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# The Organizational and Motivational Factors in Maritime Research Engagement

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# The Organizational and Motivational Factors in Maritime Research Engagement

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## Abstract

Maritime higher education institutions (MHEIs) require a strong research culture to address industry challenges, enhance safety, and improve teaching. Many faculty members have practical experience as seafarers or professionals but do not have an academic research background.

This study used a quantitative descriptive approach to gather data on respondents' profiles, research skills, and attitudes with a 5-point Likert scale. The analysis included means, frequency counts, the Mann-Whitney U Test, and Spearman's Rho Correlation to explore relationships between variables.

The study found that gender, age, position, and length of service are not connected to research capabilities. However, training level and highest education are significantly related to research skills. Research activities and capabilities are closely linked, but research activities and attitudes toward research have only a weak relationship ($R = 0.334$). This means that doing research does not strongly affect attitudes, such as views on usefulness, anxiety, or a positive outlook. Research capabilities and attitudes toward research also do not show a significant correlation ($R = 0.38$, $p > 0.05$).

The study recommends improving faculty development through research coaching and mentoring, building strong industry partnerships, and working closely with stakeholders. These actions can help maritime higher education institutions create a strong research culture that supports innovation, academic growth, and industry relevance.

*Keywords*

*Maritime Higher Education Institutions (MHEIs), Research Culture Development, Faculty Research Capabilities, Organizational Culture Theory, Self-Determination Theory (SDT)*

## I. Introduction

Research is a key part of higher education because it creates new knowledge, drives innovation, and supports decision-making. In maritime higher education institutions (MHEIs), building a strong research culture helps solve industry problems, improves safety, and strengthens teaching practices (Brew, 2012). Still, MHEIs usually focus more on competency-based education and training (CBET) than on research, since their programs are meant to meet the practical needs of the shipping industry (Nguyen & Le, 2022). Because of this focus on hands-on training, faculty and students often have fewer opportunities to engage in research. To create a research-focused environment in MHEIs, there needs to be structural change, greater institutional support, and a shift in academic priorities.

A strong research culture in MHEIs helps create evidence-based policies, supports the adoption of new technologies, and drives industry innovation. The maritime industry is changing fast with digitalization, automation, and new sustainability rules (Papachristou, Stantchev, & Theotokas, 2020). If maritime schools do not stay involved in research, their graduates may not be ready for these changes. Including research in maritime programs helps students build analytical, problem-solving, and critical-thinking skills beyond what traditional training offers (Gekara & Sampson, 2021). However, making this shift requires overcoming several challenges within institutions.

A key challenge in MHEIs is that many faculty members are former seafarers or industry professionals with strong practical skills but little research experience (Akyüz, 2017). Unlike traditional universities, where research is a main part of faculty work, maritime instructors often focus on teaching, skill development, and shipboard training. Without support such as incentives, funding, or mentorship, faculty are less likely to become involved in research. Supporting faculty

through research training, partnerships with academic institutions, and chances to publish can help build research skills in MHEIs.

MOL Magsaysay Maritime Academy (MMMA), a leading maritime school in the Philippines, faces ongoing challenges in producing research. Even though MMMA has strong industry ties and is known for quality training, it struggles to build a robust research culture because it focuses on competency-based education and regulatory compliance. Most faculty at MMMA, as in other MHEIs, come from industry backgrounds and have limited research experience, resulting in low research activity and few publications.

While research is important in higher education, few studies have examined how to build a research culture in MHEIs such as MMMA (Papachristou et al., 2020). Most research in maritime education focuses on training methods, safety rules, and skill development, but pays little attention to how institutions can promote research. More studies are needed to identify ways for MHEIs to balance practical training with a strong research focus while still meeting industry needs.

Most research has focused on traditional universities and has not looked at the unique challenges MHEIs face, such as faculty backgrounds, curriculum design, and industry demands (Gekara & Sampson, 2021). Understanding these barriers can help create targeted solutions to support faculty research, involve students, and increase research output. Addressing this gap is important for MMMA to become a leader in maritime knowledge and innovation.

Maritime education mainly prepares students for jobs at sea or on land, so research is often viewed as less important than professional training (Nguyen & Le, 2022). Building stronger partnerships between MHEIs and the maritime industry can help close this gap by matching research goals with industry needs, such as safety, sustainability, and new technology. Industry-

funded projects, joint conferences, and knowledge sharing can make academic research more practical and useful.

