learning outcomes.

The study by Abinan (2021) highlighted a significant challenge: a lack of research publishing experience among teachers of practical research. Her findings revealed that none of the sixty teacher participants had published a research paper, indicating a gap in knowledge and skills regarding academic publishing. This underscores the need for increased support and training in research dissemination. However, while Abinan's study identifies the problem, it did not explore the underlying reasons behind teachers' lack of publishing experience. Factors such as time constraints, lack of resources, and low confidence in writing

for academic journals may contribute to this issue. Addressing these challenges could provide better insights into potential solutions.

The present study extended Abinan's work by investigating the specific obstacles preventing teachers from publishing their research. Additionally, it will explore effective training programs designed to equip teachers with the necessary skills and confidence to engage in academic publishing. By focusing on these areas, the study offered practical solutions to enhance teachers' research exposure and promote a stronger culture of academic publication in practical research education.

Further, Abinan (2021) examined the research exposure, attitudes, and competencies of Senior High School teachers in District 1 of Cagayan using a descriptive-correlational method. The findings revealed that most teachers were young females specializing in English, with an average of six years of teaching experience, and currently pursuing master's degrees. Despite having completed courses in Educational Research and attending local training, their exposure to research remained low due to limited opportunities for development, presentation, and publication. However, despite this low exposure, teachers exhibited a generally positive attitude toward research, recognizing its importance in their profession.

A key finding of Abinan's study was that teachers who faced more research difficulties experienced greater anxiety, whereas those with more research experience and exposure demonstrated higher levels of competence. The present study attempted to improve teachers' research exposure, attitudes, and competencies.

While Abinan's findings provided important insights, the study did not delve deeply into institutional barriers, such as lack of funding, mentorship, or access to publication opportunities. Identifying these challenges could lead to more targeted interventions. Moreover, the study would benefit from proposing detailed strategies for enhancing teachers' research skills and increasing publication rates.

The present research aimed to supplement Abinan's study by investigating the specific barriers teachers face in engaging with research. Additionally, it examined successful programs or best practices that have helped other educators enhance their research exposure and competence. By focusing on these areas, the study will contribute valuable knowledge to support teachers in academic publishing and foster a stronger educational research culture.

Teachers' Exposure to Research-Related Seminars, Workshops, and Training

Boudersa (2016) emphasized the importance of continuous professional development programs for teachers at both the school and university levels. He argued that investing in teachers' knowledge, skills, and attitudes significantly enhances educational quality. This focuses on ongoing learning and improvement underscores the vital role teachers play in delivering effective instruction.

While Boudersa's study highlighted the importance of professional development, it lacked concrete examples of effective training programs or methods that have successfully improved teachers' competencies in various educational contexts. Recently, DepEd launched nationwide training programs focused on ICT and e-learning to help teachers transition to digital instruction post-pandemic. These programs, introduced in 2024, aimed to enhance the ability of secondary teachers to deliver content effectively using online platforms and integrate research into digital learning strategies (Department of Education, 2024b). Without these details, schools and institutions may struggle to implement impactful professional development initiatives.

The present study addressed this limitation by identifying specific professional development programs that are most effective for teachers in a given educational setting. It also examined how these programs influenced teachers' performance and student learning outcomes.

In contrast to Boudersa, Essien et al. (2016) emphasized that seminars and workshops serve as effective tools for enhancing teachers' skills and fostering self-mastery. Their study also highlighted the benefits of providing training not only for teachers but also for students. This dual approach amplifies the positive effects of seminars on classroom learning and encourages students to take greater responsibility for their education.

However, while Essien et al. provided a strong argument for the effectiveness of seminars, they did not fully explain how these training activities translate into practical improvements in teaching and learning. Greater clarity on which aspects of seminars are most beneficial would further strengthen their study.

The present study expanded these insights by investigating how well-designed seminars and workshops contribute to improved teaching practices and enhanced student learning. Additionally, it explored the significance of teachers' involvement in research and innovation, as emphasized by Fullan (2013). By examining how active participation in professional development fosters innovative teaching, this study aims to provide valuable insights for designing more effective teacher training programs. Ultimately, this research sought to enhance the educational experience for both educators and students.

The collective findings from previous studies underscore the essential role of research engagement, publication, and professional development in strengthening teaching practices and academic performance. While Chappelle (2007) and IRIS (2017) emphasized the value of research utilization and publication in educational contexts, there remains a lack of clear strategies on how teachers can meaningfully translate published findings into practical classroom applications. Likewise, Abinan's (2021) research revealed that many teachers, despite positive attitudes toward research, lack the necessary experience and confidence to publish their work, largely due to institutional barriers such as limited time, mentorship, and access to publishing platforms. Although current initiatives like TEACEP and post-pandemic DepEd trainings aim to address skill gaps, their overall effectiveness remains underexplored, especially in terms of impact on research publication and classroom innovation.

Boudersa (2016) and Essien et al. (2016) further highlighted the importance of continuous training, yet offer few examples of best practices that truly improve instructional quality. What emerges is a compelling need for targeted support systems that do more than promote research awareness; they must actively build teachers' competence and confidence through accessible, hands-on training. The study responded to these gaps by investigating practical barriers and successful interventions, offering concrete recommendations to strengthen teachers' capacity for research, publication, and evidence-based teaching.

Teachers' Level of Competency in Research

Bouchrika (2024) believes that Adult Learning Theory, or Andragogy, as proposed by Malcolm Knowles (1968), emphasizes the unique characteristics of adult learners, including their self-directedness, prior experiences, and intrinsic motivation. This framework is highly relevant to teachers' research competencies, which focus on empowering educators to engage in inquiry-based practices that enhance their teaching effectiveness. Knowles' principles encourage educators to take ownership of their learning processes, fostering a culture of continuous improvement and reflective practice in their professional development. As teachers explore research competencies, they align well with Andragogy's tenets, as they can draw upon their experiences, engage in collaborative learning, and apply new knowledge to real-world

contexts, ultimately leading to more effective instructional strategies and better student outcomes (Comon & Corpuz, 2024).

The present study sought to develop Bouchrika's ideas by examining how Andragogy can be effectively implemented in professional development for teachers. It can explore which specific strategies help teachers maximize their prior experiences and collaborate during their learning. By focusing on these aspects, the study can offer practical recommendations for improving teacher training programs, ultimately leading to more effective teaching and better outcomes for students.

According to Cortes et al. (2020), the synergy between teachers' research competence and their engagement in research activities is essential for their professional growth in education. A survey of 391 teachers from two districts in El Salvador City revealed a positive correlation between research competence and engagement levels. Additionally, significant relationships were found between engagement and moderating factors such as training and teaching positions. However, the number of coordinatorships held by teachers posed challenges to their research efforts. Overall, the study underscored the importance of enhancing teachers' research skills and engagement as a means to foster educational improvement and serves as a basis for developing a targeted Research Development Plan.

While this study provided valuable insights into how research competence and engagement are related, it did not fully explore why holding multiple leadership roles negatively impact teachers' ability to conduct research. Understanding these challenges in depth could help schools find better ways to support teachers in balancing these responsibilities.

The present study extended Cortes et al.'s study by investigating how various factors, such as training and job roles, affect teachers' research engagement. It could also explore how teachers can be supported in managing their leadership roles while still participating in research activities. By focusing on these issues, the study offered practical ideas for developing a targeted Research Development Plan that helped teachers improve their research skills and foster better educational outcomes.

Salom et al. (2012) described "research capability" as the ability to plan and select the right tools for data collection, recognize suitable methods for analyzing and adjusting data, and use appropriate statistical tools for testing results. This definition helps establish key areas that need to be focused on in research.

The curriculum guide for Practical Research emphasizes specific learning competencies and performance standards. Teachers who instruct senior high school students in research are expected to be knowledgeable about key topics such as the Nature of Inquiry, Qualitative and Quantitative Research, Identifying and Stating Problems, Reviewing Literature, Understanding Data Collection, Analyzing Data, and Sharing Findings (DepEd, 2013).

While Saloms et al.'s definition of research capability offered a solid foundation, it did not address how teachers can develop these skills in real classroom settings. Providing examples of training programs or methods that help teachers enhance their research capabilities would strengthen the argument.

The present study was built on Ismail et al. and investigated how well teachers understand and teach the competencies outlined in the curriculum guide. It also explored effective training methods that increase teachers' research capabilities, ensuring they are better equipped to teach their students. By focusing on these areas, the study offered practical recommendations for improving teacher training in research, ultimately leading to better educational outcomes for students in senior high school.

Various studies emphasized the vital role of teachers' existing knowledge in their specialization. Beyond academic knowledge assimilation, teachers must incorporate their expertise and skills in the classroom

(Guerriero, 2017). This means teachers are challenged to inculcate in students the expected learning competencies, content, and performance standards of the various research subjects in senior high school. While Guerriero's focus on the importance of teachers' knowledge is valuable, it does not address how teachers can best develop and apply this knowledge in their teaching. Providing examples of effective strategies or training programs that help teachers combine their expertise with teaching methods would strengthen the argument.

The present study built on Guerriero's findings examined how teachers currently use their specialized knowledge in the classroom and what challenges they face in doing so. It could also explore effective approaches that support teachers in developing and applying their skills and knowledge to meet student learning goals. By focusing on these areas, the study provided practical recommendations that enhance teacher effectiveness, ultimately leading to better learning outcomes for students in senior high school.

Chow et al. (2015) explored the dual role of teachers as researchers and how this affects their professional development. Their study, conducted with teachers from four primary schools in Hong Kong, was part of a university-school collaborative initiative to enhance teaching strategies through inquiry-based project-based learning. The findings underscored the significant advantages of integrating research into teaching practices, indicating that such partnerships can play a pivotal role in fostering action research among teachers.

While the study highlighted the benefits of integrating research into teaching, it did not fully address the specific barriers teachers face in adopting a research-oriented mindset. More discussion on these challenges would provide a clearer understanding of what hinders teachers from taking on this dual role.

The present study extended Chow et al.'s research by investigating the factors that limit teachers' acceptance of the teacher-researcher role. It tries to explore strategies for promoting university-school partnerships that encourage action research among teachers. By focusing on these aspects, the present study provided practical recommendations that help teachers blend their teaching and research roles, enhancing both their professional development and student learning outcomes.

Westbroek et al. (2020) argued that while there are clear criteria for trustworthiness in practitioner research, guidelines for its usefulness are lacking. This gap can lead to disappointing long-term effects because research may not be practical for everyday classroom situations.

The present study built on these findings by examining how the dual role of teacher-researchers can be practically implemented while ensuring that research is both trustworthy and useful. It explored factors affecting the practicality of teacher research and identify strategies for improving its relevance to classroom realities. By focusing on these areas, the study tried to help create more effective and supportive environments for teachers, ultimately benefiting the teachers in their professional development and student learning outcomes.

The literature emphasizes a multifaceted approach to enhancing teachers' research competence, grounded in adult learning theories, practical skill-building, and institutional support. Bouchrika (2024) and Knowles' theory of Andragogy highlight the importance of self-directed, experience-based learning—an approach well-suited to teacher development. Studies by Cortes et al. (2020) and Ismail et al. (2012) underscored the relationship between training, job roles, and research engagement, while also identifying logistical barriers such as overlapping responsibilities and inadequate training support. The curriculum expectations set by DepEd (2013) place considerable demands on teachers' ability to deliver complex research content, yet gaps remain in how these competencies are cultivated in practice. Guerriero (2017) and Chow et al. (2015) stress the role of specialization and inquiry-based approaches, but offer limited

insights on how teachers can realistically integrate research into their everyday teaching amid existing constraints. Finally, Westbroek et al. (2020) raised a crucial point about the practicality and real-world utility of practitioner research, cautioning against the disconnect between theoretical merit and classroom relevance. Together, the results of these studies made it clear that while the foundation for teacher-researcher development exists, more actionable, context-sensitive strategies are needed. The study addressed these gaps by exploring how research competencies can be realistically developed, supported, and applied in the classroom, ensuring that teacher-led research not only meets academic standards but also fosters meaningful learning outcomes for students.

Influence of Teachers' Exposure and Competence on Teaching Practices

Wolfe (2022) argued that competency-based learning models are essential for promoting academic success and helping students apply what they learn. He found that when teachers focus on competencies, they improve their teaching practices, develop essential skills, and align their lessons with educational goals.

While Wolfe's study provided valuable insights into the benefits of using competencies, it lacked practical examples of how teachers can effectively implement these models in their classrooms. Including specific strategies or case studies would make his findings more actionable for educators looking to enhance their teaching methods.

The study, which was anchored on Wolfe's ideas by investigating how teachers currently use competencies in their classrooms. It can also explore the challenges they face when trying to implement these models and identify best practices for competency-based teaching. Additionally, it provided recommendations for professional development programs that equip teachers with the necessary skills to integrate competency-based learning effectively.

By addressing these aspects, the present study offered meaningful insights into how teachers' exposure to research and competency-based approaches influences their teaching practices, ultimately contributing to improved student learning outcomes.

Wolfe's (2022) advocacy for competency-based learning models reinforced the growing recognition that aligned instruction with clearly defined outcomes leading to improved teaching practices and academic performance. His work highlighted the transformative potential of competency-focused instruction, yet it stopped short of offering practical guidance for real-world implementation. This gap reflects a broader need in the literature for actionable strategies that educators can use to translate theory into practice. While the benefits of competency-based models are evident, understanding how teachers navigate the challenges of integration, especially within diverse classroom contexts, remains underexplored. The present study aimed to fill this void by examining how teachers apply competency frameworks in their daily instruction, the barriers they encounter, and the types of professional development that can support this shift. By focusing on these areas, the study sought to generate concrete insights that bridge research exposure, teaching competencies, and classroom effectiveness, ultimately enriching both teacher practice and student outcomes.

Teachers' Teaching Practices

The relationship between teachers' teaching practices and Social Learning Theory, as proposed by Bandura (1960), highlights the importance of observational learning, modeling, and the social context in which learning occurs. Bandura's theory posits that individuals learn not only through direct experience but also by observing others' behaviors and the outcomes of those behaviors. In the classroom, teachers who

engage in effective teaching practices, such as collaborative projects, discussions, and role modeling of research skills, create an environment where students can observe and imitate these behaviors, thereby enhancing their understanding of research concepts. This dynamic model reinforces the idea that teaching practices in research-related subjects should not only convey knowledge but also actively involve students in a social learning process, promoting deeper engagement and skill development through interaction with both peers and the instructor (Jia et al., 2019).

While studies establish valuable connections between teaching practices and learning outcomes, further research is needed to explore how different teaching styles influence diverse student groups. Factors such as learning preferences, cultural backgrounds, and cognitive styles should be considered to ensure that all students engage with and benefit from these practices equally. By delving deeper into these aspects, researchers could uncover whether certain groups experience greater success with particular teaching strategies, leading to more inclusive and effective instructional methods rooted in social learning principles.

The concept of effective teaching has been extensively examined through various research approaches. Wray et al. (2010) conducted a study commissioned by the Teacher Training Agency, aiming to identify the characteristics of successful primary school teachers in literacy instruction. The study compared teachers whose students demonstrated substantial literacy improvements with those who were less successful. While the findings provide valuable insights into the traits of effective teachers, the study focuses primarily on literacy, limiting its applicability to other subjects. Expanding this research to include diverse teaching disciplines and settings could yield a broader understanding of teaching effectiveness. Additionally, incorporating students' perspectives on their learning experiences would further enhance the depth of insights into what constitutes successful teaching strategies.

Teachers play a pivotal role in guiding students through scientific inquiry, including formulating research questions, designing investigations, collecting data, and drawing conclusions. Dudu and Vhurumuku (2012) examined teachers' instructional approaches in practical investigations, utilizing video recordings, classroom observations, and interviews with teachers and students. The study revealed that teachers employed various methods in teaching laboratory-based investigations, influencing their overall effectiveness. However, additional factors—such as teacher experience, student background, and instructional context—should be explored to fully understand their impact on teaching effectiveness. Furthermore, investigating students' perceptions of these instructional strategies could provide deeper insights into their effectiveness, emphasizing the need for further research on diverse teaching contexts.

In the context of teacher research (TR) practices, Al-Ghattami and Al-Husseini (2014) explored teachers' engagement with research in Omani schools, revealing that TR is not yet a widespread practice. The study emphasizes the necessity of enhancing teachers' understanding and attitudes toward TR, as well as providing logistical support to promote sustainable research engagement. TR is recognized as an essential tool for continuous professional development, encouraging teachers to become active practitioner-researchers. Unlike traditional short-term workshops, TR fosters independent learning, inquiry, creativity, and self-confidence, ultimately improving classroom instruction. However, the study could have gone further by exploring specific barriers that hinder teachers from engaging in research, such as time constraints, lack of training, or limited administrative support. Addressing these challenges through targeted strategies, such as dedicated research time, professional development workshops, and funding opportunities, could help establish TR as a sustainable practice in education.

The teaching practices of English language teachers in the Philippines provide insights into English Language Teaching (ELT) research engagement, particularly within the ASEAN region. Tarrayoet al. (2020) found that teachers recognized the link between teaching and research practices and showed a positive attitude toward research. However, their participation was limited by heavy workloads, insufficient funding, language barriers, and difficulties in applying research findings in the classroom. The study underscores the need to foster a supportive research culture in schools, providing teachers with resources, mentorship, and training opportunities to encourage research engagement. While the study identifies key challenges, specific strategies, such as research workshops, grants, and mentorship programs, should be explored to help overcome these barriers and strengthen the teaching-research connection.

A comprehensive evaluation of educational practices was conducted by Hattie (2009), analyzing over 800 meta-analyses to determine the factors influencing student achievement. Hattie's research introduced the concept of "visible learning", emphasizing the importance of transparency in teaching and learning, enabling teachers to assess student progress and helping students understand their learning trajectories. A key aspect of Hattie's work was the measurement of effect sizes, identifying 0.40 as the benchmark for significant educational impact. The study highlighted teacher effectiveness, quality feedback, student self-regulation, and strong teacher-student relationships as critical contributors to student success. Furthermore, Hattie critiqued over-reliance on standardized testing and rote learning, advocating for evidence-based teaching approaches that promote student engagement and achievement.

A teacher's research exposure plays a vital role in constructivist learning, as articulated by Piaget (1950). Constructivism emphasizes that students actively construct knowledge through their learning experiences rather than passively receiving information. Teachers who adopt a constructivist approach transition into facilitators of learning, allowing students to engage deeply with content and develop a personalized understanding of concepts (Efgivia et al., 2021). This aligns with Malcolm Knowles' Adult Learning Theory (Andragogy), which emphasizes the self-directed nature of adult learners and their reliance on prior experiences for intrinsic motivation (Bouchrika, 2024). Knowles' framework is particularly relevant to teachers' research competencies, as it encourages educators to engage in inquiry-based practices, fostering a culture of continuous improvement and reflective teaching.

The synergy between teachers' research competencies and engagement in research activities is fundamental to professional growth. Cortes et al. (2020) found a positive correlation between these factors among 391 teachers in El Salvador City, noting that training and teaching positions influenced research engagement. However, multiple coordinatorships and administrative responsibilities posed challenges to active research participation. Bandura's Social Learning Theory further supports the importance of modeling research engagement, as collaborative teaching practices help create a social context where students and teachers learn from one another, fostering greater research engagement (Jia et al., 2019).

In conclusion, the research underscores the critical role of effective teaching practices in enhancing student learning, research engagement, and professional development. Social Learning Theory, Constructivism, and Andragogy provide theoretical frameworks that support collaborative, inquiry-based, and student-centered approaches to teaching. Future research should explore how different instructional strategies impact diverse learner groups, ensuring inclusive, research-informed pedagogical practices that contribute to teacher effectiveness and student success.

The body of literature reviewed highlights the deep interconnection between teaching practices, research engagement, and student learning, all grounded in well-established educational theories such as Social

Learning Theory, Constructivism, and Andragogy. Bandura's emphasis on modeling and social context, Piaget's learner-centered constructivist view, and Knowles' adult learning principles collectively support the idea that effective teaching extends beyond content delivery; it requires active engagement, reflective practice, and collaborative learning environments.

Empirical studies, from Hattie's (2009) meta-analyses on visible learning to Cortes et al.'s (2020) findings on research competence, reinforce the importance of equipping teachers with both pedagogical skills and research capabilities. However, challenges such as time constraints, administrative burdens, and lack of institutional support remain significant barriers. While existing studies provide valuable insights, many stop short of offering practical strategies for addressing these obstacles and tailoring teaching to diverse learner needs. The proposed study seeks to bridge these gaps by investigating how research-informed, competency-based, and socially grounded instructional practices can be more effectively implemented. In doing so, it aims to contribute actionable recommendations that promote teacher growth, support inclusive education, and improve student outcomes across varied learning contexts.

Statement of the Problem

The purpose of the study was to determine the research teachers' exposure, competency in teaching research-related subjects, and teaching practices in senior high school. Specifically, the study sought to answer the following questions:

1. What is the teachers' level of research exposure?
2. What is the teachers' level of competence?
3. Is there a significant difference in the teachers' level of exposure when they are grouped according to their profile?
4. Is there a significant difference in the teachers' level of competence when they are grouped according to their profile?
5. What are the teachers' teaching practices in research-related subjects in senior high school?
6. How does the research exposure influence their teaching practices of research-related subjects in senior high school?
7. How does research competence influence their teaching practices of research-related subjects in senior high school?

Hypothesis

Ho1: There is no significant difference in the teachers' levels of exposure when they are grouped according to their profile.

Ho2: There is no significant difference in the teachers' levels of competence when they are grouped according to their profile.

Theoretical Framework

Constructivist Theory

This study is anchored on the Constructivist Theory developed by Piaget (1950). This theory posits that learners construct knowledge through experiences and interactions. Teachers with a high level of research exposure use more interactive and inquiry-based teaching methods, which can enrich the learning experience in research-related subjects. Teachers who engage in research are likely to encourage students to participate in hands-on research activities, fostering critical thinking and problem-solving skills.

Teachers with research exposure are more likely to apply evidence-based practices in their teaching. Constructivist Theory emphasizes hands-on, inquiry-based learning that encourages students to explore and construct their own understanding. Research-exposed teachers implement strategies that are supported by empirical studies, improving the effectiveness of their instruction. Exposure to diverse research methodologies helps teachers develop a responsive approach to instruction. They modify their teaching practices based on ongoing research findings related to student engagement and educational outcomes, aligning with constructivist principles (Shah, 2019).

The constructivism of Vygotsky (1978) hypothesizes that learners construct knowledge through active engagement. Teachers who are familiar with current research on active learning are better equipped to design lessons that involve hands-on experiences, collaborative projects, and real-life problem-solving. This aligns with the constructivist emphasis on learner participation in the learning process. Constructivist Theory fosters critical thinking and inquiry, according to Gholam (2019). Teachers who actively engage in research are more likely to present students with complex problems and foster independent inquiry. They can guide students in asking questions, formulating hypotheses, and seeking solutions—skills that are crucial in both academic and real-world settings.

This theory posits that knowledge is constructed through interaction with the environment and through personal experiences. This theory can be applied to understand how teachers develop their research competency through exposure to research activities. Constructivist principles suggest that teachers who engage in research are likely to construct meaning and enhance their teaching practices based on their findings and experiences (Olusegun, 2015).

Pedagogical Content Knowledge (PCK) Theory

The theory of Pedagogical Content Knowledge (PCK), introduced by Lee Shulman in 1986, serves as a foundational framework for understanding the research competencies of teachers. PCK asserts that effective teaching requires not only a strong grasp of the subject matter but also the ability to convey that knowledge in engaging and understandable ways for students. This theory emphasizes that teachers must integrate their research knowledge with their instructional strategies, making it particularly applicable for enhancing their teaching practices in research-related subjects. When teachers possess extensive research experience, they can draw on evidence-based practices that enable them to anticipate and address potential student misunderstandings, tailor their teaching for better engagement, and ultimately facilitate deeper comprehension of complex topics.

Moreover, Shulman's emphasis on reflective practice is crucial for developing teachers' research competencies. By engaging in systematic inquiry, teachers can actively assess their teaching methods and the impact of their strategies on student learning. Instead of relying solely on intuition, reflective practice encourages educators to utilize empirical evidence to inform their decisions and refine their instructional approaches. This continuous cycle of evaluation and adjustment not only boosts teachers' confidence in their teaching capabilities but also fosters a culture of ongoing improvement and professional growth within educational environments. Thus, PCK underscores the importance of linking research exposure to teaching effectiveness, as it enables teachers to enhance their pedagogical practices and better support student learning.

Darling-Hammond's adaptation of PCK further clarifies the necessity for teachers to integrate content knowledge with robust teaching strategies. According to her perspective, teachers who engage deeply with research are more equipped to apply evidence-based strategies effectively, which is critical for addressing the complexities of their subjects and anticipating student misconceptions. As her work suggests, teachers

with well-developed PCK are more likely to foster student engagement and improve learning outcomes. Therefore, the study's findings advocate for ongoing professional development that focuses on research methods and pedagogical practices. By prioritizing the professional growth of teachers and creating supportive educational systems, this approach aims to elevate teacher quality and enhance student achievement through the thoughtful application of PCK in the classroom. Ultimately, PCK not only highlights the importance of integrating research into teaching but also underscores the broader goal of fostering well-rounded educators who can effectively bridge the gap between content knowledge and student learning.