## II. Methodology

The researchers used a quantitative descriptive research design to get unbiased results and gather data with a 5-point Likert Scale. They created their own questionnaire to identify the problems. The questionnaire had three parts: Part I covered the respondents' profiles, Part II assessed research capabilities, and Part III focused on attitudes towards research. Subject-matter experts and English instructors assessed the survey for face and content validity. Reliability was measured using Cronbach's alpha, yielding a coefficient of 0.81.

### *Ethical Considerations*

The study was conducted in strict compliance with the ethical procedures and policies of the Ethics Clearance Board of MOL Magsaysay Maritime Academy (MMMA), which provided formal approval prior to data collection. All research activities involving human participants were performed in accordance with institutional guidelines.

Respondents were fully informed of the study's objectives, procedures, potential benefits, and any foreseeable risks before participation. They were assured that their involvement was voluntary, that they could decline to answer any question, and that they retained the right to withdraw from the study at any time without penalty or consequence. Confidentiality was strictly maintained, with all responses anonymized and reported in aggregate to prevent individual identification.

The approval granted by the MMMA Ethics Clearance Board confirms that the study adhered to internationally recognized standards for the responsible conduct of research with human

subjects, thereby safeguarding participants' autonomy, privacy, and well-being throughout the research process.

### *Consent to Participate*

Informed consent was obtained from all participants prior to their inclusion in the study. Each respondent received a clear explanation of the study's objectives, procedures, potential benefits, and any foreseeable risks. Participation was entirely voluntary, and respondents were assured that they could decline to answer any question or withdraw from the study at any time without penalty or consequence. Confidentiality of responses was strictly maintained, with all data anonymized and reported in aggregate form to protect individual identities. The consent process was conducted in accordance with the institutional guidelines of the MOL Magsaysay Maritime Academy Ethics Clearance Board, ensuring that participants' rights, dignity, and welfare were safeguarded throughout the research process.

### *Consent to Publish*

All participants provided consent to publish anonymized data and findings derived from this study.

### *Competing interests*

In this study, the authors declare no competing interests, as the investigation was conducted independently and without external financial support or institutional pressures that might bias the outcomes.


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Not applicable.

## III. Research Framework and Hypotheses Formulation

Creating a culture of research in a maritime higher education institution is best understood through two foundational theories: Organizational Culture Theory and Self-Determination Theory (SDT). These theories provide insight into how institutional norms, leadership support, and individual motivation foster a research-driven environment, particularly in the maritime field, where applied research and industry alignment are crucial.

### Organizational Culture Theory

According to Edgar Schein's Organizational Culture Theory (1985), organizations create unique cultures by adopting common values, beliefs, and customs. Schein distinguishes three levels of organizational culture: fundamental underlying assumptions, espoused beliefs, and artifacts. Marine research institutes, simulation labs, and institutional policies supporting marine safety and technological development are examples of artifacts, which are the outward manifestations of a culture. An institution's declared ideas and tactics are referred to as its "espoused values." Examples include promoting research excellence in marine studies, offering faculty incentives for research output, and establishing mentorship programs for cadets. Basic underlying assumptions, such as the belief that research is crucial to marine innovation, safety enhancements, and worldwide competitiveness, are examples of deeply rooted ideas that influence behavior.

When these three levels coincide, a robust research culture develops, enabling administrators, teachers, and students to embrace research as a fundamental institutional priority. By supplying resources, promoting multidisciplinary marine research, and cultivating partnerships

with the maritime sector, leadership plays a crucial part in establishing this culture. A sustainable maritime research environment is also facilitated by industry connections, international research collaborations, and knowledge exchange.

*H1. The profile of the respondents has no significant correlation to their research capabilities.*

*H2. The profile of the respondents has no significant correlation to their attitude towards research.*

**Self-Determination Theory**

Self-determination theory (Deci & Ryan, 1985) is a psychological framework that explains how intrinsic and extrinsic motivations influence engagement in research. SDT suggests that individuals are more likely to participate in and sustain research activities when their psychological needs for autonomy, competence, and relatedness are fulfilled. In maritime higher education institutions, autonomy refers to the freedom to explore innovative maritime technologies, sustainable shipping practices, and marine environmental studies. When institutions impose overly rigid research agendas, creativity and innovation may be stifled. Universities should offer flexible research opportunities that enable maritime scholars to investigate industry-relevant challenges and emerging trends. Competence is developed through access to research funding, specialized maritime training workshops, international maritime conferences, and opportunities for publication in maritime journals. Such initiatives enable faculty and cadets to gain confidence in their research skills and contribute to industry advancements. Relatedness is established through strong research collaborations with maritime agencies, shipbuilding companies, and global maritime organizations. Establishing mentorship programs and interdisciplinary initiatives within the maritime sector fosters an environment where scholars feel supported and motivated. When these needs are met, research engagement becomes more than just a means to secure promotions

or financial incentives—it becomes a fulfilling and meaningful endeavor that directly impacts maritime innovation and policy development.

*H3. The respondents' research capabilities do not correlate significantly with their attitudes toward research.*

By integrating Organizational Culture Theory and Self-Determination Theory, this framework highlights the importance of both institutional structures and individual motivation in fostering a sustainable research culture in maritime higher education institutions. Such institutions must create environments where maritime research is valued, adequately funded, and recognized as an essential component of academic and industry progress. Policies that reinforce research engagement, professional development programs, and strong leadership advocacy are crucial to building and maintaining a vibrant maritime research culture.

The successful establishment of a research culture in maritime higher education requires both systemic institutional support and individual motivation. By aligning organizational strategies with the psychological needs of faculty and students, maritime universities can create a dynamic research environment that promotes continuous innovation, industry advancements, and academic excellence in maritime education.

## IV. Results and Discussions

### Part I. Profile of the Respondents

Table 1 presents the profile of the respondents by gender, age, highest educational attainment, position, length of service, and highest research seminar attended.

*Table 1. Profile of the Respondents*

| Profile | Categories | Freq. | % |
|---|---|---|---|
| Gender | Male | 20 | 80.0 |
| | Female | 5 | 20.0 |

| | | | |
|---|---|---|---|
| Age | 30 – 39 Years Old | 8 | 32.0 |
| | 40 – 49 Years Old | 6 | 24.0 |
| | 50 – 59 Years Old | 4 | 16.0 |
| | 60 Years Old and above | 7 | 28.0 |
| Highest Educational Attainment | Bachelor | 7 | 28.0 |
| | With Units in Master's Degree | 11 | 44.0 |
| | Masters | 4 | 16.0 |
| | With Units in Doctorate Degree | 1 | 4.0 |
| | Doctorate | 2 | 8.0 |
| Position | Faculty | 17 | 68.0 |
| | Department Head | 3 | 12.0 |
| | Non-teaching | 5 | 20.0 |
| Length of service | 1 - 5 years | 12 | 48.0 |
| | 6 - 10 years | 4 | 16.0 |
| | 11 - 15 years | 3 | 12.0 |
| | 16 - 20 years | 1 | 4.0 |
| | 21 year or more | 4 | 16.0 |
| | NA | 1 | 4.0 |
| Highest Research Seminar | Academy | 17 | 68.0 |
| | National | 4 | 16.0 |
| | International | 4 | 16.0 |
| | Total | 25 | 100.0 |

As shown in Table 1, the majority (20%) of respondents were males, while only 20% were females. The respondents' ages vary, with the largest group (32%) falling within the 30 to 39 years old category, followed by those aged 60 years and above (28%). Meanwhile, 24% are in their 40s, and 16% are in their 50s. This age distribution indicates a mix of early-career and experienced professionals, with a notable proportion approaching retirement.

With respect to educational attainment, a considerable number of respondents (44%) have taken units in a master's degree program, while 28% hold only a bachelor's degree. Additionally,

16% have completed a master's degree, and 12% have pursued doctoral studies (8% with a doctorate and 4% with doctoral units).

Regarding professional roles, 68% of respondents, or the majority, are faculty members responsible for teaching and mentoring students. A smaller proportion (12%) hold department head positions, while 20% are non-teaching personnel.

In terms of years of service, nearly half (48%) of the respondents have been with the institution for 1 to 5 years. Also, 16% have served for six (6) to ten (10) years, 16% for 11 to 20 years, and another 16% for over 20 years of service.

Furthermore, respondents' participation in research seminars reflects their level of research engagement. The majority (68%) have attended academy-level research seminars, while only 16% have participated in national and international research events.

Table 2 presents the frequency and percentage of respondents engaged in different research activities.

*Table 2. Research activities of respondents*

| | How would you describe your research activities? | Freq. | % |
|---|---|---|---|
| 1. | I conceptualized my research activity | 18 | 72.0 |
| 2. | I have already started my research work | 12 | 48.0 |
| 3. | I am in the results and discussion | 6 | 24.0 |
| 4. | I completed a research work | 9 | 36.0 |
| 5. | I submitted my research to a journal for publication | 6 | 24.0 |

As shown in Table 2, 72% (18 of 25 respondents) conceptualized their research activity. However, only 12 of them (48%) reported having already started their research work. Further, only 24% of the respondents have reached the results and discussion stage, while the majority, or 76%, have yet to progress to this section.