The study is anchored on both Constructivist Theory and Pedagogical Content Knowledge (PCK), creating a comprehensive framework for understanding how teachers' research competencies can enhance their teaching practices. Constructivist Theory, developed by Piaget and later expanded by Vygotsky, posits that learners construct knowledge through active engagement and interactions with their environment. This principle emphasizes that teachers who are actively involved in research are more likely to implement inquiry-based and hands-on learning experiences, which foster critical thinking and problem-solving skills among students. By encouraging students to engage in research activities, teachers not only enhance the learning experience but also help students develop essential skills for both academic and real-world challenges.

On the other hand, PCK theory, introduced by Lee Shulman, emphasizes the necessity for teachers to combine their content knowledge with effective instructional strategies. Teachers with extensive research exposure can leverage evidence-based practices to improve their teaching effectiveness, allowing them to anticipate student misconceptions and tailor their instructional methods accordingly. Shulman's focus on reflective practice aligns with the constructivist approach, as it encourages teachers to continuously assess and refine their teaching strategies based on empirical evidence. This integration of research findings into pedagogical practices not only enhances teachers' confidence but also fosters a culture of continuous improvement, ultimately leading to better student engagement and learning outcomes.

The synthesis of Constructivist Theory and PCK highlights the critical impact of teachers' research competencies on their instructional practices. By engaging in research, teachers can construct meaningful knowledge that informs their teaching methods, leading to more effective and responsive instruction. The study advocates for ongoing professional development that emphasizes research methodologies and pedagogical strategies, which can empower teachers to create supportive learning environments. This dual theoretical framework underscores the importance of integrating research into teaching practices, aiming to improve teacher quality and elevate student achievement through enhanced engagement and understanding of research-related subjects.

Conceptual Framework

This study presents the teachers' level of research exposure and competence and its influence on the teaching practices of research-related subjects among senior high school teachers from the four school districts.

Figure 1

The Conceptual Framework of the Study

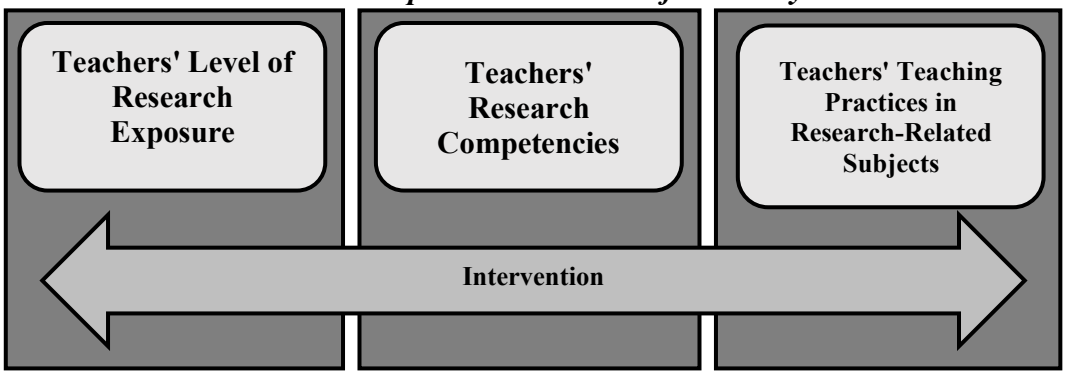

Figure 1 shows the relationship between the variables and the theories used in this study. The conceptual framework of this study is built around three key variables: Teachers' Level of Research Exposure, Teachers' Research Competencies, and Teachers' Teaching Practices in Research-Related Subjects. These variables are interconnected, demonstrating how teachers' engagement with research influences their abilities in the classroom and, ultimately, how effectively they can teach research-related subjects. This framework lays the groundwork for understanding how enhancing teachers' exposure to research can lead to improved teaching methodologies and better student outcomes.

Teachers' Level of Research Exposure is the initial variable in this framework, representing the extent to which educators participate in research activities. This exposure includes attending professional development workshops, participating in academic conferences, engaging with scholarly literature, and being involved in collaborative research projects. High levels of research exposure equip teachers with current knowledge about pedagogical strategies, educational trends, and empirical findings. As teachers become more engaged with research, they are better positioned to incorporate contemporary practices and methodologies into their instruction, which is vital for teaching complex subjects.

The next variable, Teachers' Research Competencies, refers to the skills and abilities teachers develop through their exposure to research. This encompasses their capacity to critically evaluate research studies, implement evidence-based practices, and engage in reflective teaching. Teachers with strong research competencies are able to translate research findings into relevant classroom strategies. They understand how to design inquiry-based learning experiences and can effectively assess the impact of different teaching methods on student learning. The relationship between research exposure and competencies is crucial; as teachers gain more exposure to research, their competencies grow, deepening their understanding of how to apply this knowledge in practice.

Moving from competencies to action, the third variable, Teachers' Teaching Practices in Research-Related Subjects, is influenced by the previous two variables. Effective teaching practices emerge when teachers leverage their research knowledge and skills in delivering content. This includes employing instructional strategies that encourage active learning, inquiry-based approaches, and hands-on experiences, which are essential for engaging students in research-related topics. Teachers who are well-prepared and knowledgeable can foster a dynamic learning environment that promotes critical thinking, problem-solving, and collaboration among students. Thus, there is a direct relationship between the competencies acquired through research exposure and the effectiveness of teachers' instructional practices.

The study's framework also highlights the importance of intervention strategies aimed at enhancing these variables. For instance, targeted professional development programs that focus specifically on current research methodologies and effective pedagogical practices can significantly boost teachers' level of research exposure. Mentorship programs, where experienced researchers guide less experienced teachers, can provide personalized support and enhance teachers' competencies. Additionally, encouraging collaborative research initiatives among teachers can stimulate engagement with research and foster a community of practice that supports continual learning and improvement.

By implementing these intervention strategies, the study aims not only to elevate the teachers' level of research exposure but also to strengthen their research competencies and enhance their teaching practices. This comprehensive approach ultimately targets improved student learning outcomes in research-related subjects. When teachers are well-equipped with both research knowledge and practical skills, they are more adept at creating engaging learning experiences that promote student success. The conceptual framework thus establishes a clear pathway from research exposure to effective teaching practices, underscoring the necessity of continuous professional development and collaboration to foster excellence in educational instruction.

In summary, the conceptual framework of this study articulates a clear relationship between Teachers' Level of Research Exposure, Teachers' Research Competencies, and Teachers' Teaching Practices in Research-Related Subjects. By understanding and enhancing these variables through strategic interventions, the study seeks to improve instructional quality and student outcomes in the context of research education. This framework highlights the critical role of active engagement with research in developing effective teaching practices, ultimately contributing to a more informed, capable, and effective teaching workforce.

Significance of the Study

This study highlights the importance of enhancing teachers' research exposure and competence in the context of senior high school education. As research-related subjects are crucial in shaping students' academic development, the findings of this study have implications for various stakeholders in the educational system. By understanding the current state of teachers' research capabilities, this research can inform policies and strategies that aim to improve teaching quality, support professional development, and ultimately contribute to students' learning outcomes. This study is beneficial to the following:

Department of Education Officials

This research serves as a basis for the Department of Education in the development or modification of policies and plans for senior high school teachers' professional development programs. The information acquired from this study can help in the implementation of aligned and targeted training, aligning with the goal of the senior high school curriculum. Through this study, the educational research standard across the board in the educational system can be improved.

School Heads

The results of this research can offer school heads a better grasp of both the teachers' exposure and research competency in teaching research-related subjects in senior high school. Educated strategic judgment was elicited from the study's conclusion, specifically regarding teachers' professional

development. In other words, this research can help develop a favorable environment for teaching research to senior high school students and reinforce a culture of ongoing improvements.

Teachers

The teachers personally and professionally can benefit from this study. They can use the results to reflect on their respective research exposure and research competency in teaching research-related subjects in senior high school. They can use the present study for their professional needs, which can make them more flexible and suitable to teach the subject. At the same time, they can use the study to improve their skills in strengthening the research skills they need to acquire or perform better in class. Furthermore, the collective improvement in teachers' competency can improve the quality of teaching research in the classroom.

Students

The increased familiarity of teachers with the technical know-how of research and their first-hand experience in conducting research is manifested in students' learning. In a deeper sense, this research is an invitation to teachers to have a more engaging, active, and effective teaching of research-related subjects in senior high school, which can strengthen students' knowledge, skills, and attitudes during their research journey, thus allowing a new breed of students who can become well-inclined toward research and produce quality studies that are important to them and are relevant to senior high school.

Other Researchers

This study holds significant importance in the field of English education, particularly in the teaching of research skills. As an English teacher pursuing a Master of Arts in English, the findings provide valuable insights into refining research instruction techniques, enabling more effective teaching of research methods to senior high school students and beyond. By exploring strategies that foster students' research competence, this study can be employed to enhance English research curricula and pedagogical approaches. Moreover, it lays the groundwork for future studies aimed at improving research instruction and fostering critical thinking skills, ultimately advancing the quality of education in English and related disciplines.

Field of Writing and English Education

In addition to benefiting the broader educational community, this study can contribute to the field of English education, particularly in writing and research instruction. Researching, which is all about writings skills is a good practice to employ if English teachers want to see the overall application of English knowledge gained applied into writing. This present study, therefore, can be tapped to enhance research instruction techniques, focusing on the integration of writing skills with research competence. By improving research teaching practices, this study supports the development of students' writing abilities, which are essential in academic and professional writing. The findings inform better pedagogical strategies for teaching research writing for the overall quality of research instruction in the context of English education.

Scope and Limitations

This research examined teachers' research exposure, competence, and their perceived influence on teach-

ing practices in research-related subjects in senior high school. It specifically looked into how teachers engaged in various research activities, such as conducting studies, presenting and publishing papers, and attending research-related training, and how these experiences shaped the way they taught Practical Research 1, Practical Research 2, and Inquiries, Investigations, and Immersion.

The study was conducted during the first semester of school year 2024–2025, beginning in January 2025. It focused on four school districts in Zamboanga City: Ayala, Baliwasan, Sta. Maria, and Labuan. One or two schools were purposively selected from each district, and all teachers handling the identified research-related subjects participated in the quantitative phase through total enumeration sampling. In total, 65 teachers were included in the study.

Originally, the qualitative phase was designed to include in-person interviews and classroom observations involving one teacher from each participating school. However, due to logistical constraints and the participants' preference for a more flexible setup, the study instead utilized open-ended, semi-structured written questionnaires. This adjustment allowed teachers to respond more comfortably and reflectively, which yielded thoughtful and detailed qualitative responses.

Data collection took place between the last week of February and March 7, 2024. During this period, survey forms were distributed and collected for the quantitative component, while written responses were gathered for the qualitative aspect.

The study was limited to the senior high school level and focused solely on three research-related subjects. As with many self-reported studies, there were limitations. One was the potential for response bias, as participants may have rated their competence or described their experiences based on personal perceptions or social expectations. Another limitation involved the relatively small number of research teachers in each school, which required the use of total enumeration to ensure representation.

Additionally, the qualitative themes identified through open-ended responses were not reviewed by independent coders. The thematic analysis was conducted solely by the researcher. While every effort was made to interpret responses accurately and thoughtfully, the lack of interrater validation may have introduced subjectivity into how the themes were formed and analyzed

Despite these limitations, the study provided meaningful insights into how teachers' experiences with research influenced their teaching practices. The findings may serve as a foundation for improving support programs and training for educators who handle research instruction in the senior high school level.

Definition of Terms

The following are key terms that are operationally defined to ensure consistency and clarity on their meanings within the context of the research.

Field of Specialization – This refers to the subject area in which a teacher has focused their academic and professional experience, such as English, Science, Math, or any related discipline. It is identified through the teacher's educational background and their teaching experience.

Highest Educational Attainment – This pertains to the highest level of formal education a teacher has completed, whether a bachelor's degree, master's, or doctorate, as supported by academic records or credentials.

Number of Years Teaching Practical Research or Other Research Subjects – This indicates how long a teacher has been handling subjects that focus on research processes, such as Practical Research 1 and 2, Social Science Research, or Applied Research, usually counted in years.

Position – This describes the official role a teacher holds within the school, such as a classroom teacher, subject coordinator, department head, or research adviser, based on their job title at the time of the study.
Research-Related Subjects in Senior High School – These are the courses offered in senior high school that are focused on teaching students how to conduct research. Examples include Practical Research, Inquiry, and specialized discipline-based research subjects that aim to build students' critical thinking, inquiry, and analytical skills.
Teachers' Level of Research Exposure – This refers to how much a teacher has been involved in actual research activities. It includes things like conducting studies, joining research presentations or conferences, publishing papers, or engaging in research-related discussions with other educators. Their level of exposure was assessed using a self-rating tool and interpreted using the following scale:

- 4.21–5.00 = High exposure
- 3.41–4.20 = Moderately high exposure
- 2.61–3.40 = Average exposure
- 1.81–2.60 = Low exposure
- 1.00–1.80 = No exposure

Teachers' Research Competence – This captures how confident and skilled teachers feel when it comes to doing research. It includes their ability to design a research study, choose the right method, collect and interpret data, and apply research results to improve their teaching. This was also measured through a self-assessment and interpreted using the scale below:

- 4.21–5.00 = High – extensive experience in research
- 3.41–4.20 = Moderately high – good experience
- 2.61–3.40 = Average – some experience
- 1.81–2.60 = Low – little experience
- 1.00–1.80 = None – no experience

Teachers' Teaching Practices – This term refers to the everyday strategies and methods teachers use when teaching research-related subjects. It covers how they plan lessons, engage students, incorporate research concepts into discussions, and assess student learning. These practices were explored through classroom observations and interviews.

CHAPTER II
Methodology
Research Design

This study employed an Embedded Research Design, a type of mixed-method approach that integrates both quantitative and qualitative data collection within a single study. In this design, qualitative data is embedded within the primarily quantitative framework to provide a more comprehensive and holistic understanding of the research topic. This approach was considered well-suited for the present study, as it aimed to determine senior high school research teachers' levels of research exposure, their research competency, and how these influence their teaching practices in research-related subjects.
As Creswell (2018) explains, an embedded design typically emphasizes quantitative data as the primary source of information. This numerical data, often gathered through structured tools such as surveys, questionnaires, and assessments, is used to identify trends, patterns, and relationships. In this study, these quantitative tools provided measurable insights into teachers' exposure and competencies.

Alongside the quantitative component, qualitative data were also collected—often through open-ended survey responses, interviews, or observations. This qualitative aspect offered deeper context and richer descriptions that complemented the statistical findings, allowing the researcher to explore the "why" behind the numbers.

By integrating both types of data, the embedded design allowed for triangulation, enhancing the credibility of the findings and offering a more layered understanding of the research topic. This combination enabled the study to approach the research questions from multiple angles, resulting in a more thorough and well-rounded analysis. Overall, the embedded research design offered a balanced methodology that leveraged the strengths of both quantitative and qualitative approaches to better capture the complexities involved in teaching research in the senior high school context.

Participants and Sampling Technique

The participants of this study were teachers who had previously taught or were currently teaching research-related subjects in senior high school. Specifically, the study targeted research teachers from selected public schools within four districts in Zamboanga City: Baliwasan, Ayala, Labuan, and Sta. Maria. These schools were chosen as part of a purposive sampling approach aimed at selecting individuals who could provide meaningful insights into the research objectives.

To determine the sample for the quantitative phase, the study employed cluster sampling. This technique was chosen for its efficiency and practicality, particularly in the context of geographically dispersed school populations. Cluster sampling allowed the researcher to group participants by school districts and randomly select clusters for participation, thereby reducing logistical demands and travel costs while still ensuring a diverse and representative sample. According to Thomas (2020), cluster sampling involves dividing the population into pre-existing clusters and then randomly selecting entire clusters for inclusion in the study. This method is particularly useful in educational research, where accessing every individual may not be feasible.

The use of cluster sampling was advantageous in several ways. First, it made the research process more cost-effective and manageable by focusing on a limited number of school districts rather than surveying all ten public senior high schools in the Zamboanga City Division. Second, it enabled the researcher to work within the structure of existing schools, thereby increasing the likelihood of cooperation and higher response rates, as teachers were more likely to participate when surrounded by familiar peers. Finally, it allowed the research to proceed smoothly while prioritizing important considerations such as geographical distance, safety, and security, ensuring the well-being of both the researcher and participants during fieldwork.

Although the study did not cover all senior high schools in the division, the selected schools offered a broad range of perspectives that enriched the research findings. By narrowing the focus to four strategically chosen districts, the researcher was able to conduct a more in-depth investigation while still capturing a significant cross-section of the teaching population involved in research instruction.

For the qualitative phase, specifically the interviews, the study utilized purposive sampling. This method allowed the researcher to intentionally select participants who had specific characteristics relevant to the study, namely, those with experience teaching research subjects. As Creswell (2014) emphasizes, purposive sampling involves the deliberate selection of individuals who are believed to provide valuable insight into the research questions. This approach proved particularly useful in qualitative research, where

the goal is not to generalize findings to a large population but to gain a deeper understanding of complex issues.

By selecting participants based on their direct experience and involvement in teaching research-related subjects, the study was able to gather rich, detailed data that might not have emerged through random sampling. The insights shared by these carefully chosen individuals contributed significantly to the overall findings, offering context, depth, and real-world examples of the challenges and successes encountered in research instruction.

In sum, the combination of cluster sampling for quantitative data and purposive sampling for qualitative interviews enhanced both the feasibility and depth of this study. These methods allowed the researcher to explore the topic from multiple angles while ensuring that the voices of experienced research teachers were meaningfully represented.

Below is the table for the research participants who participated in the study and what kinds of data collection strategies were used.

Table 1

Distribution of Research Participants

Cluster	N	n (Survey)	n (Interview)	n (Observation)
A	30	30	1	1
B	15	15	1	1
C	10	10	1	1
D	10	10	1	1
TOTAL	**65**	**65**	**4**	**4**

The participants of this study were teachers who had previously taught or were currently teaching research-related subjects in senior high school. Specifically, the study focused on research teachers from selected public schools located in four districts of Zamboanga City: Baliwasan, Ayala, Labuan, and Sta. Maria. These schools were carefully chosen through purposive sampling to ensure the inclusion of participants who could offer valuable and relevant insights aligned with the study's objectives.

For the quantitative phase, the study adopted a cluster sampling technique. This method was selected for its practicality and cost-effectiveness, especially considering the wide geographic distribution of the target population. Through this approach, participants were grouped by school districts, forming clusters from which samples were randomly selected. This allowed the researcher to reduce both time and logistical costs while still reaching a diverse and representative sample. As explained by Thomas (2020), cluster sampling involves dividing a population into existing groups or clusters and then randomly choosing among them to represent the entire population. This approach is particularly useful in educational settings where surveying every individual is impractical.

Several advantages emerged from using this technique. First, it enabled a more efficient use of time and resources by narrowing the research focus to a manageable number of districts, rather than attempting to survey all ten public senior high schools in Zamboanga City. Second, working within existing school structures improved the likelihood of cooperation and higher response rates, as participants were more comfortable engaging with the research in familiar environments. Third, the approach took into account

logistical realities, such as distance, safety, and security, ensuring a smoother data collection process for both the researcher and the participants.

While the study did not include all senior high schools in the city, the selected schools offered a diverse range of perspectives that significantly enriched the findings. By strategically narrowing the scope to four districts, the researcher was able to conduct a focused, in-depth investigation while still capturing a meaningful cross-section of the research-teaching population.

For the qualitative phase, particularly the interviews, the study utilized purposive sampling. This method enabled the researcher to intentionally select participants who possessed the specific experiences and characteristics necessary to address the research questions, namely, teachers who had direct involvement in teaching research-related subjects. Creswell (2014) emphasizes that purposive sampling involves the deliberate selection of individuals based on their potential to provide insightful, relevant data. This approach is especially valuable in qualitative research, where the goal is to obtain a deeper, more nuanced understanding of a phenomenon rather than to generalize findings.

By focusing on individuals with firsthand experience, the researcher was able to collect rich and meaningful qualitative data. These insights added depth and context to the study, offering real-world perspectives on both the challenges and effective practices associated with teaching research. The intentional selection of knowledgeable participants helped ensure that the data reflected authentic classroom experiences.

In summary, the combined use of cluster sampling for the quantitative component and purposive sampling for the qualitative interviews enhanced both the feasibility and the depth of this study. These complementary methods enabled the researcher to explore the research topic from multiple dimensions, while ensuring that the perspectives of experienced research teachers were thoroughly represented and meaningfully analyzed.

Research Instrument

This study used a self-constructed research instrument specifically designed to assess teachers' research exposure, competencies, and teaching practices in the context of senior high school research-related subjects. The instrument was composed of five parts, each carefully crafted to address the key components of the research inquiry. (see Appendix G)

The first part, Personal Information, collected demographic and professional background details from the Participants. These included their current teaching position, years of experience in handling research subjects, highest educational attainment, field of specialization, specific research subjects taught, and the grade levels they were assigned to. This section provided essential context for analyzing the Participants' experiences and teaching practices in relation to their research exposure.

The second part, Teachers' Research Exposure, measured the extent of teachers' participation in various research-related activities. It consisted of 16 items, rated on a five-point Likert scale ranging from "High Level of Exposure" (indicating extensive experience in a given skill area) to "No Exposure" (indicating no experience). This section captures teachers' engagement in conducting research, presenting findings in conferences, participating in training seminars, and publishing research outputs. It also looked into the different levels of participation, national, regional, and international, that provide a clear picture of their involvement in the broader research community.

The third part, Teachers' Research Competency, assessed the teachers' self-reported proficiency across key components of the research process. This section included 50 statements rated on the same five-point

Likert scale, covering five main areas: writing the research introduction, conducting a review of related literature, developing the research methodology, analyzing and interpreting data, and writing conclusions and recommendations. The goal of this section was to gauge how competent teachers were in supporting students through each phase of the research process and in producing quality scholarly outputs.

The fourth part, Class Observation, focused on the actual teaching practices of selected research teachers. A one-time observation was conducted with four teachers, one from each participating district: Ayala, Baliwasan, Sta. Maria, and Labuan. The observation examined how these teachers delivered research-related content, the instructional strategies they used, and how they engaged students in research-based learning. Importantly, the observation was non-evaluative and aimed solely at documenting how research concepts were integrated into classroom instruction. The observation framework was based on the Performance Management and Evaluation System (PMES) for Teachers developed by the Department of Education.

The fifth and final part of the instrument was an open-ended research questionnaire, originally designed for face-to-face interviews but later adapted into a written format upon the request of participating teachers. This section explored their personal insights regarding the influence of their research exposure and competencies on their teaching practices. Divided into two main areas, the first focused on how research exposure shaped their instructional planning and classroom activities, while the second explored how their research skills helped them adjust and innovate their teaching strategies. This part provided rich qualitative data that helped uncover the deeper connection between teachers' research experiences and their effectiveness in delivering research instruction.

Overall, the design of this self-constructed instrument allowed for both breadth and depth in data collection. By combining structured, scaled responses with open-ended reflections and classroom observations, the study was able to capture a well-rounded and detailed understanding of the research competencies and teaching practices of senior high school teachers.

Reliability and Validity of the Research Instrument

To ensure the quality and credibility of the research instrument, the self-constructed survey questionnaire was submitted to a panel of three expert validators. These individuals were carefully selected based on their strong academic and professional backgrounds in education, research, and curriculum design. Each validator holds a graduate degree and has significant experience in educational measurement, making them highly qualified to assess the content of the instrument. Their task was to evaluate each item for its relevance, appropriateness, and alignment with the study's objectives.

Each validator was provided with a validation form, where they indicated their level of agreement with every item and offered written feedback and suggestions for improvement. The researcher carefully reviewed all comments and incorporated the validators' recommendations to enhance the overall clarity, focus, and accuracy of the questionnaire. Following these revisions, the Content Validity Index (CVI) was computed to confirm that each item met the necessary standards for content validity.

To assess the reliability of the instrument, a pilot test was conducted involving 30 teachers who were not included in the main study. This process was essential for determining how consistently the questionnaire measured the intended variables. The internal consistency of the instrument was calculated using Cronbach's Alpha, which resulted in a reliability score of .966. This exceptionally high score indicated excellent reliability, confirming that the instrument consistently captured the constructs it was designed to assess.

For the qualitative component, participants were selected through purposive sampling, guided by Creswell's (2014) recommendation to intentionally choose individuals who could offer meaningful insights into the research problem. Participants were chosen based on their background in teaching research-related subjects, ensuring the relevance and richness of the data collected.

While the thematic analysis was solely conducted by the researcher, it is recommended that future studies involve interrater reliability to strengthen the credibility of qualitative findings. Ideal interraters would be those with expertise in qualitative research, familiarity with thematic analysis techniques, and impartiality regarding the research topic. Incorporating multiple coders can reduce potential bias and improve the trustworthiness and accuracy of data interpretation.

In analyzing the qualitative data, the researcher applied consistent transcription procedures, including verbatim transcription of responses and notation of non-verbal cues when applicable. Responses were systematically organized and categorized into themes. These practices contributed to a transparent and rigorous analysis process, enhancing the validity, reliability, and replicability of the research findings.

Data Gathering Procedure

Data collection began following the official approval of the research proposal. The researcher first obtained authorization from the Schools Division Superintendent through an endorsement letter that granted permission to conduct the study in selected senior high schools within four districts. After receiving this approval, the researcher presented the formal permission letter to the respective District Supervisors and school principals to facilitate access to teacher-participants.

To ensure ethical research conduct, teachers were oriented regarding the study's purpose, procedures, and their role as participants. Informed consent forms were distributed, outlining the voluntary nature of their participation and assuring confidentiality of their responses. Participants were given ample time to review and sign the consent forms. They were then provided with a structured survey questionnaire, consisting of three sections, all of which were thoroughly explained by the researcher to ensure clarity. Participants were allotted approximately one hour to complete the survey.

The quantitative data collection was carried out using a self-constructed survey instrument designed to gather information on teachers' research exposure, teaching practices, and demographic background. The structured format of the survey ensured that the data collected could be analyzed statistically.

For the qualitative component, the researcher initially planned to conduct semi-structured interviews to explore how research exposure influenced teachers' competencies and instructional practices. However, due to time constraints expressed by several participants, the interviews were converted into open-ended questionnaires. This alternative allowed Participant to provide thoughtful responses at their own pace, without disrupting their teaching schedules. The questionnaire was guided by ten open-ended questions that explored key themes relevant to the study.

Additionally, to assess how teachers applied their research competencies in classroom settings, the researcher conducted class observations using the Classroom Observation Tool – Performance Management and Evaluation System (COT-PMES). This tool helped evaluate various aspects of teaching performance, including the integration of research-related activities, student engagement, and overall instructional effectiveness in delivering research content.

Once data collection was completed, the researcher tabulated the quantitative responses for statistical treatment. The qualitative responses were subjected to thematic analysis, and the findings from both sets of data were carefully analyzed, interpreted, and discussed in alignment with the study's objectives.

Transcription Process

The qualitative data collected from open-ended questionnaires, which were originally designed as interviews but later modified due to time constraints, were analyzed using Braun and Clarke's (2006) thematic analysis framework. This approach allowed the researcher to identify and interpret recurring patterns and meaningful insights directly from participants' written responses. The six phases of thematic analysis were applied as follows:

1. Familiarization with the Data – The researcher read through all responses multiple times to gain a deep understanding of the content and begin noting potential patterns or significant ideas.
2. Generating Initial Codes – Open coding was used to organize responses into meaningful segments. These initial codes captured important features relevant to the research questions.
3. Searching for Themes – Related codes were grouped together using axial coding, forming broader categories that reflected common ideas or trends across participants' responses.
4. Reviewing and Refining Themes – The researcher examined and refined the initial themes to ensure clarity, coherence, and alignment with the objectives of the study.
5. Defining and Naming Themes – Each theme was carefully defined and given a concise, descriptive name that captured its essence and relevance to the research focus.
6. Writing the Report – The final analysis was presented with direct excerpts from participants' written responses to support and illustrate each theme, adding depth and authenticity to the findings.

The results from this thematic analysis provided deeper insights into teachers' research exposure, competencies, and how these factors influenced their classroom practices. When paired with the statistical findings from the quantitative phase, the qualitative data contributed to a more well-rounded and comprehensive understanding of research competence among senior high school teachers.

In addition to the survey and open-ended responses, the researcher requested class observation reports from school heads to further evaluate the actual teaching practices related to research instruction. The Classroom Observation Tool – Performance Management and Evaluation System (COT-PMES) was used to assess instructional strategies, assessment methods, and the level of student engagement in research-based activities. These reports served as supplementary data, providing practical insights into how teachers integrate research concepts into their day-to-day teaching practices.

Thematic Analysis

The qualitative data obtained from interviews were analyzed using Braun and Clarke's (2006) thematic analysis framework. The processes involved the following:

1. **Familiarization with the Data** – The researcher repeatedly read through transcripts to identify initial patterns.
2. **Generating Initial Codes** – Open coding was applied, categorizing data into meaningful units.
3. **Searching for Themes** – Related codes were grouped into broader themes using axial coding.
4. **Reviewing and Refining Themes** – Themes were refined to ensure consistency and alignment with the research questions.
5. **Defining and Naming Themes** – Clear descriptions were developed for each theme.
6. **Writing the Report** – The results were presented with direct quotations from participants to support thematic interpretations.

The findings from the thematic analysis provided deeper insights into teachers' research experiences and their impact on teaching methodologies. The combination of statistical analysis and qualitative coding

allowed for a comprehensive understanding of research competency among senior high school teachers.

Ethical Consideration

The researcher strictly adhered to ethical research protocols as outlined by Smith (2003), which emphasize that individuals must be allowed to make their own informed decision regarding participation in a study. This principle was implemented through a clear and thorough informed consent process. Participants were explicitly informed about the study's purpose, procedures, potential risks and benefits, and available alternatives. They were also given the opportunity to assess how this information related to their personal or professional interests before deciding whether to participate.

Participation in the study was entirely voluntary. Participants were informed that they could withdraw at any time without facing any form of penalty or consequence. Additionally, they were notified that any new information that might arise during the course of the study, especially if it could alter the perceived risks or benefits, would be disclosed to them promptly, allowing them to re-evaluate their participation if necessary.

At the beginning of the data collection process, the informed consent form was clearly explained to all participants. Those who agreed to participate were asked to sign the form as a confirmation of their understanding and voluntary consent.

Elaboration and Implementation of the Informed Consent

Conflict of Interest

The researcher recognized the importance of addressing any potential conflict of interest, which refers to situations where personal or professional relationships may affect the impartiality of the research. Any such potential conflicts, such as prior connections with participants or personal biases related to the topic, were disclosed. Measures were taken to manage and minimize these influences to preserve the integrity and objectivity of the research process and its findings.

Anonymity

To safeguard participants' anonymity, no names or personally identifying information were linked to their responses or included in the final report. Participants were given the option to use pseudonyms or assigned codes to further ensure their privacy. Any direct quotations or qualitative data presented in the study were reported in a way that would not compromise the identity of the individuals involved.

By upholding these ethical standards, the researcher ensured that the study was conducted in accordance with the principles of respect, beneficence, justice, and integrity. These efforts helped protect the rights and well-being of participants while maintaining the credibility, reliability, and validity of the research findings.

Data Analysis

To facilitate the analysis of data, the following statistical measures were used:

Weighted Mean. This was used to determine the research teachers' level of exposure and the teachers' teaching practices in relation to research-related subjects in senior high school.

Mean/Average. This was used to determine the Teachers' Research Competence based on the result of the Classroom Observation Tool.

One-way ANOVA. This measure was used to determine whether there is a significant difference in the research teachers' level of exposure when they are grouped according to position, number of years

teaching practical research or other research subjects, highest educational attainment, and field of specialization.

CHAPTER III

Results and Discussions

This chapter presents the results and discusses the data gathered based on the research problems and hypotheses posited in this study. The data are presented in the order arranged according to the problem statements in an attempt to answer them accordingly.

Research Question 1. The Teachers' Level of Research Exposure

Table 2

The Teachers' Level of Research Exposure

Statement **Research Exposure**	**Mean**	**Description**	**Interpretation**	**Rank**
1. I attended an international research congress.	1.79	No Level of Exposure	No Exposure in the Skill Area	13
2. I presented my findings at a national research conference.	1.75	No Level of Exposure	No Exposure in the Skill Area	16
3. I participated in regional seminars/workshops focused on educational innovation.	2.29	Low Level of Exposure	Little Exposure in Skill Area	3
4. I presented in international research conference and shared it with my peers.	1.76	No Level of Exposure	No Exposure in the Skill Area	15
5. I attended a national workshop on qualitative research methods.	1.85	Low Level of Exposure	Little Exposure in Skill Area	12
6. I learned about emerging research trends during my attendance at the national congress.	2.06	Low Level of Exposure	Little Exposure in Skill Area	7
7. I received valuable feedback on my research from attendees at the national conference.	1.89	Low Level of Exposure	Little Exposure in Skill Area	11
8. I attended several presentations from leading experts at the national research event.	2.12	Low Level of Exposure	Little Exposure in Skill Area	5
9. I have participated in multiple regional conferences in my field over the past few years.	1.97	Low Level of Exposure	Little Exposure in Skill Area	9
10. My research was showcased at an international forum dedicated to educational practices.	1.77	No Level of Exposure	No Exposure in the Skill Area	14
11. I attended a regional congress that highlighted local educational initiatives.	2.08	Low Level of Exposure	Little Exposure in Skill Area	6
12. I observed cutting-edge research presentations at the National/international conference.	2.05	Low Level of Exposure	Little Exposure in Skill Area	8
13. I attended workshops at a regional conference aimed at improving research skills.	2.30	Low Level of Exposure	Little Exposure in Skill Area	2

14. I collaborated with colleagues on a presentation for a national research symposium.	1.91	Low Level of Exposure	Little Exposure in Skill Area	10
15. I was inspired by a key note speaker in an international congress and it has prompted me to work on a significant research topic.	2.18	Low Level of Exposure	Little Exposure in Skill Area	4
16. I have gained insights from various research presentations at both national and regional levels.	2.59	Low Level of Exposure	Little Exposure in Skill Area	1
Overall Mean	**1.92**	**Low Level of Exposure**	**Little Exposure in Skill Area**	

Legend: 4.21 -5.00 = High level of competency – extensive experience in the skill area
3.41 – 4.20 = Moderately high level of competency – good experience in the skill area
2.61 – 3.40 = Average level of competency – some experience in the skill area
1.81 – 2.60 = Low level of competency – little experience in the skill area
1.00 – 1.80 = No level of competency – no experience in the skill area

The findings in Table 2 revealed that teachers had an overall low level of research exposure (M = 1.92), interpreted as little experience in the skill area. Notably, the highest-rated item, *"I have gained insights from various research presentations at both national and regional levels,"* received a mean score of 2.59, indicating some familiarity with research concepts through passive engagement. However, such exposure rarely resulted in meaningful participation or practical application.

As Abinan (2021) emphasized, attending research events alone does not cultivate a research-oriented mindset. This was echoed in the qualitative accounts.

One teacher shared,

"Since I have no formal research exposure aside from my undergraduate thesis, my teaching approach is largely based on self-study, instructional materials, and structured lesson guides."

Participant 1 suggests that while surface-level awareness exists, deeper professional development opportunities are lacking.

The lowest-rated indicator, *"I presented my findings at a national research conference,"* had a mean score of just 1.75, showing that opportunities to present and engage in academic discourse are minimal. Teachers seem to lack not only the platforms but also the confidence or competence to engage in such scholarly activities.

Participant 4 stated,

"Since I do not have much research exposure aside from my undergraduate thesis, teaching research has been quite challenging for me. I often feel anxious because I am not very proficient in writing, and this affects my confidence in teaching research-related subjects."

This sentiment is supported by Knott et al. (2020), who argue that presenting research builds confidence and nurtures a shared professional identity.

Further, limited participation in skill-enhancement programs was evident. The statement *"I participated in regional seminars/workshops focused on educational innovation"* received a mean of 2.29.

Teachers who did attempt to compensate for the lack of formal exposure often leaned on peer collaboration or informal learning.

"I focus on simplifying lessons and using step-by-step strategies… I also rely on collaboration with more experienced colleagues and continuously seek learning opportunities to improve my ability to teach research effectively" (Participant 1).

This finding aligns with Mydin et al.'s idea (2021), who emphasized that practical, relevant workshops, rather than purely academic ones, are essential for teachers to develop usable research skills.

Despite low exposure, the earlier portion of the study reported that teachers rated themselves as having average teaching competence, indicating a potential gap between perceived instructional ability and actual research-informed pedagogy.

Participant 2, who had high levels of exposure, shared:

"My extensive research exposure has significantly shaped the way I teach research-related subjects… I ensure that my teaching is grounded in real-world applications."

Meanwhile, others acknowledged limitations in their competence but showed awareness of their effects on instruction.

As Participant 3 explained,

"Since most of my research experience comes from working with a team… I make an effort to consult other research experts and refer to additional sources. This makes me more cautious in my teaching."

These accounts illustrate the disparity between experience levels and how teachers adapt their strategies depending on their exposure and confidence.

From a theoretical perspective, Constructivist Theory becomes evident as teachers construct knowledge through personal and contextual experiences. Teachers with limited formal exposure, such as Participants 1 and 4, demonstrate how prior experience, collaboration, and reflective practice serve as scaffolds in learning how to teach research. Simultaneously, Pedagogical Content Knowledge (PCK) Theory is reflected in how more experienced teachers like Participant 2 integrate content, context, and pedagogy to adapt instruction and support colleagues. These insights reinforce that competence is not solely derived from formal exposure, but also from how well teachers can transform research knowledge into instructional practice.

Collectively, these findings reveal a pattern of low participation in authentic research practices among teachers, despite their stated competence in teaching. Teachers are listening to research but not engaging with it. As Fisk (2022) reminds us, data must be acted upon to have an impact. This underscores a missed opportunity: the potential of research to enhance teaching remains untapped unless institutions support structured engagement. As Cua et al. (2021) observed, while limited research exposure may not immediately harm student outcomes, it may inhibit long-term growth and innovation. To close this gap, schools must foster a culture where research is not merely attended to, but integrated, practiced, and shared. These insights call for workload adjustments, mentoring systems, and accessible professional development so that educators can evolve from being informed to being empowered.

Research Question 2. Teachers' Level of Competence

Table 3

The Teachers' Level of Competence in Terms of Writing the Introduction

Statement A. Competencies in writing the Introduction	Mean	Description	Interpretation	Rank

1. I can write a research title that reflects my study's focus.	2.89	*Average level of competency*	*Some experience in the skill area*	3
2. I can articulate the background of the study in simple terms.	2.87	*Average level of competency*	*Some experience in the skill area*	4
3. I can identify and describe the main problems my research addresses.	2.83	*Average level of competency*	*Some experience in the skill area*	6.5
4. I can explain to others the importance of my study	2.97	*Average level of competency*	*Some experience in the skill area*	2
5. I can specify the coverage of my study	2.85	*Average level of competency*	*Some experience in the skill area*	5
6. I know how to establish clear boundaries for my research topic.	2.76	*Average level of competency*	*Some experience in the skill area*	10
7. I can provide an adequate explanation of the importance of my study's background information.	2.80	*Average level of competency*	*Some experience in the skill area*	8
8. I can concisely write a statement highlighting the importance of my study's context.	2.77	*Average level of competency*	*Some experience in the skill area*	9
9. I can create a title that captures the essence of my research.	2.83	*Average level of competency*	*Some experience in the skill area*	6.5
10. I can state the problems in my study in a way that is easy to understand.	2.98	*Average level of competency*	*Some experience in the skill area*	1
Overall Mean	2.86	*Average level of competency*	*Some experience in the skill area*	

Legend: 4.21 -5.00 = High level of competency – extensive experience in the skill area
3.41 – 4.20 = Moderately high level of competency – good experience in the skill area
2.61 – 3.40 = Average level of competency – some experience in the skill area
1.81 – 2.60 = Low level of competency – little experience in the skill area
1.00 – 1.80 = No level of competency – no experience in the skill area

The findings presented in Table 3 show that teachers reported varying levels of competence in key areas related to writing the introduction of a research paper. Among the evaluated competencies, the ability to clearly articulate the research problem emerged as the strongest. The statement, *"I can state the problems in my study in a way that is easy to understand"*, received the highest mean score of 2.98, reflecting an

average level of competence. While this suggests that teachers are fairly confident in communicating research issues in accessible terms, it also reveals that this ability remains at a developmental stage.

Teachers like Participant 1 expressed,

> *"Since I have only completed a thesis in college… I guide [students] gradually through the research process, providing structured lessons, clear examples, and constant support to help them build confidence in their research skills."*

While such practices are helpful, they may not fully address the need for more advanced analytical engagement, such as identifying gaps in the literature or posing novel research questions.

Close behind was the statement, *"I can explain to others the importance of my study,"* with a mean score of 2.97. Teachers appear to have some experience in conveying the relevance of their research, which is essential in giving it broader educational value.

Participant 2 remarked,

> *"My research experiences provide me with a broader perspective… I integrate examples from my own research and published studies to help students understand the relevance of research in various fields."*

However, this competence still sits at an average level, indicating that more structured opportunities may be needed to refine how teachers connect their studies to educational priorities and local issues.

The third-highest rating was for the statement, *"I can write a research title that reflects my study's focus"* (M = 2.89). While this shows teachers' awareness of the importance of clarity in research titles, they may benefit from more guided practice.

As Participant 4 shared,

> *"I try to focus on the basic principles of research and make learning more interactive so that students do not feel overwhelmed."*

This suggests a tendency to prioritize simplicity, sometimes at the expense of technical precision or appeal in crafting titles.

In contrast, the lowest-rated item was *"I know how to establish clear boundaries for my research topic"* (M = 2.76). This does not indicate a complete lack of understanding, but it does reflect a nuanced challenge. Setting boundaries involves knowing when to limit scope without compromising the depth of inquiry, a skill often developed through repeated practice and mentorship.

As Participant 3 admitted,

> *"Since most of my research experience comes from working with a team… I sometimes feel that my knowledge is not enough, so I make an effort to consult other research experts and refer to additional sources."*

This highlights a need for institutional structures that support boundary-setting through exemplars, feedback, and guided peer review.

These patterns reveal more than just numerical rankings, they narrate the experience of educators who are earnestly navigating the research process amid multiple teaching demands. The overall mean score of 2.86 suggests that while teachers are not beginners, they are not yet at mastery level either. They demonstrate working knowledge in writing introductions but need further development to synthesize, contextualize, and persuasively frame their studies.

This mirrors the findings of Maringe and Sing (2014), who observed that while teachers often demonstrate functional writing abilities, they may still struggle with aligning their work to academic standards of clarity, structure, and rigor, especially in diverse and high-demand teaching environments. Their study

noted the necessity of professional support mechanisms that adapt to the varied needs of teachers who may lack exposure to formal research writing or academic discourse practices.

To address these gaps, institutions should consider offering hands-on training sessions that focus on essential skills like crafting titles, defining research problems, and narrowing scope. Structured mentorship and exposure to quality research outputs can help transform these "average" competencies into higher-level capabilities.

Table 4

The Teachers' Level of Competence in Terms of Writing the Related Review of Literature

Statement **B. Competencies in Writing the Related Review of Literature**	**Mean**	**Description**	**Interpretation**	**Rank**
1. I can correctly use citations and references to give credit to authors in my writing.	3.08	*Average level of competency*	*Some experience in the skill area*	1
2. I know how to summarize key points from different sources.	3.05	*Average level of competency*	*Some experience in the skill area*	2
3. I can connect ideas from different studies to create a strong synthesis in my writing.	2.91	*Average level of competency*	*Some experience in the skill area*	4
4. I can sufficiently explain the theoretical framework that supports my study.	2.86	*Average level of competency*	*Some experience in the skill area*	8
5. I can organize the parts in my conceptual framework to illustrate the relatedness of my ideas.	2.83	*Average level of competency*	*Some experience in the skill area*	9
6. I can expound on important technical terms mentioned in the various sources stated in my paper.	2.90	*Average level of competency*	*Some experience in the skill area*	5
7. I feel confident in using various sources to back up my arguments.	2.88	*Average level of competency*	*Some experience in the skill area*	7
8. I can identify the main ideas in the literature and write them in my own words.	2.89	*Average level of competency*	*Some experience in the skill area*	6
9. I know how to show the relationship between different theories in my work.	2.77	*Average level of competency*	*Some experience in the skill area*	10
10. I consider the importance of presenting with coherence, the ideas presented in the related studies and literatures of my paper.	2.92	*Average level of competency*	*Some experience in the skill area*	3

Overall Mean	2.91	*Average level of competency*	*Some experience in the skill area*

Legend: 4.21 -5.00 = High level of competency – extensive experience in the skill area
3.41 – 4.20 = Moderately high level of competency – good experience in the skill area
2.61 – 3.40 = Average level of competency – some experience in the skill area
1.81 – 2.60 = Low level of competency – little experience in the skill area
1.00 – 1.80 = No level of competency – no experience in the skill area

The findings in Table 4 highlight that among the competencies assessed in writing the review of related literature, teachers rated themselves most confidently in their ability to use proper citations and references, with a mean score of 3.08. While this still falls within the "average competency" range, it reveals that many educators are aware of the importance of giving credit to original authors, an ethical foundation in academic writing.

This finding is encouraging, as it suggests a fundamental respect for intellectual property and a willingness to adhere to scholarly standards.

This is reflected in the response of Participant 2, who shared:

> *"I incorporate research methods and findings by preparing well-structured lesson plans and handouts that are based on actual studies and best practices…"*

This highlights not only a technical skill but an ethical orientation toward the responsible use of sources. The emphasis on accuracy and structure aligns with the Pedagogical Content Knowledge (PCK) framework, which posits that mastery involves more than content knowledge; it includes modeling academic rigor (Shulman, 1986).

Closely following was the statement, *"I know how to summarize key points from different sources"* (*M* = 3.06), suggesting that teachers are reasonably confident in their ability to condense and extract essential ideas from literature.

This is foundational to academic synthesis. One participant described this process as,

> *"I try to simplify research concepts by using real-life examples that students can easily relate to…"* (Participant 3)

This is showing an effort to make sense of research not only for themselves but for their learners. From a Constructivist perspective (Piaget, 1950; Vygotsky, 1978), this indicates that teachers are actively constructing understanding by linking new information to their teaching context, even if their engagement remains primarily descriptive rather than analytical. As Fisk (2022) emphasizes, the value of data is fully realized only when it informs action; this average score reveals a skill still evolving from routine summarization to reflective academic interpretation.

The ability to present related literature with coherence, with a mean score of 2.92. Coherence organizing studies in a logical and connected way is essential for building a compelling research narrative. Yet many teachers seem to struggle with fully achieving this clarity.

Participant 1 noted,

> *"Given my limited research background, I rely on available teaching materials, sample research papers, and textbooks…"*

This reflects a tension between understanding content and sequencing it for impact, an essential aspect of PCK. As Darling-Hammond (2006) notes, when educators present content coherently, they make learning more accessible and meaningful for students.

The lowest-rated item, *"I know how to show the relationship between different theories in my work"* (*M* = 2.77), reveals an area of concern.

Theory integration is not just about naming authors; it is about seeing relationships, tensions, and complementarities between frameworks.

Participant 4 candidly explained,

> *"Since I am not very proficient in writing… I try to focus on the basic principles of research and make learning more interactive so that students do not feel overwhelmed."*

This highlights a practical strategy to compensate for theoretical uncertainty, but also shows the need for deeper conceptual grounding. In Constructivism, this represents an early cognitive stage, one where learners accumulate but have yet to connect concepts. According to PCK theory, this also means theoretical insights are not yet being transformed into pedagogically rich strategies.

Overall, the average competency rating for writing the review of related literature was 2.91. The story this score tells is aligned with Fisk's (2022) call for meaningful data use is not one of deficit, but of development. Teachers are building competence with intention and awareness, but their skills remain at a foundational level. The challenge lies in transitioning from understanding research content to synthesizing it critically and pedagogically. This finding is consistent with the study by Fitzgerald and Noblit (2000), who found that while teachers could perform basic academic writing tasks, they struggled with the critical and cohesive construction of literature reviews.

Connecting these findings back to the study's frameworks deepens their significance. Constructivist Theory explains that competence in literature writing grows through engagement, social interaction, and experience. Teachers need collaborative writing opportunities, reflection spaces, and exemplars to connect what they read to their instructional goals. Meanwhile, PCK Theory emphasizes the need for teachers to model academic practice in ways students can learn from. As teachers refine their ability to write literature reviews, they also enhance their capacity to teach research more effectively, closing the gap between research knowledge and instructional application.

In sum, the data do not reveal inadequacy but rather a promising trajectory. Teachers are engaging with the research process step by step, and with the right mix of mentorship, writing practice, and theoretical grounding, their skills can continue to grow. This is the point where numbers become meaningful and where meaning drives progress.