Interestingly, 36% (9 of 25) of the respondents have already completed a research study, and 24% have already submitted research to a journal for publication.

**Part II. Assessment of Research Capabilities.**

Table 3 presents respondents' self-assessments of their research capabilities in conceptualizing research.

*Table 3. Conceptualizing research*

| Indicator | Mean | SD | Implications |
|---|---|---|---|
| determine the existing research problems that need to be studied. | 3.60 | 1.15 | High (Competent) |
| compose a catchy and attractive research title | 3.32 | 1.07 | Moderate (Developing) |
| provide a well-structured and concise explanation of the reasoning behind the statement | 3.28 | .98 | Moderate (Developing) |
| determine the theory or concept that aligns with and addresses the research problem. | 3.36 | 1.04 | Moderate (Developing) |
| combine insights from the reviewed theories and concepts to develop a cohesive understanding | 3.16 | 1.03 | Moderate (Developing) |
| **Composite Mean** | **3.34** | **.99** | **Moderate (Developing)** |

| *Scale* | *Descriptive Equivalent* | *Implications* |
|---|---|---|
| *4.50 - 5.00* | *Can do the task independently and can assist others in doing it* | *Very high (Proficient)* |
| *3.50 – 4.49* | *Can do the task independently* | *High (Competent)* |
| *2.50 – 3.49* | *Can do the task with minimal supervision* | *Moderate (Developing)* |
| *1.50 – 2.49* | *Can do the task with close supervision* | *Low (Limited)* |
| *1.00 – 1.49* | *Cannot perform the task* | *Very low (Inadequate)* |

The respondents considered themselves moderate or developing in their ability to conceptualize research, as indicated by a composite mean of 3.34 and a standard deviation of 0.99. Hence, they may still require structured guidance when developing research concepts. The relatively high variability in responses further suggests differing levels of research capability among the respondents, emphasizing the need for targeted training to strengthen weaker areas.

Specifically, determining the sources of research problems yielded the highest mean (M = 3.60, SD = 1.15), indicating a high or competent research capability. Respondents, on average, can

determine sources for research problems on their own. However, the high standard deviation (1.15) implies that some individuals may still struggle with this skill.

On the other hand, synthesizing ideas from the theories and concepts reviewed obtained the lowest mean rating (M = 3.16, SD = 1.03). The respondents, on average, can do the task with minimal supervision. Hence, they are considered moderate or developing in this area. The standard deviation of 1.03, however, suggests some variation in the respondents' confidence in this research skill.

It only shows that the respondents can recognize potential issues and gaps as research problems, which is vital for selecting a relevant topic and establishing a clear research direction. Formulating research problems is the first and most crucial step in any research, serving as the foundation for a building under construction. To address a problem, one must first understand it. Therefore, identifying and formulating the problem is essential for the researcher before starting the study, and it is often one of the most challenging aspects of the research process. Defining a problem and developing research questions fosters researchers' critical thinking, curiosity, and problem-solving skills. Without a clearly defined research problem, the project may become unfocused and difficult to manage. It may also risk duplicating existing work or conducting research without a clear purpose or justification. The significance and formulation of a research problem constitute the starting point and the most important phase of any research process (Jessa, 2010). They are best understood by first grasping the essence of research (Akhidime, 2017). Research is a critical foundation for driving human, societal, and technological progress, particularly in countries that recognize its value and prioritize it.

However, the respondents need minimal supervision in incorporating the reviewed theories and concepts to develop a cohesive understanding. A researcher must integrate theories, as they

provide a structure or framework for better understanding and illuminating the phenomena. Theories also help to establish associations between given variables or data. Theories help researchers to recognize the boundaries of generalizations. A theoretical framework identifies the key variables that affect a particular phenomenon and prompts you to consider how these variables might vary and under what conditions. Parallel to the study by Grant and Osanloo (2015), theory-driven thinking and action are important for emphasizing the relationship between the selected topic and the research methodologies, including the construction of research objectives and questions, the conceptualization of the literature review, the research design, and the investigation plan for the study. Moreover, theories provide a foundational framework for understanding and analyzing research across various fields, including the natural, pure, and social sciences. They offer simplified explanations of complex realities, guiding the research process and interpreting its outcomes. The findings of any study can be effectively presented only when anchored in a theoretical framework. Theory is essential to any research, as it provides direction for the researcher. It plays a crucial role by offering explanations, fostering understanding, and adding meaning to the research process. Additionally, theory aids in predicting facts and identifying unexplored or potential research areas (Cesar, 2024).