Table 5

The Teachers' Level of Competence in Terms of Writing the Methodology

Statement **C. Competencies in Writing the Methodology**	**Mean**	**Description**	**Interpretation**	**Rank**
1. I can provide a detailed explanation of my targeted methodology plan.	2.75	*Average level of competency*	*Some experience in the skill area*	6.5
2. I can provide a concise description of the locale of my study.	2.86	*Average level of competency*	*Some experience in the skill area*	5

Statement	Mean	Description	Interpretation	Rank
C. Competencies in Writing the Methodology				
3. I can adequately provide important details of my study's participants.	2.88	*Average level of competency*	*Some experience in the skill area*	4
4. I am equipped with the ability to appropriately determine participants.	2.75	*Average level of competency*	*Some experience in the skill area*	6.5
5. I can explain the tools I will use to collect information.	2.89	*Average level of competency*	*Some experience in the skill area*	3
6. I know how to check if my research tools are reliable and valid.	2.71	*Average level of competency*	*Some experience in the skill area*	9
7. I can formulate a clear sequence of steps for collecting information effectively.	2.97	*Average level of competency*	*Some experience in the skill area*	1
8. I understand the important rules I need to follow in my research.	2.95	*Average level of competency*	*Some experience in the skill area*	2
9. I can explain how I will examine the data using statistics.	2.69	*Average level of competency*	*Some experience in the skill area*	10
10. I feel sure about writing the methods to make my study clear and trustworthy.	2.74	*Average level of competency*	*Some experience in the skill area*	8
Overall Mean	2.82	*Average level of competency*	*Some experience in the skill area*	

Legend: 4.21 -5.00 = High level of competency – extensive experience in the skill area
3.41 – 4.20 = Moderately high level of competency – good experience in the skill area
2.61 – 3.40 = Average level of competency – Some experience in the skill area
1.81 – 2.60 = Low level of competency – little experience in the skill area
1.00 – 1.80 = No level of competency – no experience in the skill area

The findings in Table 5 reveal that the statement *"I can outline the procedures I will use to gather data for my research"* received the highest mean score of 2.97. Although this placed it at the top of the rankings, it still falls within the "average competency" range, indicating that teachers generally possess only moderate confidence in a fundamental aspect of the research process. While this suggests some familiarity with the steps involved in data gathering, it does not necessarily reflect the ability to carry them out effectively, critically evaluate the process, or select the most appropriate procedures for different research contexts.

Participant 1 illustrated,

> *"Since I have no formal research exposure aside from my undergraduate thesis, my teaching approach is largely based on self-study, instructional materials, and structured lesson guides."*

This response supports the idea that teachers may know the procedural basics but are still developing the confidence and expertise to apply them independently. Viewed through the lens of Constructivist Theory, this result shows that teachers may have gained some procedural knowledge through prior exposure or surface-level participation in research tasks but have not yet constructed robust, experience-based understanding (Piaget, 1950; Vygotsky, 1978). As Fisk (2022) stresses, data is only as meaningful as the reflection and decision-making that accompany it.

The second-highest rated competency, *"I understand the important rules I need to follow in my research"* (M = 2.95), also falls within the same interpretive range. Teachers appear to have some awareness of research ethics and procedures, such as informed consent or confidentiality, but their understanding may be limited in scope or application.

Participant 1 emphasized that,

> *"I guide [students] gradually through the research process, providing structured lessons, clear examples, and constant support…"*

This suggests that while ethical considerations may be introduced, they may not be deeply internalized or contextually applied. From a Pedagogical Content Knowledge (PCK) perspective, knowing the rules is only part of the equation, teachers must also understand how to adapt and model ethical decision-making. As Shulman (1986) argues, pedagogical expertise includes the ability to connect content knowledge with practice.

The ability to explain tools used to collect data, with a mean score of 2.89, reflects a similar trend. Teachers may be able to name and describe common instruments like surveys or interview guides, but may lack the depth of knowledge needed to choose, administer, and interpret them meaningfully.

Participant 3 shared,

> *"I create more interactive activities, such as peer reviews and group collaborations, to help them become more comfortable with research work."*

This indicates that while tools are introduced, their instructional use may still lack critical alignment with research design. According to Constructivist principles, deeper understanding develops through active experimentation and guided practice (Olusegun, 2015), suggesting a need for immersive and reflective experiences with research instruments.

Most notably, the lowest-ranked competency was *"I can explain how I will examine the data using statistics,"* which received a mean of just 2.69. Despite still being labeled as "some experience," this score points to a widespread discomfort with statistical analysis. Teachers may recognize the role of statistics in research, but often lack the skills to execute or interpret them.

Participant 3 noted,

> *"I sometimes feel that my knowledge is not enough, so I make an effort to consult other research experts and refer to additional sources."*

This highlights a common sentiment of uncertainty and the reliance on external guidance. As Fisk (2022) emphasizes, statistical understanding is essential for deriving meaning from data and making sound decisions. Without this, teachers risk drawing flawed or oversimplified conclusions, which may undermine the integrity of their research and instruction.

From a PCK viewpoint, the limited competence in statistical analysis also affects classroom instruction. Educators who are not confident in interpreting data may struggle to teach statistical reasoning or use research to inform practice. This reinforces the need for practical, hands-on professional development, not just theory-based training.

As Participant 2 reflected,

> *"I also facilitate workshops and discussions where students explore real research challenges, guiding them to develop their own critical thinking and problem-solving skills."* This kind of applied engagement must also be extended to teachers themselves.

Overall, the mean score for competencies in writing the methodology section was 2.82. While this suggests that teachers are familiar with research procedures, it also indicates a lack of deeper understanding required to justify methodological choices, adapt procedures to diverse contexts, and analyze data rigorously. This gap is consistent with the findings of Maringe and Sing (2014), who found that even experienced educators often struggled to frame methodology sections with clarity and precision, particularly in contexts where research was a secondary responsibility to teaching.

Viewed through Constructivist and PCK frameworks, this gap makes conceptual sense. Constructivism emphasizes that understanding evolves through iterative and reflective practice. Without opportunities to engage in the full cycle of research, from design to data analysis, teachers will remain in a state of partial competence. PCK theory also highlights that understanding must be applied and modeled for students; without confidence in methodology, teachers may be unable to guide students in evidence-based inquiry or engage in reflective teaching grounded in data.

To address this, professional development should prioritize experiential learning. Teachers must be given the space to co-design research, interact with real data, and evaluate methodological choices alongside peers and mentors. Supporting them in this journey deepens not only research competence but also enhances the quality of their teaching and capacity to model inquiry-based thinking in their classrooms.

Table 6

The Teachers' Level of Competence in Terms of Analyzing, Interpreting, and Presenting the Findings

Statement	Mean	Description	Interpretation	Rank
D. Competencies in Analyzing, Interpreting, and Presenting the Findings				
1. I can gather findings from my research clearly and accurately.	2.86	*Average level of competency*	*Some experience in the skill area*	2
2. I know how to break down the findings to see what they mean.	2.78	*Average level of competency*	*Some experience in the skill area*	7
3. I can look at the data and find patterns or trends.	2.74	*Average level of competency*	*Some experience in the skill area*	8
4. I can explain the findings in a way that is easy to understand.	2.84	*Average level of competency*	*Some experience in the skill area*	4

5. I know how to make sense of numerical and non-numerical data and results.	2.73	*Average level of competency*	*Some experience in the skill area*	9
6. I can discuss what the findings might mean for the topic I studied.	2.87	*Average level of competency*	*Some experience in the skill area*	1
7. I know how to clearly articulate the importance of my study's results to others.	2.83	*Average level of competency*	*Some experience in the skill area*	5
8. I can relate the findings to real-world situations or problems.	2.85	*Average level of competency*	*Some experience in the skill area*	3
9. I can create clear graphs or charts to present my findings.	2.81	*Average level of competency*	*Some experience in the skill area*	6
10. I feel confident and capable in sharing my study's analysis and interpretations with others	2.71	*Average level of competency*	*Some experience in the skill area*	10
Overall Mean	2.80	*Average level of competency*	*Some experience in the skill area*	

Legend: 4.21 -5.00 = High level of competency – extensive experience in the skill area
3.41 – 4.20 = Moderately high level of competency – good experience in the skill area
2.61 – 3.40 = Average level of competency – Some experience in the skill area
1.81 – 2.60 = Low level of competency – little experience in the skill area
1.00 – 1.80 = No level of competency – no experience in the skill area

The findings in Table 6 reveal a compelling pattern in the self-reported competencies of teachers in analyzing, interpreting, and presenting research findings. The highest-rated statement, *"I can discuss what the findings might mean for the topic I studied,"* received a mean score of 2.87, categorized as average. This implies that while teachers feel moderately confident in drawing implications from their data, their interpretations likely remain on a surface level.

As Participant 4 shared,

> *"I try to focus on the basic principles of research and make learning more interactive so that students do not feel overwhelmed."*

This insight illustrates a cautious engagement with data, one grounded more in accessibility than in depth or nuance.

This developmental stage reflects the principles of Constructivist Theory, which holds that learners build knowledge progressively through reflection and application (Vygotsky, 1978; Piaget, 1950). Interpreting research is not merely about stating what the data shows; it is about making connections, questioning results, and identifying what they imply for teaching and learning. When this reflective process is limited, the feedback loop between research findings and instructional practice remains incomplete.

The next highest-rated item, *"I can gather findings from my research clearly and accurately,"* with a mean of 2.86, further supports this observation. Teachers may be able to list or organize findings, but presenting them with coherence and relevance is another matter.

This distinction was echoed by Participant 1, who admitted,

> *"Since I have no formal research exposure aside from my undergraduate thesis, my teaching approach is largely based on self-study, instructional materials, and structured lesson guides."*

This suggests familiarity with research structure, but limited fluency in articulating findings in a meaningful, data-informed narrative.

From a Pedagogical Content Knowledge (PCK) lens, this reflects a need for stronger integration of research understanding with instructional clarity. As Shulman (1986) noted, teaching with impact requires not just knowing content but also understanding how to convey complex ideas in digestible and applicable ways.

A closely related item, *"I can relate the findings with real-world situations or problems"* (mean = 2.85), further illustrates this issue.

Participant 3 stated,

> *"Since most of my research experience comes from working with a team, I always encourage collaboration among my students… I make an effort to consult other research experts and refer to additional sources."*

This cautious and collaborative stance reveals an emerging, but not yet confident, skill in connecting data to practical realities. According to Constructivist Theory, the real power of knowledge lies in its contextual application (Olusegun, 2015). Teachers who struggle to anchor their findings in classroom or community realities may miss opportunities for transformative practice.

The overall mean score for the domain was 2.80, highlighting that while most teachers have a basic grasp of interpretation and presentation skills, these remain underdeveloped. As Fisk (2022) emphasizes, effective data storytelling is not just about reporting; it is about using the data to inform action and deepen understanding. Teachers stuck at the descriptive level may struggle to draw actionable insights from their findings or communicate them in ways that inspire dialogue or innovation.

This pattern is not unique to this study. In a multi-site investigation by Khan et al. (2020), researchers found that many teachers could conduct classroom-based inquiries but had difficulty interpreting and presenting data meaningfully. Time constraints, limited training, and lack of peer collaboration were cited as common barriers. These factors resonate with panel feedback, which urged deeper interpretation, especially considering the teachers' other roles and responsibilities.

In summary, teachers in this study are beginning to engage with research, but their ability to fully analyze and apply findings remains a work in progress.

Participant 3 mentioned,

> *"I sometimes feel that my knowledge is not enough… I make an effort to consult other research experts."*

In support, Participant 2 highlighted,

> *"I emphasize not only the theoretical aspects of research but also its practical significance…"*

The answers of the participants reinforce the idea that the desire to engage is present, but the depth of training and confidence still need to grow.

This underscores the importance of scaffolded, experiential professional development that promotes both technical fluency and reflective practice. From a Constructivist and PCK perspective, empowering teachers to interpret and apply research meaningfully is crucial, not just for their growth as researchers but for their ability to translate data into meaningful change in the classroom. As Fisk (2022) insists, "The most powerful data stories are not those that describe the present, but those that transform the future."

Table 7

The Teachers' Level of Competence in Terms of Writing the Conclusions and Recommendations

Statement	Mean	Description	Interpretation	Rank
E. Competencies in writing the Conclusions and Recommendations				
1. I can write a summary of my main findings.	3.03	*Average level of competency*	*Some experience in the skill area*	1
2. I know how to highlight the most important results of my study.	2.93	*Average level of competency*	*Some experience in the skill area*	6
3. I can explain what my findings mean simply.	2.97	*Average level of competency*	*Some experience in the skill area*	2
4. I understand how to draw clear conclusions from my research.	2.89	*Average level of competency*	*Some experience in the skill area*	8
5. I can restate the purpose of my study in my conclusion.	2.94	*Average level of competency*	*Some experience in the skill area*	5
6. I know how to recommend actions based on my findings.	2.86	*Average level of competency*	*Some experience in the skill area*	9
7. I can give specific steps that people can take from my recommendations.	2.85	*Average level of competency*	*Some experience in the skill area*	10
8. I can suggest ways to improve based on what I learned.	2.96	*Average level of competency*	*Some experience in the skill area*	3
9. I understand the importance of my conclusions for the topic.	2.95	*Average level of competency*	*Some experience in the skill area*	4
10. I am confident that my conclusion and recommendations will help others.	2.92	*Average level of competency*	*Some experience in the skill area*	7

Overall Mean	2.93	*Average level of competency*	*Some experience in the skill area*

Legend: 4.21 -5.00 = High level of competency – extensive experience in the skill area
3.41 – 4.20 = Moderately high level of competency – good experience in the skill area
2.61 – 3.40 = Average level of competency – Some experience in the skill area
1.81 – 2.60 = Low level of competency – little experience in the skill area
1.00 – 1.80 = No level of competency – no experience in the skill area

The findings from Table 7 indicate that among the assessed competencies in writing conclusions and recommendations, the statement *"I can write a summary of my main findings"* received the highest mean score of 3.03. While this might suggest a degree of confidence among teachers, it still falls within the "average competency" range. It indicates that teachers may be comfortable summarizing their findings but are not yet consistently providing the depth or analytical insight that gives a conclusion its power.
For instance, Participant 1 stated,

> *"Because I am still building my research expertise, I adapt by making my lessons more structured and student-centered… While I may not be highly experienced in research, I ensure that my students receive the guidance and support they need."*

This reflects a conscientious approach, though one still in development.
This aligns closely with Constructivist Theory, which highlights that deeper understanding is built through reflection and contextual experiences (Piaget, 1950; Vygotsky, 1978). Teachers who have not been immersed in reflective, research-driven tasks may summarize data, but may struggle to make sense of broader implications. According to PCK Theory, writing a good summary is not just a technical skill, it reflects an educator's ability to internalize and explain key learning (Shulman, 1986).
The second-highest rated item, *"I can explain what my findings mean in a simple way"* (mean = 2.97), also reveals a work-in-progress skill. Many teachers appear to simplify findings for understanding, but clarity does not always equal impact.
Participant 3 shared,

> *"I know that I still have a lot to learn about research, so I make an effort to continuously improve my knowledge… I encourage them to explore research in a way that feels less intimidating and more practical."*

This demonstrates developing self-awareness, yet also the limitations in translating technical findings into meaningful action for varied audiences.
As Fisk (2022) emphasizes, clarity without relevance or targeted action can dilute a message. Effective research communication involves making findings not just understandable but useful for those who must act on them.
The third item, *"I can suggest ways to improve based on what I learned"* (mean = 2.96), suggests that while teachers can generate ideas, these suggestions may still be tentative or generalized.
Participant 4 noted,

> *"My limited research experience makes me feel less confident in teaching research, but it has also pushed me to find ways to make research more understandable for my students."*

This response demonstrates how educators are beginning to link findings to instruction, though often with hesitation.

The lowest-rated statement, *"I can give specific steps that people can take from my recommendations"* (mean = 2.85), underlines a critical gap. While teachers may know what needs improvement, articulating clear, actionable steps remain elusive. This reflects what Fisk (2022) describes as the crucial moment in data storytelling: connecting insight to action. Without this "next-step thinking," research remains theoretical.

From the PCK perspective, this weakness can also undermine the practical value of research. Teachers who struggle to offer clear, implementable steps may be unable to translate their learning into meaningful changes in their classrooms (Darling-Hammond, 2006). Theoretical reflection, as emphasized in Constructivist learning, is only valuable when paired with practice-oriented applications (Olusegun, 2015).

The overall mean score of 2.93 reinforces that while teachers are growing in their capacity to conclude and recommend, they remain in the early stages of mastering this skill set.

A participant encapsulated this struggle, saying,

> *"Since I am not very proficient in writing, I empathize with my students who also struggle with academic tasks… I guide them through the process step by step."* (Participant 4).

This shared learning journey underlines the need for professional development that is experiential, supportive, and reflective.

This conclusion echoes findings from a study by Borg (2009), who reported that many teachers, particularly those new to research, struggled with articulating conclusions and crafting usable recommendations. He emphasized the need for continued mentoring, access to strong models, and opportunities for collaborative writing practice.

In summary, while teachers demonstrate emerging competence in summarizing findings and forming general suggestions, a clear need remains for guidance on crafting focused, actionable conclusions. By linking professional development to the frameworks of Constructivism, PCK, and data storytelling, educators can begin transforming their insights into impactful change. As Fisk (2022) reminds us, the goal is not just to end a paper, it is to start a meaningful conversation. This conversation must extend beyond research writing and into professional learning communities, where teachers can refine their thinking through peer feedback and collaborative inquiry. Empowering teachers to move from generalized reflection to specific, evidence-informed recommendations not only improves the quality of their research output but also enhances their ability to lead change within their schools. When teachers are equipped to conclude their studies with clarity and purpose, they can better translate research into results, fostering a culture of inquiry that elevates both teaching and learning.

Table 8

The Teachers' Level of Competence

Teachers' Competencies in	Mean	Description	Interpretation	Rank
A. Writing the Introduction	2.86	*Average level of competency*	*Some experience in the skill area*	3
B. Writing the Related Review of Literature	2.91	*Average level of competency*	*Some experience in the skill area*	2

C. Writing the Methodology	2.82	*Average level of competency*	*Some experience in the skill area*	4
D. Analyzing, Interpreting and Presenting the Findings	2.80	*Average level of competency*	*Some experience in the skill area*	5
E. Writing the Conclusions and Recommendations.	2.93	*Average level of competency*	*Some experience in the skill area*	1
Overall Weighted Mean	**2.86**	*Average level of competency*	*Some experience in the skill area*	

Legend: 4.21 -5.00 = High level of competency – extensive experience in the skill area
3.41 – 4.20 = Moderately high level of competency – good experience in the skill area
2.61 – 3.40 = Average level of competency – Some experience in the skill area
1.81 – 2.60 = Low level of competency – little experience in the skill area
1.00 – 1.80 = No level of competency – no experience in the skill area

Table 8 presents an evaluation of teachers' level of competence in various research-related skills. The overall weighted mean of 2.86 indicates that the teachers possess an average level of competency, suggesting they have some experience in these skill areas. Specifically, the data reveals a relatively consistent level of competence across different skills, with mean scores ranging from 2.80 to 2.93 for each competency. Notably, teachers appear to be slightly more confident in writing the conclusions and recommendations (2.93) which is the highest overall mean suggesting that teachers are moderately capable of writing the conclusions and recommendations, while analyzing, interpreting, and presenting the findings (2.80) received the lowest mean score, suggesting a potential area for improvement. The remaining competencies, including writing the introduction, writing the related review of literature, and writing the methodology, show similar average levels of competence. In essence, the table portrays a group of teachers with a moderate grasp of research skills, highlighting a possible need for targeted support in data analysis and interpretation.

Furthermore, teachers' struggle with data analysis will impact the methodology section, particularly in justifying the chosen analytical techniques and ensuring a thorough and transparent analysis. They may select less rigorous methods or fail to adequately explain their analytical process, weakening the overall credibility of their research. Therefore, while teachers possess a moderate grasp of research skills, the identified weakness in data analysis necessitates targeted support to ensure the accuracy, validity, and impact of their research endeavors, particularly in crafting robust findings, drawing sound conclusions, formulating relevant recommendations, and employing rigorous methodologies.

These results suggest that teachers could use more support with research. They need training, especially in understanding and sharing research results. Better teaching materials and mentors would also help. It is important to remember that they are still developing their skills, so research projects should be manageable. More information is needed to understand why they find analyzing research difficult, so support can be designed to meet their specific needs. Beyond just workshops, teachers would benefit from ongoing, embedded professional learning opportunities, ones that integrate research tasks into their day-

to-day teaching practice. Creating safe spaces for dialogue, peer coaching, and collaborative inquiry can also help build confidence and normalize the challenges of doing research. Recognizing that growth takes time, schools should provide not only resources but also encouragement and realistic expectations. With the right support system, teachers can gradually evolve into confident and capable classroom researchers, whose findings can meaningfully inform both their practice and their professional identity.

Research Question 3. Significant Difference in the Teachers' Level of Exposure When They Are Grouped According to Their Profile

Table 9

The Significant Difference in the Teachers' Level of Exposure When They Are Grouped According to Positions

Variable	Position	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Exposure	Probationary	1.3750	1.095	.373	Accept Ho	Not Significant
	Teacher I	1.6308				
	Teacher II	1.7554				
	Teacher III	2.1692				
	Special Science Teacher I	2.0317				
	Master Teacher I	2.9400				

**Significant level at $\alpha = 0.05$*

Table 9 presents the analysis of variance (ANOVA) results regarding the relationship between teachers' positions and their level of research exposure. The test revealed no statistically significant difference in research exposure across positions ($F = 1.095$, $p = .373$). Since the p-value is well above the threshold of 0.05, the null hypothesis is accepted, indicating that teaching rank does not significantly influence the level of research exposure.

While there were observable differences in the mean scores, ranging from 1.3750 for probationary teachers to 2.9400 for Master Teacher I, these differences were not substantial enough to be considered statistically significant. At first glance, one might expect that those in higher-ranking roles would naturally report greater exposure due to experience, additional responsibilities, or leadership expectations. However, the data suggest otherwise. This uniformity points to a broader reality: research engagement is not a structured or expected part of the professional trajectory for teachers, regardless of their rank or tenure.

This insight adds an important layer to the conversation around how research is perceived and practiced within the school system. It appears that access to or participation in research is not automatically embedded into higher roles such as Master Teacher or Special Science Teacher. Rather, it remains largely optional, driven more by individual interest, mentorship, or school culture than by job description or institutional mandate. In this sense, rank does not inherently equate to research literacy or engagement.

From the perspective of Constructivist Theory, this finding illustrates that meaningful learning and growth, such as developing research competence, are shaped through active involvement and real-world engagement, not merely by ascending a professional ladder (Piaget, 1950; Vygotsky, 1978). Teachers, regardless of their position, need deliberate opportunities to engage with research in a context that allows them to explore, reflect, and apply new knowledge. Without these structured experiences, their development as research-informed educators may remain stagnant.

This also resonates with Pedagogical Content Knowledge (PCK) theory, which underscores the importance of integrating content knowledge, pedagogy, and reflective inquiry (Shulman, 1986). The absence of a significant difference in research exposure among different positions suggests that even those tasked with mentoring peers or innovating practice, such as Master Teachers, may not be engaging with research as a regular part of their work. This limits their potential to model evidence-based practices or guide others in using research to inform teaching strategies.

What emerges here is a compelling story, one that aligns with Fisk's (2022) emphasis on using data not simply to report, but to reflect and respond. The data emphasize that a teaching position alone does not influence a teacher's likelihood to be research-active. This suggests that research engagement is not a byproduct of hierarchy, it must be intentionally built into the professional culture of the school. Without that, even the most experienced educators may find themselves distant from the research process, relying instead on intuition, tradition, or isolated practices.

The findings also highlight an important consideration for school leadership and policy design. If schools aim to cultivate research-informed teaching, then opportunities to engage with research should not be left to chance or personal initiative. Professional development programs, protected time for inquiry, and clear expectations for research contributions could be embedded across all levels, not just for those in leadership or senior positions. Ensuring equitable and intentional access to research opportunities can help build a more consistent and empowered community of educators, where research becomes a shared professional language.

In conclusion, the absence of significant difference in research exposure across ranks speaks volumes. It reflects a system where research is present, but not prioritized; accessible, but not necessarily encouraged. To foster a culture where teachers grow through inquiry and reflection, educational institutions must reimagine how research engagement is positioned within the profession, starting not from rank, but from the belief that every teacher can and should be part of the research conversation.

Table 10

The Significant Difference in the Teachers' Level of Exposure When They Are Grouped According to the No. of Years of Teaching Research

Variable	No. of Years Teaching Research	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Exposure	Less than a year	1.6384	1.308	.277	Accept Ho	Not Significant
	1 to 2 years	1.6823				
	3 to 4 years	2.0475				
	5 to 6 years	2.1760				
	More than 6 years	2.2788				

**Significant level at $\alpha = 0.05$*

Table 10 presents the analysis of variance (ANOVA) results examining the relationship between teachers' years of experience teaching research and their overall level of research exposure. The results indicate no statistically significant difference among the groups ($F = 1.308$, $p = .277$), as the p-value exceeds the standard significance level of 0.05. This means the null hypothesis is accepted: the number of years

teachers have spent teaching research is not significantly associated with their level of exposure to research.

Although the mean scores display a slight upward trend, from 1.6384 for those with less than one year of experience to 2.2788 for those with more than six years, these differences are not meaningful enough to suggest a real effect. In simpler terms, having more experience teaching research does not necessarily translate to greater research exposure. The data points toward a flat landscape, where years in the role do not predict meaningful growth in research engagement.

This result tells a larger story. It challenges the assumption that experience alone leads to competence or deeper engagement. Teaching a subject over time might result in greater familiarity with its content or curriculum requirements, but that does not automatically lead to increased involvement in actual research work. From a Constructivist perspective, knowledge is constructed through authentic and reflective engagement, not merely through repetition of tasks (Vygotsky, 1978; Piaget, 1950). Without opportunities for teachers to design their inquiries, participate in scholarly dialogue, or reflect on their findings in the community, the act of "teaching research" can remain procedural rather than transformative.