Table 4 presents respondents' assessments of their research capabilities in formulating research problems.

*Table 4. Formulating Research Problems*

| Indicator | Mean | SD | Implications |
|---|---|---|---|
| clearly articulate the problem statement. | 3.52 | 1.08 | High (Competent) |
| define the specific problems clearly | 3.40 | 1.12 | Moderate (Developing) |
| develop hypotheses based on the specific problems, if relevant. | 3.28 | 1.10 | Moderate (Developing) |
| explain the significance of the study. | 3.56 | 1.04 | High (Competent) |
| determine the scope and limitations of the study. | 3.52 | 1.08 | High (Competent) |
| **Composite Mean** | **3.46** | **1.06** | **Moderate (Developing)** |

As depicted in Table 4, the respondents considered themselves to have moderate or developing competence in formulating research problems. However, the high standard deviation of 1.06 suggests notable variation among individual responses.

In particular, the respondents demonstrated the highest perceived competence in discussing the study's significance (M = 3.56, SD = 1.04). They feel most confident in articulating their research because they believe it matters and have the potential to contribute to the field. Similarly, they rated the writing statement of the problem clearly (M=3.52, SD=1.08) and determined the scope and limitation of the study (M=3.52, SD = 1.08) with high competence. The high standard deviations, however, suggest that some may still struggle with these research skills.

In contrast, the respondents provided their lowest mean rating for formulating hypotheses based on specific problems (M = 3.28, SD = 1.10). Apparently, they feel least confident in hypothesis formulation, although they consider themselves moderate or developing in this research skill.

On the other hand, the high standard deviations across all indicators (ranging from 1.04 to 1.12) reveal substantial variability in how respondents perceive their capabilities. This variability suggests that while some respondents may feel competent in these research skills, others experience significant challenges. The highest variability appears in formulating specific problems (SD=1.12), indicating particularly diverse levels of confidence in this fundamental research skill.

It only shows that the respondents are aware of the possible contribution(s) to and impact of the study on a research field and the community. The study's significance will also determine who benefits from the research findings and how. It will also capture the reader's attention. When researchers understand its relevance and potential impact, they are more likely to value your work. Peer reviewers also evaluate the study's significance, which is crucial in determining whether a

manuscript is accepted or rejected. According to Adu and Badaru (2022), the study's significance refers to its rationale or justification. It involves the researcher clearly explaining the study's contributions to the existing body of knowledge in a specific field or discipline. Additionally, the researcher highlights the study's benefits for society and, more specifically, individuals, organizations, governments, and agencies. The significance of a study is established by formulating research questions and hypotheses that are thoughtfully linked to a long-term goal of broad societal value (e.g., enhancing learning opportunities for all students). Significance pertains to the wider domain of the study and the specific research itself. The significance of the domain is demonstrated by selecting a goal of widespread importance and identifying a domain that contributes to achieving that goal (Hiebert et al., 2022)

The findings also show that respondents need minimal supervision in developing hypotheses for specific problems. Constructing hypotheses based on specific objectives is important because it guides the researcher in adding scientific knowledge. A hypothesis also facilitates organizing research projects, making them more focused and valuable. When writing a hypothesis, it is important to make it clear, precise, and testable. It should also be reader-friendly and keep the respondents in mind. A research hypothesis is a statement that outlines a research question and predicts an anticipated outcome. It plays a crucial role in the scientific method, serving as the groundwork for conducting experiments. Because of its importance, developing a well-thought-out hypothesis is essential, as even small errors can undermine your experiment. Typically, hypotheses are presented in two formats: the null hypothesis and the alternative hypothesis. According to Bulajic, Stamatovic, and Cvetanovic (2012), a hypothesis helps narrow the research scope and guides the focus in the right direction. If not properly formulated, it can mislead the researcher, limiting the evidence collected or steering the process toward outcomes that are

unsuitable for broader conclusions. Therefore, formulating hypotheses is a crucial aspect of conducting research. Individuals who can craft hypotheses effectively and effortlessly demonstrate the ability to develop strong conceptual knowledge (Aydoğdu, 2015; Kabir, 2016; Mourougan and Sethuraman, 2017; Al-Hadabi and Ali Al-soudi, 2020).

Table 5 presents the respondents' assessments of their research capabilities in writing a literature review.