From the standpoint of Pedagogical Content Knowledge (PCK), this finding underscores the difference between teaching about research and doing research. Shulman (1986) argued that effective educators must go beyond surface-level delivery to connect content knowledge with pedagogy and reflective inquiry. In this case, teaching research without engaging in research limits opportunities for deep integration of practice and theory. The teacher may know how to guide students through writing a research paper, but still feel disconnected from research as a tool for professional growth or instructional improvement.

What the data does show, however, is a call for further exploration into what does drive research exposure. If years of experience do not significantly impact it, then other variables must be playing a stronger role. These may include individual motivation, access to structured research opportunities, mentorship, or a school culture that values inquiry and innovation. Teachers who thrive in research engagement may do so because they are supported, encouraged, and resourced, not simply because they have spent more time in the classroom.

Fisk (2022) emphasized that it is not enough to report what the data says; the researcher must also listen to the story it tells. In this case, the data suggests that time spent teaching research does not inherently deepen a teacher's research practice. That development requires intention, structure, and support. Professional development, research mentoring, collaborative inquiry, and institutional backing are all essential pieces that can move a teacher from simply facilitating student research to becoming an active researcher themselves.

In conclusion, the results in Table 10 serve as a valuable reminder that experience does not always equate to exposure. Teaching research, in and of itself, does not appear to foster greater engagement in research practices. For this to happen, systems must be put in place that encourage educators to inquire, reflect, and participate in research as a living part of their professional identity.

Table 11

The Significant Difference in the Teachers' Level of Exposure When They Are Grouped According to the Highest Educational Attainment

Variable	Highest Educational Attainment	Mean	F-value	p-value	Decision	Interpretation
	Bachelor's Degree	1.5221	4.694	.001*		Significant

	With a Master's Degree Units (Non-Thesis)	1.6136	
Teachers' Level of Exposure	With Master's Degree Units (Thesis)	1.9331	Reject Ho
	Master's Degree	2.0800	
	With a Doctorate Degree Units	2.9760	
	Doctorate Degree	3.5780	

**Significant level at $\alpha = 0.05$*

Table 11 presents a compelling analysis of the teachers' highest educational attainment and their level of exposure to research. The ANOVA results reveal a statistically significant difference in research exposure across educational attainment groups ($F = 4.694$, $p = .001$). Since the p-value is well below the standard significance level of 0.05, the null hypothesis is rejected. This confirms that a teacher's highest level of education is significantly associated with their research exposure.

The mean scores reveal a clear progression. Teachers holding only a Bachelor's degree reported the lowest mean level of research exposure (1.5221), while those with advanced academic credentials displayed increasingly higher mean scores. Exposure rose steadily from teachers with Master's Degree Units (Non-Thesis) (1.6136) to those with Master's Thesis Units (1.9331), completed Master's Degrees (2.0800), Doctorate Units (2.9760), and ultimately peaked among those with completed Doctorate Degrees (3.5780). These results highlight a powerful correlation between academic advancement and immersion in research practices.

This pattern is not surprising. Advanced degrees, particularly those involving thesis or dissertation writing, require sustained engagement with research methodologies, critical thinking, and scholarly writing. These experiences naturally build a teacher's familiarity with the research process, not just in theory, but through hands-on immersion. In this way, graduate studies serve as both a formal and experiential gateway into the culture of academic inquiry.

From a Constructivist lens, this relationship aligns with the idea that knowledge is constructed through authentic experiences and active engagement (Piaget, 1950; Vygotsky, 1978). Teachers who have gone through the process of writing a thesis or dissertation have engaged deeply in constructing knowledge, not merely consuming it. They have experienced the iterative nature of asking questions, collecting data, and drawing conclusions. This kind of reflective learning reinforces not only understanding but ownership of the research process.

The results also speak directly to Pedagogical Content Knowledge (PCK). Shulman (1986) emphasized the importance of teachers combining content expertise, pedagogical skill, and reflective inquiry to become effective educators. Teachers with higher educational attainment, especially at the doctoral level, often carry this combination forward into their classrooms. Their research experience allows them to go beyond textbook instruction and bring real-world relevance, critical thinking, and evidence-based strategies into their teaching. These educators are also better equipped to mentor colleagues, develop research-informed curriculum, and lead professional development initiatives.

What stands out most in this data is not simply the statistical significance, but the educational story it tells. It becomes evident that exposure to research does not emerge passively over time or with job seniority

alone. Rather, it is actively cultivated through academic endeavor and intellectual challenge. Teachers who have completed advanced degrees, especially those who have defended dissertations, bring a lived experience of scholarly inquiry that cannot be replicated through brief workshops or in-service sessions.

The implications are far-reaching. Schools and educational systems can benefit significantly by encouraging and supporting teachers in pursuing advanced studies. This support might come in the form of scholarships, study leaves, reduced teaching loads, or research incentives. In return, institutions can strategically position doctorate-holding teachers to serve as research mentors, curriculum designers, and catalysts for evidence-based practice across departments. However, many teachers remain hesitant to avail themselves of such opportunities due to the potential consequences they face. For instance, those who go on study leave often experience significant deductions in their salaries, some receiving only a small percentage of their usual pay, while others may be left with none at all. These financial constraints, paired with heavy teaching loads and the lack of long-term career security, discourage even the most committed educators from taking further studies. Without addressing these systemic disincentives, the push for advanced qualifications may remain aspirational rather than attainable. To truly foster a research-driven education system, supportive policies must not only offer opportunities but also remove the barriers that make those opportunities feel out of reach.

As Zeichner and Liston (1996) explain, teacher education programs, especially at the graduate level, do more than simply deepen subject matter expertise; they help foster reflective habits of mind. These habits allow teachers to ask meaningful questions, critically evaluate information, and make thoughtful pedagogical decisions rooted in evidence and context. Rather than viewing research as a separate academic task, these programs encourage educators to integrate inquiry into their everyday teaching. When teachers are given space to reflect, supported by strong training and mentorship, they begin to see research not as an obligation, but as a tool for understanding their learners and improving their practice.

Similarly, Darling-Hammond (2010) emphasizes that teachers with research training are better prepared to connect research with instructional improvement. These insights are echoed in the present study, which shows that teachers with higher academic qualifications report substantially more research exposure than their peers.

In conclusion, Table 11 provides strong empirical support for the value of higher education in shaping teachers' engagement with research. The upward trend in exposure levels, closely tied to educational attainment, underscores the role of academic rigor and formal inquiry in professional development. These findings affirm the need for policies and programs that actively promote graduate education for teachers, not only for credentialing purposes but as a pathway toward building a more research-literate and reflective teaching workforce. Investing in advanced education equips teachers not only with content expertise but also with the critical thinking and methodological tools necessary for meaningful classroom inquiry. As teachers progress through higher levels of education, they gain not just knowledge but also the confidence to question, to explore, and to contribute to the broader educational dialogue. Ultimately, fostering this culture of inquiry supports a school system where research is not an add-on but an integral part of teaching and learning.

Table 12

The Significant Difference in the Teachers' Level of Exposure When They Are Grouped According to the Field of Specialization

Variable	Field of Specialization	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Exposure	English	1.8465	.730	.647	Accept Ho	Not Significant
	Mathematics	1.8750				
	Biology/Science/Gen Science/Physical Science	1.9076				
	Social Sciences	1.4850				
	Filipino	1.9367				
	Accounting/Banking Finance	2.3133				
	Technical Vocational and Livelihood	2.7525				
	Physical Education	1.0000				

**Significant level at $\alpha = 0.05$*

Table 12 explores the relationship between teachers' fields of specialization and their level of exposure to research. Based on the ANOVA results (F = .730, p = .647), the findings indicate that there is no statistically significant difference in research exposure when teachers are grouped according to their field. The p-value of .647, which is well above the standard threshold of 0.05, confirms that the null hypothesis is accepted. This means that, statistically speaking, the subject a teacher specializes in does not meaningfully predict their level of engagement with research.

Although the mean scores vary slightly across different fields, from as low as 1.0000 in Physical Education to as high as 2.7525 in Technical-Vocational and Livelihood (TVL), these fluctuations do not reflect any real, significant pattern. Instead, they suggest that the differences in research exposure levels are more likely attributable to random variation than to a teacher's field of specialization. Teachers across content areas, regardless of whether they are teaching sciences, humanities, or technical subjects, tend to have similarly limited engagement with research.

This finding challenges a common assumption: that some fields, particularly those that are inquiry-driven by nature, such as science or social science, would naturally foster higher research involvement. The data do not support this assumption. Instead, what emerges is a picture of research exposure that appears uniformly low across subject areas, indicating that specialization alone does not lead to greater engagement with research.

Viewed through the lens of Constructivist Theory, this suggests that research exposure is not embedded into the day-to-day teaching experience across subjects (Piaget, 1950; Vygotsky, 1978). Teachers are not necessarily constructing new knowledge or engaging with inquiry in ways that differ significantly based on the content they teach. This may point to a broader systemic issue, where opportunities for reflective, hands-on learning through research are either absent or inconsistently supported across subject areas.

From a Pedagogical Content Knowledge (PCK) perspective, the finding is equally important. Shulman (1986) emphasized that effective teaching requires blending deep content knowledge with pedagogical

skill and reflective inquiry. If research is not integrated across fields, regardless of specialization, teachers may struggle to connect evidence-based practice to their classroom strategies. When subject matter experts are not exposed to research relevant to their domain, they may rely more heavily on routine or tradition, rather than inquiry or innovation, in their instructional decision-making.

This analysis also reinforces the need to look beyond content expertise to build a research-informed culture in schools. The lack of differentiation across specializations suggests that other variables, such as individual motivation, institutional support, access to mentorship, or availability of research training, may be more influential in determining whether or not a teacher actively engages in research. In alignment with Fisk's (2022) emphasis on interpreting what data mean, rather than just what they show, this finding tells a deeper story: that the opportunity to do research is not systematically embedded into the structure of teaching, even in disciplines where it might seem naturally aligned.

In conclusion, Table 12 offers valuable insights into the distribution of research exposure across teaching disciplines. The absence of significant differences suggests that a teacher's area of specialization alone does not strongly predict their level of research engagement. This finding challenges common assumptions that disciplines such as STEM or HUMSS are more inclined toward research, and instead underscore the need for equitable support across all academic tracks. It highlights the importance of designing professional development programs that are inclusive and responsive, recognizing that research potential exists in every subject area, not just those traditionally associated with academic inquiry. Moving forward, it becomes essential to examine the underlying factors that influence teachers' research engagement, whether these are related to school culture, access to mentoring, personal motivation, or institutional support. Identifying these drivers will allow educational leaders to design more targeted and sustainable interventions that empower teachers across disciplines to pursue inquiry-driven practice, contributing to a more vibrant and inclusive research culture within schools.

Table 13

The Significant Difference in the Teachers' Level of Exposure When They Are Grouped According to the Research Subject Taught

Variable	Research Subject Taught	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Exposure	PR 1	1.6297	2.158	.060	Accept Ho	Not Significant
	PR 2	1.8450				
	3I's	1.9740				
	PR1 & 3I's	1.8620				
	PR 2 & 3I's	2.5785				
	PR1, PR 2 & 3I's	2.4900				
	PR1, PR 2, 3I's & SIP	1.4683				

**Significant level at $\alpha = 0.05$*

Table 13 examines whether the specific research subject(s) a teacher handles influences their level of research exposure. The results of the ANOVA test (F = 2.158, p = .060) reveal no statistically significant difference across the groups, as the p-value is greater than the 0.05 threshold. Thus, the null hypothesis is accepted, indicating that the particular research subject, or combination of subjects, a teacher instructs is not a significant predictor of their research exposure.

While mean scores do vary somewhat across groups, ranging from 1.4683 for those teaching PR1, PR2, 3I's, and SIP to 2.5785 for those teaching PR2 and 3I's, these variations are not meaningful enough to establish a statistically significant trend. In other words, teachers who handle a broader set of research subjects do not necessarily have higher exposure to research than those who teach fewer or more focused combinations. This finding challenges the assumption that increased teaching load or range of content directly correlates with deeper engagement in the field.

Interestingly, the data hint at a subtle trend that could be more pronounced with a larger sample size, as the p-value (.060) is relatively close to the significance level. Even so, the takeaway remains that the type or number of research subjects assigned does not automatically result in increased research exposure. This highlights the possibility that factors beyond subject assignment, such as access to research training, individual interest, teaching approaches, or administrative support, play a more decisive role in shaping a teacher's involvement with research.

From a Constructivist perspective, this result supports the notion that learning, including the development of research competencies, stems from meaningful experiences rather than the number of topics covered (Piaget, 1950; Vygotsky, 1978). Merely teaching more research subjects not guarantee deeper understanding or active engagement. Teachers gain exposure not by repeating content, but through reflective practice, collaboration, and opportunities to investigate, analyze, and apply research principles in authentic contexts.

In terms of Pedagogical Content Knowledge (PCK), this finding is also revealing. Shulman (1986) emphasized that effective teaching emerges from the integration of content expertise with a deep understanding of how students learn and how knowledge is constructed. If the structure and depth of research subject instruction are not designed to immerse teachers in inquiry-based teaching or if they lack the institutional support to innovate their practice, even experienced research teachers may remain disengaged from actual research work. This implies that how research subjects are taught and the professional culture surrounding them matter more than the number of subjects assigned.

Selena Fisk (2022) emphasizes that data storytelling is not about the numbers alone, but about what they reveal when placed in context. Here, the data tells a quiet but significant story: that engagement with research does not arise simply from curriculum content, but from the culture and context in which it is delivered. A teacher's exposure to research likely depends more on school-level encouragement, mentorship, and targeted professional development than on the curriculum titles they are expected to deliver.

In conclusion, Table 13 shows that the specific research subject(s) a teacher instructs does not significantly impact their level of exposure to research. Instead, this points us toward more meaningful drivers, ones that foster deep and sustained engagement with inquiry. Future efforts to increase research exposure among educators should focus on equipping teachers with the time, tools, and support systems necessary to engage in authentic research, not just teach it.

Table 14

The Significant Difference in the Teachers' Level of Exposure When They Are Grouped According to the Grade Level Handled

Variable	Grade Level Handled	Mean	t-value	p-value	Decision	Interpretation
	Grade 11	1.6297	15.210	.000*		Significant

Teachers' Level of Exposure	Grade 12	2.4072	Reject Ho

**Significant level at $\alpha = 0.05$*

Table 14 presents the results of an independent samples t-test analyzing the relationship between the grade level teachers handle, Grade 11 or Grade 12, and their level of exposure to research. The results reveal a statistically significant difference ($t = 15.210$, $p = .000$), leading to the rejection of the null hypothesis. With a p-value far below the 0.05 significance threshold, the analysis confirms that the grade level a teacher handles is a meaningful factor in shaping their exposure to research.

The mean scores show a substantial difference between the two groups. Teachers handling Grade 12 reported a significantly higher level of research exposure (Mean = 2.4072) compared to their Grade 11 counterparts (Mean = 1.6297). This notable gap suggests that teachers of Grade 12 are more actively engaged in research-related tasks or have developed a more robust understanding of research practices over time.

One likely explanation for this finding lies in the nature of the curriculum itself. Grade 12 instruction typically involves Practical Research 2 and Inquiries, Investigations, and Immersion (3I's), subjects that require students (and by extension, their teachers) to work more intensively with research methods, fieldwork, and applied inquiry. In contrast, Grade 11 focuses on Practical Research 1, which tends to emphasize the foundational concepts of research rather than hands-on implementation. The structure and demands of the Grade 12 curriculum may naturally encourage deeper teacher involvement in the research process.

This difference also highlights how teaching assignments, when aligned with research-intensive subjects, create more opportunities for professional engagement with inquiry-based practices. Teachers who consistently teach Grade 12 may receive more exposure to tools, training, and real-world applications of research. It is also possible that teachers with prior research experience are more likely to be assigned to Grade 12, reinforcing a cycle where the most research-exposed teachers remain in positions that further strengthen their skills.

From a Constructivist perspective, this deeper involvement represents meaningful learning in action. According to Piaget (1950) and Vygotsky (1978), knowledge is constructed through hands-on experience and reflection. Grade 12 teachers may not only be teaching research; they are learning and reinforcing it through practice. Engaging in authentic research activities alongside students fosters personal growth and the continual construction of new understanding.

This finding also resonates with Pedagogical Content Knowledge (PCK) theory. Shulman (1986) argued that effective teaching results from the combination of content expertise, pedagogy, and reflective practice. Grade 12 teachers, immersed in the practical application of research, are likely deepening their pedagogical content knowledge. Their repeated engagement with student research projects requires them to guide inquiry, support critical thinking, and evaluate results, all of which enrich their teaching practice and professional development.

Fisk (2022) emphasizes that compelling data stories are those that not only describe differences but illuminate underlying causes and guide future action. The story this data tells is clear: the curriculum and teaching context matter. Teachers do not engage with research in a vacuum; their opportunities,

responsibilities, and subject matter significantly shape their exposure. In this case, Grade 12 teaching serves as a meaningful gateway into the research world, one that fosters richer professional growth.

In conclusion, Table 14 underscores the importance of grade-level teaching assignments in shaping teachers' research exposure. The significantly higher engagement among Grade 12 teachers invites further exploration into how the curriculum, training, and classroom experience foster this growth. More importantly, it raises the question: how can these positive conditions be extended to support Grade 11 teachers or those outside the research track? By leveraging what works in Grade 12 and designing grade-specific support systems, schools can promote a more research-informed teaching force at all levels.

Research Question 4. Significant Difference in the Teachers' Level of Competence When They Are Grouped According to Their Profile

Table 15

The Significant Difference in the Teachers' Level of Competence When They Are Grouped According to Positions

Variable	Position	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Competence	Probationary Teacher	2.2400	2.480	.062	Accept Ho	Not Significant
	Teacher I	2.7050				
	Teacher II	3.0354				
	Teacher III	2.6962				
	Special Science Teacher I	2.7967				
	Master Teacher I	3.8800				

**Significant level at $\alpha = 0.05$*

Table 15 explores the relationship between a teacher's position and their level of competence in the context of research. The ANOVA test reveals no statistically significant difference across positions ($F = 2.480$, $p = .062$). Since the p-value exceeds the 0.05 threshold, the null hypothesis is accepted. This indicates that, within the scope of this dataset, a teacher's position, whether Probationary, Teacher I, II, III, or Master Teacher I, does not significantly predict their overall level of competence.

Despite the lack of statistical significance, the mean scores do offer some insight. Competence levels range from 2.2400 for Probationary Teachers to 3.8800 for Master Teacher I, suggesting a general upward trend. However, these differences are not large enough to be considered meaningful from a statistical standpoint. The data suggests that while there may be an expected association between rank and competence, particularly with more experienced teachers scoring higher, the variation is not consistent or strong enough to establish a conclusive pattern.

The finding that even Master Teachers, while scoring highest, do not represent a statistically distinct group emphasizes that teaching position alone does not guarantee or lead to competence. Similarly, the lower mean score among Probationary Teachers may reflect their limited experience, but it also reinforces the idea that competence in teaching or conducting research is not automatically conferred through promotion or seniority.

From a Constructivist perspective, this result is unsurprising. Learning and skill development, including competence in research, are grounded in experience, reflection, and opportunity (Piaget, 1950; Vygotsky,

1978). Teachers develop research-related competence not just through time in service, but through authentic engagement with research processes, mentorship, and continuous learning. A teacher in a lower-ranked position with strong support and active participation in professional development may be more competent in research practices than someone in a higher position without those opportunities.

Viewed through the lens of Pedagogical Content Knowledge (PCK), this also points to a deeper reality: teacher competence is shaped by more than just hierarchical status. Shulman (1986) emphasized the interplay between subject matter knowledge, pedagogy, and reflective inquiry. A teacher's position may indicate years of service or recognition of past accomplishments, but it does not necessarily reflect their current research capabilities or teaching effectiveness unless accompanied by sustained practice and development.

As Fisk (2022) notes, interpreting data meaningfully means looking beyond the numbers to understand the context. Here, the story is one of complexity. While positions may play a role in shaping access to training or leadership opportunities, competence is built through a more dynamic mix of personal motivation, mentoring relationships, school culture, and institutional support. The lack of a significant difference suggests that schools cannot rely solely on rank as a measure of skill, and should instead look more holistically at how teachers are supported and developed.

In summary, Table 15 suggests that a teacher's professional rank is not a reliable indicator of their research competence. While trends may point to more experienced teachers demonstrating slightly higher competency, the absence of statistical significance highlights the importance of considering broader, more individualized factors. Future studies could explore the impact of variables such as targeted training, teaching load, or research mentorships in influencing teacher competence, offering more nuanced insights into how best to foster growth in this critical area.

Table 16

The Significant Difference in the Teachers' Level of Competence When They Are Grouped According to the no. of years of Teaching Research

Variable	No. of Years Teaching Research	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Competence	Less than a year	2.8768	.323	.862	Accept Ho	Not Significant
	1 to 2 years	2.8308				
	3 to 4 years	2.9608				
	5 to 6 years	2.8880				
	More than 6 years	2.7956				

**Significant level at $\alpha = 0.05$*

Table 16 analyzes the relationship between the number of years teachers have spent teaching research and their overall level of competence. The results of the ANOVA test show no statistically significant difference between experience groups ($F = .323$, $p = .862$). With a p-value far exceeding the 0.05 threshold, the null hypothesis is accepted. This suggests that the number of years a teacher has taught research does not significantly predict their level of competence in this area.

Although the mean scores vary slightly, ranging from 2.7956 for those with more than six years of experience to 2.9608 for those with three to four years, the differences are not statistically meaningful.

Regardless of the length of teaching experience, the competence level remains moderate, corresponding to "some experience in the skill area."

This outcome challenges the widely held assumption that increased years of teaching research automatically lead to stronger competence. It indicates that competence may depend less on duration and more on the quality, structure, and context of teaching experiences. Teachers with fewer years but meaningful involvement in actual research activities or high-quality professional development may show greater competence than those with longer experience but limited support or engagement.

In light of Constructivist Theory, the findings reinforce the view that learning and skill development stem from rich, authentic, and reflective experiences rather than from passive repetition over time (Piaget, 1950; Vygotsky, 1978). Without opportunities to engage deeply in the research process, such as developing proposals, analyzing data, and applying findings, teachers may not advance in competence, even with years of experience.

Similarly, from a Pedagogical Content Knowledge (PCK) perspective, the integration of content knowledge, pedagogy, and reflective practice is central to teaching effectiveness (Shulman, 1986). Competence in research, therefore, emerges not solely from repeated exposure to research topics but from how these elements are blended into actual teaching and inquiry.

Fisk (2022) emphasized the importance of interpreting what data reveal about real-world practices and conditions. In this case, the data suggests that meaningful professional growth in research teaching is more likely driven by targeted support, continuous professional learning, and institutional investment in research culture than by experience alone. The numbers indicate a need to rethink how competence is cultivated, shifting the focus from longevity to quality and depth of experience.

In summary, the analysis in Table 16 reveals that years of teaching research subjects are not a significant factor in determining a teacher's competence. The findings point to the influence of other, more impactful factors, such as professional development, mentoring, research involvement, and personal interest. Further research is encouraged to explore these variables in greater depth, to better understand and strengthen the development of research competence among educators.

Table 17
The Significant Difference in the Teachers' Level of Competence When They Are Grouped According to the Highest Educational Attainment

Variable	Highest Educational Attainment	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Competence	Bachelor's Degree	2.7586	1.451	.220	Accept Ho	Not Significant
	With a Master's Degree Units (Non-Thesis)	2.9309				
	With Master's Degree Units (Thesis)	2.9715				
	Master's Degree	2.9100				
	With a Doctorate Degree Units	2.7200				
	Doctorate Degree	2.5600				

**Significant level at $\alpha = 0.05$*

Table 17 presents the ANOVA results examining the differences in teachers' levels of competence based on their highest educational attainment. The analysis yielded an F-value of 1.451 with a p-value of 0.220. As the p-value exceeds the conventional significance level of $\alpha = 0.05$, the null hypothesis is accepted. This indicates that the level of formal education, as measured by the highest degree earned, does not significantly differentiate teachers' competence in research-related teaching practices.

Mean scores show some variation across educational attainment groups. Teachers with Master's Degree Units (Thesis) reported the highest mean competence score (2.9715), followed by those with Master's Degree Units (Non-Thesis) (2.9309), and those with completed Master's Degrees (2.9100). Interestingly, teachers with a Doctorate Degree reflected a lower mean score (2.5600) than expected, along with those holding Doctorate Units (2.7200) and Bachelor's Degrees (2.7586). Despite these differences, the overall interpretation remains that all groups fall within a moderate level of competence, generally described as having "some experience in the skill area."

The absence of statistically significant differences suggests that educational attainment, while important for theoretical and technical expertise, may not independently influence teachers' applied competence in teaching research. These finding challenges assumptions that higher academic degrees necessarily correlate with greater teaching effectiveness. Instead, it emphasizes that competence in this domain is more complex and likely influenced by other meaningful variables.