*Table 5. Writing Literature Review*

| Indicator | Mean | SD | Descriptive Equivalent |
|---|---|---|---|
| determine the keywords that lead to related literature. | 3.40 | 1.08 | Moderate (Developing) |
| organize literature search based on themes. | 3.36 | 1.15 | Moderate (Developing) |
| determine the information in the literature necessary for the review. | 3.32 | 1.11 | Moderate (Developing) |
| properly cite the references using the APA citation style. | 3.24 | 1.16 | Moderate (Developing) |
| use reference management systems like Mendeley and EndNote. | 2.92 | 1.12 | Moderate (Developing) |
| **Composite Mean** | **3.25** | **1.03** | **Moderate (Developing)** |

Noticeably, all five (5) indicators fall within the “Moderate (developing)” level of research capability. This result suggests that respondents consistently view their literature review capabilities as still evolving rather than fully developed. The composite mean of 3.25 (SD = 1.03) also conveys moderate or developing competence in this research respect.

Specifically, the highest rating was observed for "determining the keyword that leads to related literature"(M=3.40, 1.08). Falling within the moderate (developing) range, the respondents considered themselves to be developing rather than fully competent in this area. In contrast, the lowest rating was observed in "using reference management systems like Mendeley and EndNote" (M=2.92, SD=1.12). This result indicates that the respondents feel least confident in using technology tools to manage their references. Also, this indicator may need significant improvement, as it received a notably lower mean score in the literature review writing.

On the other hand, the standard deviations across all indicators range from 1.03 to 1.16, with the highest variability observed in properly citing references in APA style (SD=1.16). These relatively high standard deviations indicate considerable variation in respondents' self-assessments, suggesting diverse levels of confidence and ability.

Keywords are essential terms or concepts that reflect the primary objective and theoretical framework of academic research. Keywords provide readers with a quick understanding of a scholarly article's content and help researchers locate studies relevant to a specific field or topic. For this reason, many academic journals provide detailed guidelines to help authors select suitable keywords that effectively highlight their research. The main function of keywords in academic articles is to facilitate indexing, allowing search engines, scholarly databases, and library catalogs to find the most relevant results for a given query. The specific ways these systems use keywords are often unclear, as they rely on proprietary algorithms developed by individual search engines or database providers (Corrin et al., 2022). Likewise, according to Buchanan & Grimmer (2021), keywords are essential for researchers conducting systematic reviews, as they help provide a comprehensive overview and synthesis of various research findings. Selecting appropriate keywords and incorporating them into a well-designed search strategy is crucial for conducting a thorough, reliable systematic review.

Moreover, the respondents need minimal supervision when using reference management systems such as Mendeley and EndNote. Reference management systems like Mendeley and EndNote are important because they help researchers save time, ensure consistent references, and organize references. Reference management software assists researchers in managing references by providing a specialized database to capture, store, manage, and share citations relevant to their research. According to Sharma and Singh (2020), reference management software, also known as

citation management software, is utilized by academic writers to create and manage bibliographic citations. These tools support various referencing styles and generate citations according to specific requirements. Once a citation is recorded, it can be repeatedly used in scholarly books, articles, and essays.

Table 6 presents respondents' assessments of their research capabilities in designing research.

*Table 6. Designing Research*

| Indicator | Mean | SD | Descriptive Equivalent |
|---|---|---|---|
| identify and make use of appropriate research design. | 2.96 | 1.17 | Moderate (Developing) |
| describe the appropriate methodology clearly. | 3.12 | 1.13 | Moderate (Developing) |
| determine the appropriate data collection instruments. | 3.32 | 1.18 | Moderate (Developing) |
| construct appropriate questionnaires and other instruments. | 3.16 | 1.14 | Moderate (Developing) |
| ensure validity and reliability of research instruments. | 3.24 | 1.09 | Moderate (Developing) |
| **Composite Mean** | **3.16** | **1.05** | **Moderate (Developing)** |

Evidently, all five (5) indicators fall within the "Moderate (developing)" level of research capability in terms of designing research. This result implies that respondents consistently view their design research capabilities as still evolving rather than fully developed. The composite mean of 3.16 (SD = 1.05) also suggests moderate or developing competence in this research aspect.

Specifically, the highest rating was observed for "determining the appropriate data collection instruments" (M=3.32, SD=1.18), while the lowest was for "identifying and making use of appropriate research design" (M=2.96, SD=1.17). This lower rating suggests that the respondents feel least confident in using an appropriate research design aligned with the research problems. Hence, this indicator potentially needs significant improvement to enhance research capabilities.

In contrast, the standard deviations for all indicators range from 1.05 to 1.17, with the highest variability observed in the selection of appropriate data collection instruments (SD = 1.18). These relatively high standard deviations indicate significant variability in the respondents' self-assessments, suggesting that they possess differing levels of confidence and ability.