Constructivist Theory provides a relevant lens here, underscoring that competence develops through meaningful, experience-driven learning rather than formal education alone (Piaget, 1950; Vygotsky, 1978). While advanced degrees expose educators to research theory and academic rigor, competence in teaching research also requires continuous engagement, application, and reflection within real classroom contexts.

Similarly, Pedagogical Content Knowledge (PCK) Theory suggests that effective teaching arises from the integration of content knowledge with pedagogical skills and reflective practice (Shulman, 1986). Teachers may hold advanced credentials, yet without the ongoing opportunity to apply these within instructional settings or adapt them to student needs, their competence may remain limited or underdeveloped.

The insights drawn from this analysis align with Fisk's (2022) argument that data should be interpreted with attention to its practical implications. Here, the data speaks to the limitations of viewing formal education as the primary or sole indicator of teaching competence. While academic qualifications remain an important foundation, competence appears to be more directly shaped by dynamic factors such as professional development, mentorship, real-time classroom practice, and individual growth trajectories.

In conclusion, Table 17 underscores the need for a more holistic view of teacher development. While advanced degrees undoubtedly enrich teachers' theoretical understanding and expose them to scholarly discourse, the findings suggest that these credentials alone do not guarantee high competence in teaching research. This implies that formal education must be complemented with continuous, contextualized support. Institutional efforts to build teacher competence may be more effective when they incorporate targeted training, experiential learning, collaborative inquiry, and ongoing reflective practice. Teachers benefit from knowledge acquisition and opportunities to apply what they learn in real classroom settings, receive feedback, and refine their approaches over time. Programs like the Advocating Research Culture (ARC) initiative can bridge this gap by providing structured yet flexible pathways for growth. Ultimately, developing research competence is not just a matter of credentials, it requires sustained investment in

learning environments that empower teachers to engage confidently and meaningfully with research in their everyday practice.

Table 18

The Significant Difference in the Teachers' Level of Competence When They Are Grouped According to the Field of Specialization

Variable	Field of Specialization	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Competence	English	2.9382	1.571	.163	Accept Ho	Not Significant
	Mathematics	2.9050				
	Biology/Science/Gen Science/Physical Science	2.9238				
	Social Sciences	2.3350				
	Filipino	2.9400				
	Accounting/Banking Finance	2.7800				
	Technical Vocational and Livelihood	2.6250				
	Physical Education	2.8000				

**Significant level at $\alpha = 0.05$*

Table 18 presents the ANOVA results examining whether teachers' levels of competence differ significantly based on their fields of specialization. The analysis yielded an F-value of 1.571 with a p-value of 0.163. Since the p-value exceeds the significance level of $\alpha = 0.05$, the null hypothesis is accepted. This indicates that there is no statistically significant difference in research competence among teachers when grouped by their respective areas of specialization.

Despite variations in the mean scores across disciplines, these differences are not statistically meaningful. Teachers specializing in English and Filipino reported the highest mean scores (2.9382 and 2.9400, respectively), followed by those in science-related fields (2.9238) and Mathematics (2.9050). In contrast, Social Science teachers recorded the lowest mean score of 2.3350, while those in Technical-Vocational-Livelihood (TVL) and Physical Education posted mean scores of 2.6250 and 2.8000, respectively. Overall, the scores across all fields suggest a moderate level of competence in research, reflecting "some experience in the skill area."

These findings offer important insights. They suggest that competence in research-related teaching is not significantly shaped by one's field of specialization. While content expertise is undoubtedly valuable, it appears that skills essential for effective teaching, such as inquiry, analysis, and instructional adaptability, are not confined to any one discipline. Instead, they are likely fostered through broader experiences, pedagogical knowledge, and access to professional development.

This aligns well with Constructivist Theory, which holds that knowledge and competence are developed through active engagement and experience, rather than through subject-specific training alone (Piaget, 1950; Vygotsky, 1978). Teachers build their research-related competence not solely through academic background, but through hands-on practice, collaboration, and ongoing reflective processes.

Pedagogical Content Knowledge (PCK) Theory also provides valuable context here. Shulman (1986) emphasized that effective teaching goes beyond content mastery—it involves the capacity to make subject matter understandable, meaningful, and relevant to learners. The absence of significant variation in competence levels across specializations may point to a shared need for pedagogical refinement and research literacy, regardless of discipline.

Fisk (2022) stresses that the most meaningful data stories are those that extend beyond statistical outputs to uncover practical implications. Here, the story is one of equal opportunity for growth. Since all groups of teachers, regardless of specialization, report only moderate competence, the implication is clear: professional development programs focused on research and reflective practice should be made widely accessible across all subject areas.

More importantly, the data highlights an opportunity to foster a culture of inquiry-driven teaching. When educators across disciplines are equipped with strong research skills, they become more capable of analyzing student needs, evaluating the effectiveness of their strategies, and contributing to school-wide improvement efforts. This also reinforces the importance of supporting teachers in becoming producers, not just consumers, of educational research.

In conclusion, Table 18 confirms that a teacher's specialization does not significantly determine their competence in research. Rather than relying on subject area as a predictor of teaching effectiveness, schools and systems may benefit from investing in targeted training that emphasizes pedagogical agility, research integration, and reflective practice. This approach supports continuous improvement across disciplines, helping educators at all levels become more confident, research-informed practitioners.

Table 19

The Significant Difference in the Teachers' Level of Competence When They Are Grouped According to the Research Subject Taught

Variable	Research Subject Taught	Mean	F-value	p-value	Decision	Interpretation
Teachers' Level of Competence	PR 1	2.8607	.948	.468	Accept Ho	Not Significant
	PR 2	2.7000				
	3I's	2.7040				
	PR1 & 3I's	2.8920				
	PR 2 & 3I's	3.0008				
	PR1, PR 2 & 3I's	2.5900				
	PR1, PR 2, 3I's & SIP	2.9767				

**Significant level at $\alpha = 0.05$*

Table 19 presents the ANOVA results examining whether teachers' perceived competence in research significantly varies according to the specific research subject(s) they teach, such as *Practical Research 1 (PR1)*, *Practical Research 2 (PR2)*, *Inquiries, Investigations, and Immersion (3I's)*, and *Student Investigatory Project (SIP)*, including combinations of these. The analysis yielded an F-value of .948 and a p-value of .468. Since the p-value is greater than the significance threshold of 0.05, the null hypothesis is accepted. This result indicates that there is no statistically significant difference in research competence among teachers based on the specific research subject they are assigned to teach.

Although there may be minor fluctuations in mean competence scores across the various subject groupings, these differences are not statistically meaningful. The findings suggest that all groups of teachers, regardless of which research subject they handle, generally perceive themselves to have a moderate level of competence. This reinforces the idea of a shared baseline of research skills across subject areas within the senior high school curriculum.

The implication of these results is that competence in research teaching may be shaped less by the content of the specific research subject and more by broader factors such as access to training, years of experience, personal engagement with research, and institutional support. While it might be expected that certain research subjects, particularly those involving fieldwork or extended inquiry, such as *SIP* or *3I's*, would offer more opportunities to strengthen research competence, the data do not support this assumption.

From a Constructivist perspective, this finding aligns with the view that competence is built through consistent, hands-on, and reflective experiences, not solely through curriculum exposure (Piaget, 1950; Vygotsky, 1978). Teaching a particular subject does not automatically lead to improved competence unless the experience is accompanied by meaningful opportunities for inquiry, collaboration, and self-directed learning.

This also resonates with Pedagogical Content Knowledge (PCK) Theory. According to Shulman (1986), effective instruction results from the interplay of subject matter knowledge, pedagogical strategy, and reflective practice. If the way research subjects are taught does not meaningfully integrate these elements, the opportunity for developing competence may be limited, regardless of the subject label. Therefore, competence appears to be more strongly influenced by how teachers are supported in their role than by the title of the subject they deliver.

These results echo Fisk's (2022) principle that meaningful data stories often reveal where assumptions fail to hold. While it may be assumed that handling more complex or advanced research subjects would lead to stronger competence, the data indicate a level playing field. The consistency in competence across subjects highlights the need for cross-cutting professional development efforts, designed to enrich all teachers' capabilities, rather than targeting specific subject groups.

In conclusion, Table 19 reveals that the specific research subject assigned to a teacher does not significantly influence their perceived level of research competence. This finding suggests that competence is not inherently tied to the subject label, whether Practical Research 1 or 2, but rather to the conditions under which teachers are supported and empowered. It points to the broader importance of systemic and individual factors such as access to sustained professional development, the presence of a supportive institutional research culture, and opportunities for ongoing self-reflection. These elements play a far more decisive role in shaping a teacher's ability to guide students through the research process with clarity and confidence. Schools aiming to strengthen the quality of research instruction may benefit more from investing in these shared supports, such as mentoring programs, peer collaboration, and hands-on training, rather than assuming that subject assignment alone builds research capacity. Ultimately, when teachers are nurtured through thoughtful, inclusive structures, they become better equipped to model the kind of inquiry and analytical thinking that research education aspires to cultivate.

Table 20

The Significant Difference in the Teachers' Level of Competence When They Are Grouped According to the Grade Level Handled

Variable	Grade Handled	Level	Mean	t-value	p-value	Decision	Interpretation
Teachers' Level of Competence	Grade 11		2.8607	.165	.686	Accept Ho	Not Significant
	Grade 12		2.8672				

**Significant level at $\alpha = 0.05$*

Table 20 presents a t-test analysis comparing the mean levels of competence in research between teachers handling Grade 11 and those teaching Grade 12. The statistical test yielded a t-value of .165 with a p-value of .686. Since the p-value is significantly higher than the standard significance level of 0.05, the null hypothesis is accepted. This indicates that there is no statistically significant difference in perceived research competence based on whether a teacher is assigned to Grade 11 or Grade 12.

Both groups of teachers report moderate levels of competence, suggesting a relatively consistent skillset across grade levels. This consistency may reflect similarities in curriculum structure, instructional demands, or expectations across the research components of both year levels. It is also possible that teacher assignment to Grade 11 or Grade 12 is not strongly differentiated by perceived research ability, and may instead be influenced by scheduling, staffing needs, or administrative considerations.

This finding is particularly relevant when viewed through the lens of Constructivist Theory, which posits that competence is developed through meaningful, hands-on engagement and reflection, not simply determined by grade-level content (Piaget, 1950; Vygotsky, 1978). If teachers across both grades are given similar opportunities to engage in research instruction and apply reflective practice, it follows that their development of research-related skills may be comparable.

Similarly, Pedagogical Content Knowledge (PCK) Theory emphasizes that effective teaching stems from the integration of content expertise, instructional strategies, and sound pedagogical decision-making (Shulman, 1986). In this context, the absence of a significant difference in research competence between teachers handling Grade 11 and Grade 12 suggests that grade level alone does not determine a teacher's ability to facilitate research instruction. Instead, what appears to matter more is how well teachers can blend their understanding of research content with practical, adaptive teaching methods. This underscores the idea that competence in teaching research is rooted not simply in curriculum familiarity but in the teacher's ability to connect theory to practice, respond to students' needs, and design learning experiences that promote critical inquiry, hallmarks of strong PCK. Strengthening this integration through training and reflective practice may be more impactful than simply assigning teachers to different levels.

These results align with findings from Darling-Hammond (2000), who argued that teacher effectiveness is shaped not solely by subject or grade-level assignment, but by a combination of professional development, instructional strategies, and ongoing learning. When teachers are well-supported through training and reflection, their competence can be strong and stable across diverse teaching assignments.

According to Fisk (2022), meaningful data stories allow stakeholders to look beyond initial assumptions and toward actionable understanding. The absence of significant variation across grade levels in this analysis highlights a broader point: improving research teaching competence may require a focus on cross-

cutting professional development, mentorship, and instructional support, rather than narrowing efforts based on grade-level assignment alone.

In conclusion, the findings suggest that the grade level a teacher handles, whether Grade 11 or Grade 12, does not significantly influence their competence in teaching research. The consistency observed may reflect shared curriculum demands or similar preparation pathways. This underscores the need to look beyond grade-level distinctions and instead focus on the broader ecosystem of teacher support, training, and reflective engagement to build competence in research instruction.

Research Question 5. Teachers' Teaching Practices in Research-Related Subjects in Senior High School

The qualitative phase of the study sought to examine teachers' instructional practices in teaching research-related subjects in senior high school. This was done through open-ended questionnaires, which allowed participants to express their insights, strategies, and experiences in their own words. Responses were analyzed thematically to identify common patterns and meaningful practices. The emergent themes reflect diverse yet interconnected approaches to teaching research, grounded in pedagogical intention and responsiveness to student needs.

The thematic analysis of the responses of the participants during the classroom observations revealed five recurring and significant themes, which highlight the varied and dynamic teaching strategies employed by senior high school teachers in research-related subjects. These themes, derived from a careful review of the observed instructional practices and teacher-student interactions, include: (1) Interactive Teaching Strategies, (2) Integration of ICT Tools, (3) Student-Centered and Adaptive Strategies, (4) Structured and Explicit Teaching Approaches, and (5) Interdisciplinary and Values-Based Learning.

These findings are discussed in detail and are explicitly linked to Constructivist Theory and Pedagogical Content Knowledge (PCK) Theory to provide both theoretical grounding and classroom relevance. These themes, along with representative examples and elaborations based on the actual classroom scenarios, are presented and discussed in detail in Table 21 as follows:

Table 21

The Teachers' Teaching Practices in Research-Related Subjects in Senior High School

Theme	Codes	References and Core Ideas
Theme 1: Interactive Teaching Strategies	Active Student Engagement, Collaboration, and Critical Thinking	**Participant 1** Interactive Teaching Strategies; Use of Graphic Organizers & Brainstorming; Inquiry-Based Learning and Use of Multiple-Choice Tests for Assessment **Participant 2** Collaborative Learning Approaches and Inquiry-Based Learning; **Participant 3** Flexible Learning Approaches and Varied Assessments

Theme	Codes	References and Core Ideas
Theme 2: Integration of ICT Tools	Digital Technologies in Teaching and Learning the Research-Related Subjects	**Participant 2** Integration of ICT Tools **Participant 3** Integrative Approach, Use of ICT, **Participant 4** Technology-Enhanced Learning
Theme 3: Student-Centered and Adaptive Strategies	Approaches that prioritize students' needs, learning styles, and real-world applicability	**Participant 2** Scaffolding Techniques and Real-World Application **Participant 3** Student-Centered Strategies and Scaffolded Learning for Diverse Students and Flexible Learning Approaches **Participant 2** Emphasis on Critical Thinking and Justification
Table 21 (continued) **Theme 4: Structured and Explicit Teaching Approaches**	Direct Teaching with Active, Hands-On Engagement	**Participant 4** Structured Learning Approach/Explicit Teaching; Hands-On and Collaborative Learning; Group Activities and Explicit Teaching Model
Theme 5: Holistic and Values-Based Learning	Multiple Disciplines and Ethical & Moral Values in Students	**Participant 3** Focus on Research Ethics **Participant 4** Interdisciplinary Learning and Values Integration

Table 21 presents the thematic summary of observed teaching practices among senior high school teachers handling research-related subjects. These emergent themes were generated through systematic classroom observations and further validated through data from the open-ended responses to a written research questionnaire. These themes provide a nuanced understanding of how teachers deliver research education while navigating varied student needs, curricular demands, and instructional challenges.

Theme 1: Interactive Teaching Strategies

As presented in Table 21, classroom observations revealed that teachers consistently applied interactive teaching strategies in their delivery of research-related subjects. These strategies focused on engaging students through collaboration, inquiry-based activities, brainstorming, and dynamic assessments to promote critical thinking. To enrich and validate these observations, thematic triangulation was conducted using the open-ended responses from four teacher-participants, offering first-hand insight into their teaching philosophy and practices.

Participant 1 noted,

> *"I focus on simplifying lessons and using step-by-step strategies to help them understand the process."*

This approach aligns closely with the observed use of structured brainstorming activities and scaffolding techniques, demonstrating an awareness of students' learning challenges and a commitment to guiding them through the research process gradually.

Participant 2 shared,

> *"I ensure that my lessons are interactive by incorporating research simulations, peer reviews, and case study analysis."*

This directly supports the observed use of collaborative group work and interactive discussion formats, which promote inquiry and student ownership of learning.

Participant 3 explained,

> *"I create more interactive activities, such as peer reviews and group collaborations, to help them become more comfortable with research work."*

This emphasis on collaboration reflects the use of inquiry-based strategies observed in the classroom and suggests a student-centered approach to building research confidence.

These teaching practices closely reflect principles of the Constructivist Theory. As Vygotsky (1978) posits, students learn best through active engagement and social interaction. By encouraging group collaboration, teachers foster an environment where students co-construct knowledge and support one another through shared inquiry. Furthermore, this aligns with Shulman's Pedagogical Content Knowledge (PCK) framework, where effective teaching is defined not only by mastery of content but also by the ability to make it comprehensible and meaningful for learners through appropriate pedagogical strategies. Hattie (2009) emphasizes that collaborative and student-centered practices, such as those used here, are among the most impactful for enhancing learning. Likewise, Bransford et al. (2000) highlighted that active learning and problem-solving in context are essential for deep, transferable understanding.

The theme of Interactive Teaching Strategies showcases how research teachers use collaboration, inquiry, and structured engagement to bring research-based instruction to life. Their practices, rooted in student experience and supported by real classroom dynamics, emphasize scaffolding, peer interaction, and simplified approaches that promote student confidence and competence in research. Triangulating observation data with teacher reflections affirms that these strategies not only make research more accessible but also equip students with critical academic and collaborative skills essential for real-world problem solving.

Theme 2: Integration of ICT Tools

Classroom observations recorded in Table 21 reveals that teachers actively incorporated information and communication technology (ICT) tools in their instruction of research-related subjects. The integration of digital technologies, ranging from online sources and presentation tools to research simulations and

collaborative platforms, enhanced both student engagement and instructional delivery. To strengthen and contextualize this observation, open-ended responses from the four participants were thematically triangulated, confirming the vital role of ICT in modern research instruction.

Participant 2 clearly articulated this integration:

> *"I incorporate research methods and findings by preparing well-structured lesson plans and handouts that are based on actual studies and best practices… I also facilitate workshops and discussions where students explore real research challenges."*

The emphasis on preparing digital materials and facilitating research-focused dialogues reflects purposeful integration of technology-enhanced content, supporting student understanding through authentic research experiences.

Participant 3 added,

> *"I also include collaborative activities such as group discussions and case studies, allowing students to experience the research process in a more interactive and engaging way."*

These activities often involve digital tools such as shared documents or online platforms that support real-time collaboration and feedback, confirming that ICT is central to her delivery method.

Meanwhile, Participant 4 highlighted a practical and accessible approach to technology use:

> *"I also use more visual aids, real-world examples, and hands-on activities to keep them engaged."*

In many classrooms, this translates to the use of video clips, presentation software, or online resources tailored to students in technical-vocational tracks, making complex ideas more relatable and digestible.

This observed and articulated use of ICT aligns with Constructivist Theory, which emphasizes that learners construct knowledge through interaction with tools, peers, and meaningful contexts (Vygotsky, 1978). In particular, technology acts as a cognitive scaffold, providing students with access to broader content and interactive environments where they can test ideas and learn collaboratively.

From a Pedagogical Content Knowledge (PCK) perspective, the thoughtful integration of ICT tools shows teachers' capacity to merge subject content with instructional strategies that are engaging and accessible. Teachers not only understand the research content but also how to present it using tools that resonate with their students' learning preferences and technological literacy.

As supported by Hattie (2009), technology-enhanced teaching strategies significantly improve learning outcomes when aligned with clear pedagogical goals. Similarly, Bonner (2018) emphasizes that technology is not effective on its own, but becomes impactful when used strategically to foster interaction, inquiry, and feedback. It becomes a core feature, which is evident in the practices of the teachers in this study.

The Integration of ICT Tools theme highlights how teachers leverage digital technologies to enhance research instruction in meaningful ways. Through simulations, visual aids, real-life examples, and collaborative online work, teachers make research more accessible, engaging, and relevant. This integration, observed in classrooms and affirmed by teachers' accounts, not only supports knowledge construction but also prepares students with the digital fluency required for higher-level academic and professional pursuits. Triangulating these strategies with participant reflections affirms their impact as both innovative and necessary in the evolving educational landscape.

Theme 3: Student-Centered and Adaptive Strategies

Table 21 reveals a prominent theme in the observed teaching practices: Student-Centered and Adaptive

Strategies. This approach is characterized by flexible instruction tailored to individual learner needs, real-world applicability, scaffolding techniques, and inclusive practices. Teachers designed lessons to reflect students' backgrounds, abilities, and learning paces, ensuring that research instruction was not only informative, but also accessible and empowering.

This theme was further supported through verbatim responses from all four participants in the open-ended questionnaire.

Participant 1 shared:

> *"I encourage interactive discussions, provide clear templates for research writing, and allow students to work in groups to analyze and critique research studies. I also use simple and relatable examples to help them connect theoretical concepts with practical applications."*

This demonstrates how students' needs were prioritized and how instruction was designed to be gradual, clear, and anchored in real-life connections, principles of scaffolding central to Vygotsky's (1978) Zone of Proximal Development.

Participant 3 noted,

> *"I focus on making research concepts more approachable and understandable for students. I encourage them to explore research in a way that feels less intimidating and more practical."*

Her approach emphasizes emotional safety in learning, creating a supportive environment where students are guided through challenges without fear, a hallmark of both adaptive teaching and constructivist learning environments.

Meanwhile, Participant 2 stated,

> *"I guide students in choosing meaningful and relevant research topics, making the learning process more engaging and impactful."*

By allowing learners to select topics aligned with their interests and experiences, the participant empowered students to take ownership of their research, an effective strategy aligned with inquiry-based learning and Constructivist Theory.

Participant 4, working primarily with Technical-Vocational-Livelihood (TVL) students, emphasized the importance of adapting lessons to learner context:

> *"Because I know that my students are not very academically inclined, I try to make research more practical and relevant to their field of study."*

This real-world connection reflects the practical application of PCK, where the teacher's understanding of student needs informs instructional choices and content delivery.

These findings are further grounded in Hattie's (2009) research on visible learning, which identified adaptive teaching strategies and student ownership as key drivers of student success. Bruner (1961) and Prince (2004) also emphasize that when students are placed at the center of the learning process, and teaching is tailored to their context, it fosters deeper engagement and learning. The varied instructional techniques observed, such as scaffolded group work, differentiated examples, and inquiry-driven projects, reflect this philosophy in action.

From a PCK standpoint, teachers demonstrated deep pedagogical awareness by translating research content into formats suited to learners' diverse abilities and experiences. This responsiveness strengthens not just knowledge delivery but also motivation and skill development, making research more accessible and meaningful to all learners.

The theme of Student-Centered and Adaptive Strategies reveals how teachers respond to the diverse needs, interests, and capabilities of their students through flexible, scaffolded, and personalized instruction. Triangulated insights from classroom observations and teacher reflections illustrate how these strategies foster learner autonomy, reduce academic anxiety, and increase relevance, key principles of both Constructivist and PCK frameworks. By adapting lessons to students' levels and contexts, teachers not only improve comprehension but also cultivate confident, independent, and capable young researchers.

Theme 4: Structured and Explicit Teaching Approaches

As reflected in Table 21, teachers of research-related subjects in Senior High School utilized Structured and Explicit Teaching Approaches, marked by direct instruction, step-by-step explanations, and active, hands-on student engagement. These methods were particularly evident in how teachers modeled research writing, broke down procedures, and guided learners through practical activities. This structured approach ensured that students understood each research component before applying it independently.

Insights from the participants' open-ended questionnaire responses reinforce this theme.

Participant 1 shared:

> *"I focus on simplifying lessons and using step-by-step strategies to help them understand the process… I rely on lesson plans and instructional materials to guide my teaching and ensure that students understand the research process in a step-by-step manner."*

This highlights a firm reliance on structure and sequencing—core elements of explicit instruction that build foundational understanding before moving on to higher-order tasks.

Participant 3 added,

> *"I do my best to simplify concepts and encourage students to ask questions so they can gradually build their confidence in research."*

This approach reflects explicit scaffolding where student learning is supported incrementally, allowing them to grasp each step of the research process with guided confidence.

Participant 4, working with students in the TVL track, emphasized a similarly structured and practical approach: *"*

> *I try to focus on the basic principles of research and make learning more interactive so that students do not feel overwhelmed."*

By breaking complex content into simpler components and pairing it with hands-on activities, this teacher makes research accessible to students with varied academic backgrounds.

These accounts support what was observed: teachers used guided practice, group activities, and explicit modeling, allowing students to see how research is done before trying it themselves. This method aligns closely with Constructivist Theory, particularly Bruner's emphasis on guided discovery and the role of the teacher in scaffolding knowledge construction.

From a Pedagogical Content Knowledge (PCK) perspective, these teachers effectively combined content expertise with targeted instructional strategies. They did not merely teach research; they carefully shaped the how of instruction, sequencing lessons, modeling writing, and adjusting pacing, to ensure that content became accessible and meaningful.