Choosing appropriate data collection procedures is necessary to ensure the accuracy and validity of the data gathered, thereby generating more reliable conclusions and recommendations. Data collection involves systematically gathering and measuring information on relevant variables to address research questions, test hypotheses, and assess outcomes. According to Goyal (2022), data collection is a critical phase of research. Even with excellent research design, the inability to gather the necessary data can hinder the completion of the study. It is a challenging process that demands meticulous planning, dedication, patience, and perseverance for successful execution. The process begins by identifying the required data type and then selecting a sample of individuals. Once the sample is chosen, a specific tool collects data from the selected participants. However, in the study of Karunarathna et al. (2022), they found that while selecting an appropriate data collection method is essential for designing robust research, it alone cannot ensure the success of a research project. Maintaining data quality and accuracy is crucial for minimizing errors and improving the validity of the research findings.

Moreover, identifying and using the appropriate research design is important in every research endeavor. A well-planned research design ensures that the methods align with the objectives, facilitate the collection of high-quality data, and employ appropriate analyses to address the questions using reliable sources. This approach enables the researchers to reach valid and trustworthy conclusions. When starting a research study, researchers must thoughtfully choose the design to guide their work. The design establishes the study's framework, encompassing the

research questions, data collection methods, and analysis techniques. It outlines how the study will be conducted and helps identify the most effective approach to achieve the research objectives. A well-crafted design significantly enhances the likelihood of producing valid and reliable results. According to Asenahabi (2019), successful research relies on an appropriate design. This serves as a plan developed by the researcher before data collection to ensure the research objectives are valid. The purpose of a research design is to transform a research problem into analyzable data, enabling relevant answers to the research questions while minimizing costs. Research design primarily focuses on the goals, purposes, intentions, and plans, all within the practical limitations of location, time, budget, and the researcher's availability (Hakim, 2000). At the same time, Creswell (2014) describes research design as the comprehensive plan that links conceptual research problems to relevant and feasible empirical research. It serves as a guide, offering specific procedures for conducting a study. This systematic approach is established by the researcher before beginning data collection and analysis, ensuring the research objectives are achieved validly. The primary purpose of research design is to transform a research problem into analyzable data, providing meaningful answers to research questions while minimizing costs.

Table 7 presents the respondents' assessments of their research capabilities in determining a quantitative research design.

*Table 7. Determining Quantitative Research Design*

| Indicator | Mean | SD | Descriptive Equivalent |
|---|---|---|---|
| formulate null hypotheses based on problems and statistics. | 3.20 | 1.12 | Moderate (Developing) |
| decide on a suitable sample size and apply an appropriate sampling technique. | 3.12 | 1.05 | Moderate (Developing) |
| identify the needed data for the study. | 3.36 | 1.15 | Moderate (Developing) |
| determine appropriate statistical tools/treatment. | 3.04 | 1.14 | Moderate (Developing) |
| apply statistical tools/treatment using Excel, SPSS, STATA, and similar software. | 2.88 | 1.20 | Moderate (Developing) |
| **Composite Mean** | **3.12** | **1.06** | **Moderate (Developing)** |

As shown in Table 7, all five (5) indicators fall within the "Moderate (developing)" level of research capability in determining the quantitative research design. This result shows that respondents consistently view their capability to determine quantitative research design as still evolving rather than fully developed. The composite mean of 3.12 (SD = 1.06) also demonstrates moderate or developing competence in this research respect.

In particular, the highest rating was observed for "identifying the needed data for the study" (M=3.36, 1.15) while the lowest rating was for "applying statistical tools/treatment using Excel, SPSS, STATA, and other similar software" (M=2.88, SD=1.20). The respondents feel least confident in using statistical tools/treatment. Hence, a significant improvement in the use of statistics in research should be considered.

Additionally, the standard deviations across all indicators range from 1.05 to 1.20, with the highest variability found in "applying statistical tools/treatment using Excel, SPSS, STATA, and other similar software" (SD=1.20). These relatively high standard deviations indicate considerable variation in respondents' self-assessments, suggesting diverse levels of confidence and ability.

The table shows that respondents can identify the necessary data for the study with minimal supervision, with a mean rating of 3.36. On the other hand, respondents' application of statistical tools and treatments in Excel, SPSS, Stata, and similar software yielded the lowest mean rating of 2.88, indicating minimal supervision is required. In general, the respondents can determine the quantitative research design with minimal supervision, with a mean rating of 3.12.