Educational theorists like Hattie (2009) have long affirmed that explicit teaching, particularly when paired with formative assessment and active engagement, has a strong impact on learning. Bransford et al. (2000) also argue that clear frameworks, when combined with opportunities for students to apply learning in real-world tasks, promote deeper retention and understanding.

The theme of Structured and Explicit Teaching Approaches underscores how teachers deliver research instruction through clear, sequential, and supportive methods. By carefully scaffolding lessons and incorporating practical engagement, teachers help students build confidence and competence in tackling complex research tasks. When triangulated with classroom observations, these reflections confirm that structure does not limit learning, instead, it provides the clarity, support, and security students need to take intellectual risks, develop skills, and eventually work independently. This theme illustrates the power of explicit instruction grounded in thoughtful pedagogy, confirming its value in shaping capable, research-literate learners.

Theme 5: Holistic and Values-Based Learning

The final emergent theme from Table 21 is Holistic and Values-Based Learning, which encapsulates how teachers in research-related subjects cultivate students' ethical understanding, interdisciplinary thinking, and sense of social responsibility. This theme was evident in class observations through the integration of ethical issues, the application of research to real-life contexts, and the blending of knowledge across disciplines. Teachers created opportunities for students not just to do research, but to understand why it matters and how it should be conducted responsibly.

This thematic insight was supported and deepened by participant verbatim from the open-ended questionnaire. Participant 3 emphasized the importance of moral alignment in research teaching:

> *"I try to simplify concepts and encourage students to ask questions so they can gradually build their confidence in research."*

While subtle, this quote shows a values-based commitment to empathy, patience, and creating a psychologically safe learning environment, especially when teaching difficult and often intimidating topics like research.

Participant 4, who teaches TVL students, said:

> *"I focus on making research topics more relatable and practical so that they can understand how research applies to real-life situations."*

This grounding of research in real-world issues helps students develop both relevance and responsibility in their work, a core tenet of Constructivist Theory, which views knowledge as actively constructed through meaningful, contextualized experiences (Vygotsky, 1978).

Participant 2, with extensive experience, modeled a broader social commitment:

> *"I emphasize not only the theoretical aspects of research but also its practical significance in solving real-life problems."*

Here, the teacher brings in the ethical and applied dimensions of research, encouraging students to see inquiry not as an abstract academic task but as a tool for societal good.

Meanwhile, Participant 1 reflected on the deeper values embedded in their practice:

> *"My limited experience has made me more empathetic towards students who struggle with research concepts."*

This response highlights the relational and ethical stance the teacher takes, reinforcing a humanized, student-centered, and values-driven approach to instruction.

From a theoretical standpoint, Constructivist Theory supports the integration of values into academic content. Learning is not only cognitive but also social and moral. When teachers address research ethics, social implications, and interdisciplinary relevance, they align with constructivist views of holistic development.In terms of Pedagogical Content Knowledge (PCK), these teachers exhibit a deep understanding of how to translate research concepts into life lessons and ethical practice. They skillfully

combine what they teach (research concepts) with how they teach it (through contextualized, values-rich, and interdisciplinary approaches).

Scholars like Resnik (2020) stress that integrating research ethics early on helps students develop integrity and accountability. Likewise, Repko and Szostak (2020) advocate for interdisciplinary learning to cultivate problem-solving and innovative thinking. And as Hattie (2009) shows, student motivation increases when learning feels purposeful and connected to real life.

The Holistic and Values-Based Learning theme reveals that teachers go beyond technical instruction; they intentionally cultivate a learning environment grounded in ethical inquiry, critical reflection, and social responsibility. Through acts of empathy, practical application, and interdisciplinary integration, teachers help shape students not only into competent researchers but into reflective individuals who understand research as a means to make a meaningful impact. This direction in teaching was consistently evident across both the classroom observations and teachers' written responses, which echoed similar efforts to embed values in research instruction. The alignment between observed practices and teachers' reflections suggests a conscious and authentic commitment to making research more ethical, inclusive, and life-relevant. This theme illustrates that when values are intentionally woven into pedagogy, they elevate the purpose of research beyond academics, encouraging learners to ask not just how to research, but why it matters.

Research Question 6. How Research Exposure Influences the Teaching Practices of Research-Related Subjects in Senior High School

In consideration of your various research exposures, how did it influence your way of teaching research-related subject matter among senior high school students?

This question sought to examine the relationship between teachers' research experiences and their instructional strategies. It aimed to determine if and how these exposures shape teaching methods, student engagement, and the overall structure of research learning in the classroom.

The thematic analysis of the responses of the participants during the collection of data revealed one theme, which is the Influence of Research Exposure on Teaching Practices.

This theme is discussed in Table 22 as follows:

Table 22

The Influence of Research Exposure on Teaching Practices in Research-Related Subjects Among Senior High School Teachers

Theme	Codes	References and Core Ideas
Differentiated Teaching Practices as Shaped by Research Exposure	**Self-Directed Learning and Instructional Adaptation**	**Participant 1** **Relies on self-study, instructional materials, and structured lesson guides due to limited research exposure. Uses step-by-step strategies to simplify concepts and collaborates with experienced colleagues for continuous learning.** **Participant 4**

		Experiences anxiety due to limited research background but compensates by simplifying lessons and making research topics more relatable for students, especially in the TVL track.
	Application of Research Experience to Teaching	**Participant 2** Extensive research exposure influences structured yet flexible teaching strategies, integrating real-world applications of research. Prepares lesson plans and handouts to maintain consistency in research instruction.
		Participant 3 Emphasizes collaborative research practices due to prior experience in teamwork-based research. Guides students step by step, ensuring they understand proper research procedures.

Table 22 presents the emergent theme, "Differentiated Teaching Practices as Shaped by Research Exposure," which illustrates how varying degrees of research experience influence senior high school teachers' instructional approaches in research-related subjects. Two key patterns surfaced in the data: teachers either adapted through self-directed learning due to limited exposure or applied structured, real-world strategies informed by deeper research experience.

Teachers with minimal research exposure, such as Participants 1 and 4, described how they compensate for their limited training by relying heavily on self-study, instructional materials, and step-by-step lesson guides. These methods are often employed to simplify complex research concepts and foster student understanding, especially among learners who may struggle academically.

Participant 1 explained,

> *"Since I have no formal research exposure aside from my undergraduate thesis, my teaching approach is largely based on self-study, instructional materials, and structured lesson guides. My limited experience has made me more empathetic towards students who struggle with research concepts, so I focus on simplifying lessons and using step-by-step strategies to help them understand the process."*

Participant 4 shared a similar sentiment, particularly in teaching learners under the Technical-Vocational-Livelihood (TVL) track:

> *"Since I do not have much research exposure aside from my undergraduate thesis, teaching research has been quite challenging for me... I try my best to simplify the lessons, especially since my students under the TVL track are not very academically inclined. I focus on making research topics more relatable and practical so that they can understand how research applies to real-life situations."*

This adaptive teaching practice reflects the Constructivist view that learners, teachers included, construct knowledge through experience and reflection (Piaget, 1950; Vygotsky, 1978). Teachers with limited research exposure become learners themselves, navigating content through self-directed professional growth and applying those insights to make learning accessible to their students.

In contrast, Participants 2 and 3, who reported broader research engagement, demonstrated how substantive research exposure equips educators to deliver structured and real-world-oriented instruction. Participant 2 noted:

> *"My extensive research exposure has significantly shaped the way I teach research-related subjects... I ensure that my teaching is grounded in real-world applications... I also take the initiative to create well-prepared lesson plans and handouts, not only for my own classes but also for the benefit of my fellow teachers."*

Participant 3 also emphasized the importance of modeling proper research procedures based on collaborative experience:

> "Since my research experience has mostly been through collaborative work, I have learned the value of teamwork and proper research procedures, which I also emphasize to my students. I try to guide them through the research process step by step, making sure they understand the importance of each stage."

These responses align closely with the Pedagogical Content Knowledge (PCK) framework (Shulman, 1986), which emphasizes the integration of content mastery with instructional strategy. Teachers who have experienced research firsthand are better positioned to anticipate student misconceptions, scaffold complex ideas, and tailor lessons to bridge theory and practice.

This finding supports earlier work by Darling-Hammond et al. (2020), who noted that teacher effectiveness is enhanced when professional development includes real-world applications. Additionally, Bransford et al. (2000) emphasized that instruction grounded in practical relevance helps students transfer their learning beyond academic contexts.

The theme "Differentiated Teaching Practices as Shaped by Research Exposure" reveals a meaningful pattern: teachers tailor their instruction based on their depth of research experience. Those with limited exposure adopt self-directed strategies, focusing on clarity and accessibility, while those with broader exposure implement more structured, applied teaching grounded in lived research experience. Both approaches demonstrate adaptability and a strong commitment to student learning. However, the contrast also highlights the importance of supporting less-experienced teachers through targeted professional development and peer mentoring. Doing so would promote more consistent, research-informed instruction across classrooms, strengthening both teaching quality and student outcomes in research education. Moreover, the varied approaches show that teachers are not passive recipients of training; they actively construct and personalize their pedagogies based on what they know and what they still need to learn. This underscores the value of differentiated support models that honor individual growth paths while ensuring all students receive instruction grounded in credible, research-based practices. In nurturing these diverse teaching strategies, schools not only empower teachers but also foster a culture of inquiry and innovation that benefits the entire learning community.

In what ways do you feel that your own experiences with research impact your approach to teaching research-related subjects in senior high school?

This question sought to explore how individual research experiences influence the teaching strategies and

methods used when instructing students in research-related subjects. It aimed to uncover whether these experiences shape the way research content is delivered, how students are guided in their learning, and the overall effectiveness of teaching practices in research education.

The thematic analysis of the responses of the participants during the collection of data revealed one theme, which is the Influence of Research Experience on Teaching Research-Related Subjects.

This theme is discussed in Table 23 as follows:

Table 23

The Influence of Teachers' Research Experience on Their Instructional Approaches in Research-Related Subjects in Senior High School

Theme	Codes	References and Core Ideas
Pedagogical Practices Through Research Experience	Structured Support and Student-Centered Instruction	**Participant 1** • Limited research experience beyond undergraduate thesis; • Relates to students' struggles and uses structured lessons and clear examples. • Provides gradual guidance and constant support to help students build research confidence.
	Encouragement of Collaboration and Continuous Learning	**Participant 2** • Extensive research background shapes engaging and relatable instruction. • Uses personal research examples and published studies to illustrate concepts. • Acts as a mentor to other teachers, fostering research competence among colleagues.
	Encouragement of Collaboration and Continuous Learning	**Participant 3** • Research experience comes from teamwork, encouraging student collaboration. • Feels the need to consult experts and refer to additional sources to ensure accuracy. • Focuses on continuous learning to strengthen teaching strategies.

Theme	Codes	References and Core Ideas
		Participant 4
	Cautious Approach to Teaching and Expert Consultation	• Relies on teamwork-based research experience. • Prioritizes collaboration in student learning. • Acknowledges knowledge gaps and consults experts to improve research instruction.

Table 23 presents the emergent theme, *Pedagogical Practices Through Research Experience*, which describes how senior high school teachers' research backgrounds shape their instructional approaches in research-related subjects. This theme highlights three major teaching patterns based on varying degrees of research experience: (1) structured and student-centered support from those with minimal exposure, (2) practice-informed teaching and peer mentorship from highly experienced teachers, and (3) collaborative and cautious instruction influenced by team-based research experience. These findings illustrate the dynamic role of research exposure in shaping pedagogical content knowledge (Shulman, 1986) and align closely with constructivist principles of teaching and learning (Vygotsky, 1978; Bruner, 1996).

Teachers with minimal exposure to formal research, such as Participant 1, adopt structured support strategies and student-centered methods to assist learners with challenging concepts. This instructional scaffolding is grounded in empathy for students' struggles, as they experienced difficulty mastering research during their undergraduate years.

Participant 1 explained:

> *"Since I have only completed a thesis in college and have not attended research seminars or conducted independent research, I sometimes find it difficult to teach advanced research concepts. However, I use my experience as a student to relate to my learners' struggles. I ensure that I guide them gradually through the research process, providing structured lessons, clear examples, and constant support to help them build confidence in their research skills."*

This approach reflects Bruner's (1996) theory of scaffolding and the constructivist belief that students build understanding best through guided steps and authentic support. In terms of pedagogical content knowledge (PCK), this method represents an integration of subject knowledge and pedagogy tailored to student learning needs (Shulman, 1986). The use of clear examples and sequenced lessons addresses gaps not only in students' understanding but also in the teacher's own confidence with advanced concepts, making the teaching process more reflective and learner-centered.

In contrast, Participant 2, who has substantial research experience, leverages this expertise to make instruction more meaningful, practical, and collaborative. This participant shared:

> *"My research experiences provide me with a broader perspective on how research contributes to knowledge development and evidence-based decision-making. This influences my teaching by allowing me to present research concepts in a more engaging and relatable manner. I integrate examples from my own research and published studies to help students understand the relevance of research in various fields. Additionally, since*

> *I have extensive experience, I also serve as a mentor to other teachers who are new to teaching research, helping them develop their own research competence."*

The ability to link classroom teaching with real-world research practices enhances students' understanding of the value of academic inquiry, a core principle of both PCK and constructivism. These teachers not only integrate relevant examples but also assume mentorship roles, contributing to school-wide professional development (Garet et al., 2001). By doing so, they foster a research-informed culture where evidence-based strategies are shared and continuously improved.

Meanwhile, Participants 3 and 4 described moderate research exposure mainly gained through team-based projects, shaping a more collaborative and reflective teaching style. Participant 3 emphasized both peer learning and the need for consultation:

> *"Since most of my research experience comes from working with a team, I always encourage collaboration among my students. However, I sometimes feel that my knowledge is not enough, so I make an effort to consult other research experts and refer to additional sources. This makes me more cautious in my teaching, ensuring that I provide accurate information while continuously improving my understanding of research."*

Likewise, Participant 4 echoed similar sentiments about their reliance on teamwork and the importance of expert guidance:

> *"Since most of my research experience comes from working with a team, I always encourage collaboration among my students. However, I sometimes feel that my knowledge is not enough, so I make an effort to consult other research experts and refer to additional sources. This makes me more cautious in my teaching, ensuring that I provide accurate information while continuously improving my understanding of research."*

Both educators' approaches reflect Vygotsky's (1978) view that learning is socially constructed and that collaboration, both among students and professionals, plays a key role in building knowledge. From a PCK perspective, their practices demonstrate the pedagogical value of adapting instruction while actively seeking professional development to overcome content limitations (Shulman, 1986; Hattie, 2009).

The theme Pedagogical Practices Through Research Experience captures a broad spectrum of teaching practices rooted in teachers' levels and types of research exposure. Teachers with limited research experience rely on structured, scaffolded lessons and student-centered approaches to navigate their instructional roles, while highly experienced teachers leverage their expertise to provide meaningful, real-world applications and mentor their peers. Those with collaborative, team-based research exposure emphasizes partnership and continuous self-improvement, often compensating for knowledge gaps by consulting research experts and engaging in reflective practice.

The findings reinforce the importance of integrating both Constructivist Theory and PCK in research education. Constructivist Theory affirms the value of student-centered, collaborative, and guided instruction, while Pedagogical Content Knowledge provides a framework for how teachers integrate content mastery with adaptive pedagogy. Together, they support the need for professional development models that recognize varied research backgrounds and offer differentiated training, mentorship, and access to research communities.

This implies that supporting teacher growth in research instruction must consider not only their current competencies but also their lived experiences, confidence levels, and evolving professional development needs. It is not enough to provide one-size-fits-all training. What teachers truly need is support that recognizes where they are in their journey and meets them there. Schools should foster collaborative

teaching cultures and mentorship structures that empower all educators, whether they are just starting to engage with research or have years of experience behind them. When teachers feel seen, supported, and trusted, they become more open to exploring new strategies and refining their practice. In this kind of environment, research instruction becomes less of a burden and more of a shared pursuit—one rooted in curiosity, purpose, and a deep desire to give students meaningful, inquiry-driven learning experiences.

Research Question 7. How Research Competence Influence Their Teaching Practices of Research-Related Subjects in Senior High School

1. *How do you incorporate research methods and findings into your lesson plans and classroom activities to help your students understand research-related topics better?*

This question sought to examine how a teacher's level of research competence informs the integration of research methods and findings into instructional planning and classroom activities. It aimed to understand the strategies used to enhance students' comprehension of research concepts and improve their ability to engage with research-related subject matter.

The thematic analysis of the responses of the participants during the collection of data revealed one theme, which is the Integration of Research Methods into Teaching Strategies.

This theme is discussed in Table 24 as follows:

Table 24

The Strategies for Incorporating Research Methods and Findings into Lesson Plans and Classroom Activities

Theme	Codes	References and Core Ideas
Integration of Research Methods into Teaching Strategies	Utilizing Teaching Materials and Structured Lesson Plans	**Participant 1** Relies on textbooks, sample research papers, and instructional materials to ensure lesson accuracy. **Participant 2** Develops structured lesson plans and handouts based on actual studies and best practices.
	Incorporating Interactive and Analytical Activities	**Participant 1** Engages students in analyzing research abstracts, critiquing studies, and drafting research proposals. **Participant 2** Uses workshops and discussions to help students explore real research challenges. **Participant 3**

	Implements collaborative activities such as group discussions and case studies to promote engagement.
Simplifying Research Concepts Through Real-Life Examples	**Participants 1 & 3** Uses relatable examples from various fields, such as Biology and industry applications. **Participant 4** Break down complex topics into practical exercises to enhance student comprehension.
Adapting Instruction to Student Needs and Backgrounds	**Participant 3** Adjusts explanations and language to match students' proficiency levels (e.g., teaching Practical Research 1 in Filipino). **Participant 4** Aligns research instruction with TVL students' future careers through hands-on and skill-based activities.

Table 24 presents the emergent theme titled "Integration of Research Methods into Teaching Strategies," which describes how senior high school teachers incorporate research concepts and practices into their lesson plans and classroom activities. The theme captures a multifaceted instructional approach, where educators blend structured lesson design, interactive learning experiences, and real-life applications to make research concepts accessible and meaningful. Teachers draw on various methods, including inquiry-based activities, data analysis tasks, and collaborative projects, to bridge the gap between abstract theory and classroom practice, aligning research instruction with both academic standards and students' lived experiences.

The strategies observed in the responses reflect four core practices: utilizing structured teaching materials, incorporating interactive and analytical activities, simplifying research concepts through real-life examples, and adapting instruction to suit student needs. These practices align with pedagogical principles such as explicit instruction (Rosenshine, 2012), active learning (Freeman et al., 2014), and differentiated instruction (Tomlinson, 2001). From a PCK perspective, these strategies exemplify how teachers tailor their content knowledge into instructional formats that resonate with learners' needs, while the Constructivist theory is reflected in their emphasis on student-centered learning and real-world relevance. Participant 1, who acknowledged having limited research competence, emphasized the use of textbooks, sample research papers, and structured materials to ensure accuracy in lesson delivery.

The teacher stated:

> *"Given my limited research background, I rely on available teaching materials, sample research papers, and textbooks to ensure that my lessons are accurate and informative. I incorporate interactive activities such as analyzing research abstracts, critiquing sample studies, and guiding students in drafting research proposals. I also make use of simple*

real-life examples, particularly from Biology, to illustrate research concepts in a way that students can easily understand."

This approach not only supports students through explicit, scaffolded instruction (Archer & Hughes, 2011) but also mirrors PCK's emphasis on adapting subject matter to meet learners' cognitive levels. Similarly, Participant 2, with extensive research experience, develops structured lesson plans and handouts grounded in actual research practices. This aligns with the idea that strong research competence enhances the coherence and rigor of instruction (McTighe & Wiggins, 2012).

The inclusion of interactive and analytical activities emerged prominently in the responses of Participants 1, 2, and 3. These teachers promote student engagement through tasks such as critiquing sample studies, conducting research simulations, and participating in group discussions or workshops.

Participant 3 elaborated:

"I try to simplify research concepts by using real-life examples that students can easily relate to. Since Practical Research 1 is taught in Filipino, I ensure that my explanations are clear and not too technical. I also include collaborative activities such as group discussions and case studies, allowing students to experience the research process in a more interactive and engaging way."

Such strategies align with constructivist learning, where students actively construct knowledge through experience and reflection (Bruner, 1960), and reflect the PCK model's focus on adapting instructional strategies based on language, context, and students' prior knowledge.

Participants 1, 3, and 4 also highlighted the use of real-life examples to simplify abstract research ideas, helping students connect new information with familiar situations.

Participant 4 shared:

"Because my students are in the TVL track, I make sure to use practical examples that are related to their skills and future careers. I also break down complex topics into simpler activities, such as hands-on exercises and small group discussions, so they can learn research concepts in a way that is easier for them to grasp."

This tailored approach is a practical application of both constructivism and differentiated instruction. It supports the notion that students learn best when content is contextualized and delivered through strategies responsive to their needs, abilities, and backgrounds (Tomlinson, 2001; Sweller et al., 2011).

In adapting instruction, Participants 3 and 4 demonstrated sensitivity to students' language proficiency and career tracks. Participant 3 simplifies technical content by delivering instructions in Filipino, while Participant 4 incorporates career-relevant examples for TVL students. These modifications are consistent with PCK theory, which emphasizes that effective teaching involves transforming disciplinary knowledge into accessible formats based on students' characteristics and learning environments.

The data from Table 24 illustrate that integrating research methods into teaching requires intentional, well-informed strategies that connect pedagogical techniques with student needs and contextual realities. Teachers with varying levels of research experience employ a combination of structured planning, real-life examples, interactive tasks, and differentiated instruction to support learning. This holistic approach reflects both constructivist values, by grounding research learning in experience and student agency, and Pedagogical Content Knowledge theory, by demonstrating how teachers adapt content to facilitate understanding. These insights reinforce the importance of equipping educators with both research and pedagogical training to deliver meaningful, inclusive, and high-impact research education.

2. *How do you believe your research competencies shape the way you teach research-related subjects in senior high school?*

The thematic analysis of the responses of the participants during the collection of data revealed one theme, which is Research Competencies on Teaching Practices.

This theme is discussed in Table 25 as follows:

Table 25

The Impact of Research Competencies on Teaching Practices Among Senior High School Research Teachers

Theme	Codes	References and Core Ideas
Research Competencies on Teaching Practices	Research Competence Levels	**Participants 1 & 4** Limited research competence leads to focusing on fundamental concepts and using interactive strategies.
	Instructional Strategies	**Participant 2** Strong competence enhances teaching effectiveness, supports colleagues, and develops instructional materials.
	Professional Growth Efforts	**Participant 3** Moderate competence combined with some anxiety fosters empathy, patience, and simplified instruction.
	Mentorship & Collaboration	**All Participants** Research competence levels directly shape teaching methods, confidence, and professional development.

Table 25 presents the emergent theme that describes the Impact of Research Competencies on Teaching Practices Among Senior High School Research Teachers, which is "Research Competencies on Teaching Practices." This theme explores how varying degrees of teacher research competence influence instructional design, classroom delivery, and student support in research-related subjects. Teachers' competence in research affects not only the depth of content but also their ability to scaffold learning, manage diverse learning needs, and model reflective inquiry for students.

The data reveal four core codes under this theme: Research Competence Levels, Instructional Strategies, Professional Growth Efforts, and Mentorship and Collaboration.

Teachers with limited research competence, such as Participant 1 and Participant 4, tend to focus on delivering foundational research concepts through structured, student-centered strategies. These educators simplify lessons and guide students step-by-step, compensating for their uncertainties with a strong emphasis on support and clarity.

Participant 1 shared:

> *"Since my research competence is still developing, I focus on the basics of research and try to simplify complex topics for my students. I rely on lesson plans and instructional materials to guide my teaching and ensure that students understand the research process*

> *in a step-by-step manner. My limitations also push me to learn alongside my students, making the research journey a collaborative effort."*

This reflective, scaffolded approach aligns with Shulman's (1987) concept of Pedagogical Content Knowledge (PCK), where teachers with less domain expertise rely more heavily on structured pedagogical strategies. It also echoes the constructivist emphasis on guided learning (Bruner, 1966), helping students build understanding through manageable steps.

In contrast, Participant 2 exemplifies the instructional benefits of strong research competence. They apply advanced knowledge to facilitate inquiry-based instruction and provide mentorship to peers:

> *"My high level of research competence allows me to teach with confidence and authority, ensuring that my students receive well-structured and research-based instruction. Because I have firsthand experience in conducting and publishing research, I can provide students with concrete examples and guide them effectively through the research process. My experience also enables me to identify common challenges that students face and address them proactively."*

This level of competence fosters sophisticated lesson planning and evidence-based instruction. As suggested by Darling-Hammond (2000), educators who possess strong research skills tend to model expert thinking and connect learning to authentic contexts—hallmarks of high-impact teaching.

Participant 3's response illustrates how moderate competence and ongoing self-development contribute to a compassionate, adaptive teaching style. Their desire to grow professionally translates into teaching practices that are more empathetic and accessible:

> *"I know that I still have a lot to learn about research, so I make an effort to continuously improve my knowledge. This also reflects in my teaching, where I focus on making research concepts more approachable and understandable for students. I encourage them to explore research in a way that feels less intimidating and more practical."*

Here, the connection to constructivist learning theory is evident, as the teacher creates space for shared learning, acknowledging both their own and their students' developmental trajectories (Vygotsky, 1978). This aligns with Fisk's (2022) data storytelling principle of "humanizing the data," where educators frame learning as a journey shaped by growth, not perfection.

Finally, across all competence levels, the value of Mentorship and Collaboration emerged consistently. Teachers highlighted the importance of peer learning and professional dialogue, suggesting that competence is not fixed but fostered through collegial exchange. These findings affirm the research of Timperley et al. (2018), who advocate for professional learning communities as drivers of teacher development and innovation in classroom practices.

The findings from Table 25 underscore that research competence has a direct and nuanced impact on instructional practices. Teachers with developing competence tend to lean on structure, simplification, and collaborative learning with students, while highly competent teachers integrate advanced research thinking and provide mentorship to others. Meanwhile, those in between adopt a balanced, growth-oriented approach. Importantly, collaboration and continued learning were evident at all levels, highlighting a shared commitment to improving research education through peer support and reflective practice.

This suggests that schools should invest in differentiated professional development, one that meets teachers where they are. Less-experienced teachers benefit most from scaffolded learning opportunities that break down complex research concepts into manageable, practical steps. At the same time, experienced educators can be empowered to lead mentorship programs, share classroom-tested strategies,

and guide others through the nuances of research instruction. When teachers collaborate across levels of experience, professional learning becomes richer and more relevant. Institutional mechanisms that promote collaborative planning, peer coaching, and regular access to current research literature can significantly elevate the collective competence of research teachers. More importantly, these strategies go beyond improving instructional quality, they foster stronger teacher relationships, boost student engagement, and cultivate a culture where inquiry, reflection, and evidence-based practice are not the exception, but the norm. In such environments, both teachers and students thrive, not just because they are taught what to think, but because they are encouraged to ask why and how.

3. ***In what ways do your research skills help you adapt your teaching methods to better engage students in research-related topics?***

To further explore how research skills influence teaching practices, it is important to examine how these skills help in adapting teaching methods to engage students more effectively. This question sought to understand how teachers apply their own research skills to enhance student engagement in research-related topics.

The thematic analysis of the responses of the participants during the collection of data revealed one theme which is "Research Skills on Adapting Teaching Methods to Better Engage Students in Research-Related Topics".

This theme is discussed in Table 26 as follows:

Table 26

The Impact of Research Skills on Adapting Teaching Methods to Better Engage Students in Research-Related Topics

Theme	Codes	References and Core Ideas
Research Skills on Adapting Teaching Methods to Better Engage Students in Research-Related Topics	Student-Centered Adaptation	**Participant 1** Adapts by structuring lessons, using interactive discussions and group work, and applying clear templates and relatable examples to connect theory with practice.
	Dynamic Teaching Approaches	**Participant 2** Employs dynamic methods such as research simulations, peer reviews, and case studies while also guiding students in selecting meaningful research topics and mentoring colleagues.
	Empathetic Understanding	**Participant 3** Leverages personal nervousness about research presentations to foster empathy, using interactive and collaborative activities alongside practical examples.
	Practical Relevance	**Participant 4** Focuses on making research accessible to less academically inclined students by using

Theme	Codes	References and Core Ideas
		visual aids, real-world examples, and hands-on activities.

Table 26 presents the emergent theme that describes the Impact of Research Skills on Adapting Teaching Methods to Better Engage Students in Research-Related Topics, which is titled "Research Skills on Adapting Teaching Methods." This theme underscores how teachers' research skills directly inform their instructional strategies, making research more engaging, accessible, and relevant for students. The responses reveal that research-competent teachers employ various adaptive methods, from structured and interactive lessons to emotionally responsive and practical learning experiences, to bridge the gap between theoretical knowledge and student engagement.

Participant 1, whose research competence is still developing, adapts their teaching by structuring lessons with student-centered techniques. These include interactive discussions, group-based critiques, and the use of clear templates that make research content more manageable.

The teacher shared:

> *"Because I am still building my research expertise, I adapt by making my lessons more structured and student-centered. I encourage interactive discussions, provide clear templates for research writing, and allow students to work in groups to analyze and critique research studies. I also use simple and relatable examples to help them connect theoretical concepts with practical applications."*

This strategy reflects the core of Constructivist Theory, where students construct meaning through social interaction and guided discovery (Vygotsky, 1978), and Pedagogical Content Knowledge (Shulman, 1987), wherein the teacher tailors instruction to learners' levels using relatable and scaffolded instruction. Structuring lessons with relatable examples allows students to connect prior knowledge to new research concepts (Bruner, 1960), thereby enhancing their confidence and autonomy.

Participant 2 further demonstrates the powerful role of research skills in shaping dynamic and engaging teaching practices. Their approach includes simulations, peer reviews, and case analyses, which not only enrich student learning but also benefit fellow teachers through shared expertise. As they noted:

> *"My research skills allow me to take a dynamic and student-centered approach to teaching. I ensure that my lessons are interactive by incorporating research simulations, peer reviews, and case study analysis. I also design my instructional materials to be clear, engaging, and applicable to students' research projects. Furthermore, I guide students in choosing meaningful and relevant research topics, making the learning process more engaging and impactful. My ability to mentor other teachers also ensures that research education remains strong and well-supported within our school community."*

This highlights the dual impact of research skills on student engagement and faculty collaboration, reinforcing Hattie's (2021) insights on the influence of collective teacher efficacy. The use of interactive tools also aligns with active learning theory, which promotes higher retention and application of knowledge. Moreover, mentoring peers reflects PCK's emphasis on teaching not just what is taught, but how to teach it more effectively.

Participant 3, whose moderate research competence is accompanied by personal anxiety, turns this challenge into a strength by adopting an empathetic teaching approach. Their experience allows them to simplify complex ideas and offer emotionally supportive instruction:

> *"I know that I still have a lot to learn about research, so I make an effort to continuously improve my knowledge. This also reflects in my teaching, where I focus on making research concepts more approachable and understandable for students. I encourage them to explore research in a way that feels less intimidating and more practical."*

Moreover, Participant 3 leverages empathetic understanding by drawing on their personal experiences of nervousness during research presentations. This empathy creates a supportive classroom atmosphere through interactive and collaborative activities that make research concepts more approachable. The incorporation of personal experience to reduce anxiety and promote engagement is supported by Hanshaw and Hanshaw (2023), who emphasize the importance of psychological safety in education. Their study highlighted how creating a learning environment where students feel secure in expressing themselves and taking intellectual risks significantly improves engagement and performance. Participant 3's effort to model vulnerability and continuous learning fosters a psychologically safe environment, an essential condition for developing students' research confidence and competence.

Lastly, Participant 4 focuses on making research more practical and relatable for students in the TVL (Technical-Vocational-Livelihood) track. Their teaching is grounded in visual, real-world, and hands-on strategies designed to meet students at their level of readiness and aspiration:

> *"Because I know that my students are not very academically inclined, I try to make research more practical and relevant to their field of study. I also use more visual aids, real-world examples, and hands-on activities to keep them engaged. By doing this, I help them see the importance of research without making it feel too overwhelming or difficult."*

This supports differentiated instruction principles (Tomlinson, 2001) and the need for contextualized learning (Merrill, 2023), especially for learners with practical career orientations. By using visuals and real-life examples, the teacher demystifies research and fosters engagement even among students with low academic self-efficacy.

The findings from Table 26 illustrate that strong research skills are pivotal in adapting instructional strategies to engage students effectively. Each participant's approach demonstrates how research competence enables teachers to respond to learners' academic, emotional, and contextual needs. Whether through structured and student-centered design (Participant 1), dynamic and mentorship-based instruction (Participant 2), emotionally supportive teaching (Participant 3), or contextually practical learning (Participant 4), educators make deliberate pedagogical choices that resonate with their learners.

This aligns closely with the Constructivist Theory, which posits that meaningful learning occurs when students actively construct knowledge in a supportive environment (Vygotsky, 1978), and the PCK framework, which values the teacher's ability to transform content knowledge into effective, learner-friendly instruction (Shulman, 1987).

Ultimately, these findings suggest that building research competencies among teachers is not merely about academic expertise but about empowering them to create inclusive, responsive, and impactful research learning experiences. Schools should invest in continuous professional development that strengthens research competencies and supports adaptive, student-centered teaching, thereby fostering a more engaged and research-literate student population.

CHAPTER IV

Summary of Findings, Conclusions, and Recommendations

This chapter presents the summary of findings, conclusions, and recommendations of the study.

Findings

This study aimed to determine the research teachers' exposure, competency in teaching research-related subjects, and teaching practices in senior high school.

1. The teachers' level of research exposure obtained an overall mean of 1.92, described as low level of exposure and interpreted to mean little exposure in the skill area, showing the teachers have limited experience with research.
2. The teachers' level of competence in various research-related skills obtained an overall weighted mean of 2.86 indicates that the teachers possess an average level of competency. Specifically, the data reveals the teachers appear to be slightly more confident in writing the Conclusions and Recommendations (2.93) while Analyzing, Interpreting, and Presenting the Findings (2.80) received the lowest mean score, suggesting a potential area for improvement. The remaining competencies, such as Writing the Related Review of Literature, Writing the Introduction, and Writing the Methodology, show similar average levels of competence.
3. The analysis of teachers' exposure to research reveals several significant findings based on their profiles. First, there is no significant difference in research exposure based on teachers' positions ($F = 1.095$, $p = 0.373$), suggesting that teaching rank does not influence research engagement. This indicates that teachers, regardless of their position, have similar low exposure to research. In contrast, teachers' highest educational attainment shows a clear and statistically significant correlation with research exposure ($F = 4.694$, $p = 0.001$). Teachers with higher education, particularly those with a Doctorate, have significantly greater exposure to research, underscoring the importance of advanced degrees in fostering research engagement. The number of years teaching research, field of specialization, and specific research subjects taught all failed to show significant differences in research exposure, implying that these factors may not be as influential as other variables, such as individual initiative. However, a significant difference was found between the grade levels handled, with Grade 12 teachers having notably higher exposure to research ($t = 15.210$, $p = 0.000$) compared to Grade 11 teachers. This suggests that the Grade 12 curriculum's focus on more advanced research topics contributes to greater research engagement. Overall, the findings suggest that factors like educational attainment and grade level are more influential in determining research exposure than position or years of experience teaching research.
4. The analysis reveals that several factors, such as a teacher's position, years of experience teaching research, highest level of education, field of specialization, subjects taught, and grade level, do not seem to have a significant effect on their competence in research. For example, the position of a teacher did not show much difference in competence, despite Master Teacher I having the highest average score of 3.8800 ($p = 0.062$, $F = 2.480$). Similarly, the number of years spent teaching research also did not significantly influence competence, with scores ranging from 2.7956 to 2.9608 ($p = 0.862$, $F = 0.323$). Educational attainment did not appear to play a major role either, as those with Master's Degree Units (Thesis) had the highest mean score of 2.9715 ($p = 0.220$, $F = 1.451$). Field of specialization also did not show a significant impact on competence ($p = 0.163$, $F = 1.571$), although English teachers had the highest score of 2.9382. Even the subjects taught and grade levels (Grade 11 vs. Grade 12)

didn't show significant differences in teachers' research competence, with p-values of 0.468 (F = 0.948) and 0.686 (t = 0.165), respectively.

5. Teachers' practices in teaching research-related subjects in senior high school include: Interactive Teaching Strategies, which promote active student engagement, collaboration, and critical thinking; Integration of ICT Tools, where digital technologies are incorporated into teaching and learning; Student-Centered and Adaptive Strategies, focusing on approaches that cater to students' needs, learning styles, and real-world relevance; Structured and Explicit Teaching Approaches, which combine direct instruction with active, hands-on participation; and Holistic and Values-Based Learning, where multiple disciplines and ethical values are integrated into students' education.
6. Research exposure impacts teachers' practices in teaching research-related subjects in senior high school by fostering self-directed learning and adapting instructional methods based on research experience. It also encourages the use of structured support and student-centered instruction, promotes collaboration and ongoing learning, and involves a careful teaching approach alongside expert consultation.
7. Research competence affects the teaching practices of senior high school teachers in research-related subjects by enabling them to use teaching materials and well-organized lesson plans, integrate interactive and analytical activities, simplify research concepts with real-life examples, and tailor instruction to meet students' needs and backgrounds. Additionally, it includes factors such as levels of research competence, various instructional strategies, ongoing professional development efforts, mentorship, and collaboration.

Conclusions

Based on the findings, the following conclusions are drawn:

1. The teachers' level of research exposure revealed a significant gap in engagement with research-related activities, with an overall low level of exposure. Despite some exposure to research presentations and conferences, teachers had limited involvement in hands-on research processes, such as conducting studies, presenting findings, or receiving feedback. This gap restricts their ability to incorporate research into their teaching practices, aligning with literature suggesting that mere attendance at research events does not foster a research-oriented mindset (Abinan, 2021). Furthermore, the lack of participation in workshops and seminars focused on research skills and educational innovation was identified as a key barrier, with factors like accessibility and perceived relevance hindering teacher engagement. These findings align with Mydin et al. (2021), who emphasized the need for more relevant and accessible professional development opportunities. Additionally, teachers' lack of participation in presenting their research at conferences, as highlighted by Knott et al. (2020), further limits their ability to contribute to the academic community. The study's instruments, including surveys and qualitative interviews, revealed that targeted interventions are needed to enhance teachers' research exposure and competencies. By addressing these gaps and providing more practical, accessible research-focused training, schools can help teachers develop the necessary research skills to improve their teaching practices and enhance student learning outcomes.
2. Teachers demonstrate a foundational level of research competence, with strengths in summarizing findings and simplifying explanations. However, more advanced skills like statistical analysis, critical data interpretation, and translating research into practical recommendations remain underdeveloped. This gap aligns with theories emphasizing the need for both knowledge acquisition and its effective

application (Aziz, 2022; Murro, 2023). Literature suggests that barriers such as limited time, resources, and professional development opportunities hinder teachers' ability to deepen their research skills (Comon & Corpuz, 2024). The study advocates for targeted professional development to strengthen teachers' research capabilities, particularly in data analysis and applying research outcomes to the classroom. A quantitative descriptive design was used to assess teachers' self-reported competencies, providing an objective framework for identifying strengths and areas for improvement. The primary data collection instrument was a structured questionnaire, allowing teachers to assess their competencies in gathering, analyzing, and interpreting research. This approach ensured consistent and measurable data, offering valuable insights into teachers' research skill levels.

3. There is no significant difference in teachers' exposure to research based on their positions, years of experience, fields of specialization, or the research subjects they teach. This indicates that factors such as school culture or personal motivation might play a more substantial role in research engagement than hierarchical position or tenure, which aligns with findings suggesting that individual initiative and professional development opportunities are more critical than rank or years of service (Darling-Hammond, 2010; Zeichner & Liston, 2013). There is, however, a significant relationship between teachers' educational attainment and their exposure to research, with those holding higher degrees, especially Doctorate degrees, demonstrating more exposure. This supports the idea that advanced degrees, particularly those involving thesis or dissertation work, promote research skills and engagement (Zeichner & Liston, 2013). Additionally, Grade 12 teachers exhibited higher research exposure than Grade 11 teachers, which is consistent with studies suggesting that more advanced grade levels with greater research emphasis encourage increased research engagement (Darling-Hammond, 2010). The study used a quantitative descriptive design with ANOVA to explore the relationship between teacher profiles and research exposure, providing an objective framework for understanding the dynamics at play. The structured questionnaire used for data collection allowed teachers to self-assess their research exposure, offering consistent and reliable insights into the factors influencing research engagement and highlighting areas for targeted professional development.
4. There is no significant difference in teachers' research competence based on their position, years of experience, educational attainment, field of specialization, or the research subjects they teach. This suggests that teacher competence is influenced by factors beyond these variables, such as professional development, personal motivation, and teaching experience. This aligns with existing research, which highlights the importance of continuous growth and individual factors in shaping teaching effectiveness, rather than relying solely on qualifications or tenure (Darling-Hammond, 2000; Zeichner & Liston, 2013). Although there were slight differences between groups, teachers generally showed a moderate level of competence in research, regardless of grade level or subject taught. This indicates that competence in teaching research may be more influenced by personal attributes and professional development than by specific subjects or grade levels. The study used a quantitative design with ANOVA tests to assess the relationship between teachers' profiles and their research competence, providing reliable data through structured questionnaires. However, the findings suggest that factors such as professional development or mentoring could play a more significant role, and future research should explore these factors further for a deeper understanding of teacher competence.
5. Teachers in senior high school utilize interactive teaching strategies, ICT tools, and student-centered approaches to promote engagement and cater to individual needs. These methods combine direct instruction with hands-on activities and emphasize holistic, values-based learning, ensuring students

develop critical thinking, research, and problem-solving skills. The findings align with literature that supports the use of student-centered strategies (Hattie, 2009) and interactive methods (Bransford et al., 2000) for enhancing student achievement. The integration of ICT tools reflects the growing role of technology in education (Darling-Hammond et al., 2020), helping students develop digital literacy and research skills. Additionally, adaptive strategies, grounded in theories by Bruner (1961) and Vygotsky (1978), ensure that teaching is responsive to diverse learning styles and needs. The study also emphasizes the importance of values-based and interdisciplinary learning, as research ethics and moral responsibility are integral to shaping competent, ethical researchers (Prince, 2004; Darling-Hammond et al., 2020). This study's use of a structured questionnaire and quantitative analysis highlights effective teaching practices and reinforces the need for ongoing professional development to enhance research instruction.

6. Research exposure influences teachers' practices in research-related subjects by promoting self-directed learning, adaptive instruction informed by research experience, and the use of structured, student-centered support. Teachers with minimal research backgrounds tend to rely on scaffolded lessons and gradual instruction to address their limited formal training, particularly when working with Technical-Vocational-Livelihood (TVL) students who often struggle with abstract research concepts. These teachers engage in self-initiated learning and seek guidance from more experienced colleagues, aligning with Darling-Hammond et al. (2020) on the value of collaborative professional development. In contrast, teachers with extensive research experience enrich their instruction by incorporating real-world applications and personal research outputs to contextualize abstract concepts. They often take on mentoring roles within their schools, supporting colleagues and contributing to a professional learning community, consistent with Garet et al. (2001) and Hattie (2009), who emphasize the role of mentorship in improving instructional effectiveness. Teachers whose experience stems from collaborative or team-based research prioritize group work among students and foster a socially interactive learning environment, reflecting Vygotsky's (1978) social constructivist framework. Their commitment to accurate and evolving instruction leads them to regularly consult experts and update their knowledge—an approach that emphasizes reflective teaching and ongoing professional growth. These findings were drawn from qualitative data gathered through semi-structured interviews and analyzed thematically. The use of open-ended questions allowed participants to express how their research experience informs their classroom practices, which were grouped under themes such as Self-Directed Learning and Instructional Adaptation, Application of Research Experience to Teaching, and Emphasis on Collaboration and Continuous Learning. Ultimately, the study highlights the critical role of institutional support systems—such as research training, mentorship programs, and professional development workshops—in equipping teachers across varying levels of research exposure. These structures ensure that all students, regardless of academic track, receive meaningful and well-informed research instruction that supports both academic and real-world readiness.
7. Research competence influences the teaching practices of senior high school teachers in research-related subjects by allowing them to use structured lesson plans, incorporate interactive activities, simplify concepts with real-life examples, and tailor instruction to student needs. This study revealed that varying levels of research competence significantly shape instructional approaches: teachers with developing competence rely on scaffolded and step-by-step instruction using teaching materials and templates, while those with advanced competence integrate simulations, peer reviews, real research challenges, and mentorship into their classrooms. These practices foster critical thinking, inquiry-

based learning, and greater student engagement. The results affirm existing literature on effective teaching strategies and research pedagogy. For instance, teachers with lower competence applied explicit instruction and scaffolding, aligning with Rosenshine's (2012) and Archer and Hughes's (2011) emphasis on step-by-step guided learning. Meanwhile, those with greater competence implemented dynamic and student-centered strategies, consistent with Freeman et al.'s (2014) findings on active learning emphasis on engagement through research simulations. Participants also drew on constructivist theories (Bruner, 1960; Vygotsky, 1978) by using relatable examples and collaborative activities that connect theory to practice. Furthermore, the differentiated instruction approaches observed among teachers of students in specialized tracks, such as TVL, support Tomlinson's (2001) framework and highlight the importance of adapting instruction to student contexts. This conclusion is firmly grounded in the findings derived from qualitative methods, specifically thematic analysis of interview responses. The use of a semi-structured interview guide as the research instrument allowed for the exploration of both explicit teaching strategies and the implicit influence of research competence on pedagogy. The flexibility of the instrument enabled participants to share diverse, experience-based perspectives on how their competencies shaped classroom practices. These insights were systematically categorized into themes, such as "Integration of Research Methods into Teaching Strategies," "Research Competencies on Teaching Practices," and "Research Skills on Adapting Teaching Methods," revealing a coherent pattern across the data.

Recommendations

Based on the findings and conclusions, the following recommendations are presented:

For the Department of Education Officials

While the Department of Education has implemented research programs and offered various training opportunities, uptake among teachers remains limited. The reality is that only a few teachers actively engage in research, despite the availability of resources. This reveals the need for a more supportive and motivating system—one that not only informs but empowers. A promising response to this gap is the *Advocating Research Culture (ARC) Program*, a proposed research initiative designed to strengthen and extend the Department's existing efforts. ARC aims to gradually build teachers' research competence through modular, school-based training and peer-led mentoring structures. This program allows for differentiated pacing, practical application, and more accessible entry points for hesitant or inexperienced teachers. DepEd can maximize its current infrastructure by adopting ARC as a formal division-wide strategy, ensuring that research development becomes not just available, but genuinely attainable for more educators. Providing incentives such as performance-based recognition, research grants, and opportunities for professional advancement will also help sustain motivation and validate teachers' efforts in conducting research.

For School Heads

School leaders play a crucial role in cultivating a culture of inquiry within their institutions. While some research efforts may already be embedded in their schools, these are often perceived as compliance requirements rather than meaningful growth opportunities. School heads are encouraged to lead by example, promoting research as a pathway for instructional improvement and teacher development. The ARC Program offers a framework that school leaders can adopt to create structured mentoring groups, host research clinics, and provide guided time within Learning Action Cells (LACs) for research collaboration. Furthermore, school heads can reinforce the value of research by integrating it into school

development plans, recognizing research outputs in performance reviews, and giving space for sharing findings during faculty meetings or professional development days. When research is visible, valued, and supported by leadership, teachers are more likely to engage, reflect, and innovate in their practice.

For Teachers

Teachers are at the heart of any effort to build a research culture in schools. While some are already engaging in research, many still view it as overwhelming or disconnected from daily teaching realities. To encourage broader participation, teachers should be given opportunities to experience research in manageable, meaningful ways. The ARC Program provides a guided pathway for teachers at all experience levels, with modular training that covers everything from identifying classroom-based problems to presenting findings. Teachers are encouraged to approach research not as an isolated task, but as an ongoing inquiry into their teaching practice. By collaborating with peers, seeking mentorship, and documenting what works in their classrooms, they can gradually build confidence and expertise. Teachers who are more experienced in research are also encouraged to take on mentoring roles, helping foster a supportive network where learning and growth are shared responsibilities.

For Students

Students benefit greatly when research is embedded into classroom instruction. When teachers engage in inquiry, it often translates into more thoughtful, reflective, and student-centered teaching. To maximize this benefit, students should be encouraged to participate in small-scale research projects or classroom-based investigations. These activities help students develop critical thinking, collaboration, and problem-solving skills. Teachers can model research thinking by integrating real-world examples, posing investigative questions, and guiding students through the research process in ways appropriate to their level. As classrooms become more inquiry-driven, students not only learn content, they learn how to learn, how to ask questions, and how to find answers, skills that are vital for lifelong learning.

For Future Researchers

Future researchers have an opportunity to expand on this study by examining how sustained support structures like the ARC Program affect teacher engagement and research quality over time. Longitudinal studies that explore teachers' progression from research novices to confident practitioners can provide valuable insights for educational policy and professional development planning. Additionally, investigating contextual variables, such as school culture, academic tracks (e.g., STEM, TVL, HUMSS), and leadership practices, can shed light on what facilitates or hinders effective research implementation. Future studies may also consider incorporating interrater reliability in qualitative analysis to enhance the credibility and trustworthiness of findings, especially in studies relying on open-ended responses or thematic data.

For the Field of Writing and Master of Arts in English

Programs such as the Master of Arts in English, particularly those with a focus on education, are in a unique position to bridge theory and practice through research. Integrating research methodology courses that emphasize practical, classroom-based application can help graduate students become reflective educators capable of contributing to evidence-informed teaching. Collaboration between the English and Education departments can lead to cross-disciplinary projects, shared mentorship models, and action research symposiums that benefit both pre-service and in-service teachers. Encouraging graduate students to present or publish their research also promotes a sense of ownership and professional identity as teacher-researchers.

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