It only shows that the respondents can distinguish the data/ information needed for the study. Thus, the respondents are aware that data collection, as a crucial stage in research, plays a significant role in minimizing potential errors during the research process. To ensure accurate and reliable results, it is essential to complement a well-designed study with ample time dedicated to

gathering high-quality data. Data refers to the figures or facts utilized for analysis, various calculations, and ultimately to derive results that address the study's research question or hypothesis testing. Insufficient or inaccurate data can compromise the validity of the findings. According to Taherdoost (2022), data collection is a key stage in any research study, allowing researchers to address their research questions. It involves gathering information to deepen understanding of the research topic. Conversely, while an appropriate data collection method aids in planning an effective research project, it does not necessarily ensure the overall success of the project (Olsen, 2012).

Likewise, researchers face the difficulty of using different statistical tools/treatments across various software. Mastering statistical analysis software can be difficult due to its complexity, technical demands, and the need to understand statistical concepts. Researchers encounter numerous tools, each with specific functions and commands, which can make it easy to feel overwhelmed by the multitude of menus and buttons. Similarly, using statistical analysis software requires a strong grasp of mathematical concepts. Without a solid understanding of statistics and probability, interpreting the software-generated results can be challenging. In the study by Felix et al. (2024), they identified key challenges in using statistical tools/ treatments, including weak mathematical skills, limited application of statistical knowledge in research, insufficient understanding of statistical and research concepts, and a lack of adequate textbooks on statistics. Addressing these difficulties is necessary to prepare researchers with the skills needed for successful research endeavors.

Table 8 presents respondents' assessments of their research capabilities in completing other parts of the research proposal.

*Table 8. Completing other parts of the research proposal*

| Indicator | Mean | SD | Descriptive Equivalent |
|---|---|---|---|

| | | | |
|---|---|---|---|
| prepare timetable/Gantt Chart/work plan | 3.20 | 1.26 | Moderate (Developing) |
| determine the allowable expenses and prepare cost estimates | 3.28 | 1.17 | Moderate (Developing) |
| make a plan on how to disseminate and utilize research results | 3.16 | 1.14 | Moderate (Developing) |
| cite authors properly and prepare a list of references correctly | 3.40 | 1.12 | Moderate (Developing) |
| Prepare letters and complete other forms required to complete the proposal. | 3.32 | 1.14 | Moderate (Developing) |
| **Composite Mean** | **3.27** | **1.11** | **Moderate (Developing)** |

As shown in Table 8, all five indicators are categorized at the "Moderate (Developing)" level of research capability across various parts of the research proposal. This finding indicates that respondents perceive their proposal skills as evolving rather than fully developed. The composite mean score of 3.40 (SD = 1.12) reflects a moderate level of competence in this area.

Specifically, the highest rating was observed for "citing authors properly and preparing a list of references correctly" (M=3.40, 1.12). This also falls within the moderate (developing) range, suggesting that respondents view themselves as still developing these skills rather than as fully competent. On the other hand, the lowest rating was for "making a plan on how to disseminate and utilize research results," with a mean of 3.16 (SD = 1.16). This lowest score indicates that respondents feel least confident in their ability to plan for the dissemination and utilization of research outcomes.

Furthermore, the standard deviations for all indicators range from 1.12 to 1.26, with the highest variability observed in preparing a timetable/Gantt chart/work (SD = 1.26). These relatively high standard deviations indicate significant variability in respondents' self-assessments, suggesting that they have differing levels of confidence and ability.

The table shows that the respondents can cite authors properly and prepare a list of references correctly with minimal supervision (the highest mean rating of 3.16) and can also plan for disseminating and utilizing research results with minimal supervision (the lowest mean rating

of 3.16). In general, respondents can complete the remaining parts of the research proposal with minimal supervision, with a composite mean rating of 3.27.

This only means that the respondents can make references to prevent plagiarism. Also, proper referencing clearly distinguishes the ideas from those of other researchers, demonstrates their understanding of the topic, provides evidence to support their ideas, arguments, and opinions, and enables others to identify and verify their referenced sources. Likewise, the purpose of a citation is to provide sufficient bibliographic details for readers to identify and access the source if needed. Therefore, it is crucial to ensure citations are complete, accurate, and consistent. By including citations and references, the researchers acknowledge the work of others and highlight how their ideas have contributed to the present study. In scientific contexts, a reference provides the information readers need to identify and locate the sources used (Masic, 2013). The fundamental principle when listing sources is that references must be accurate, complete, and consistently formatted. According to Santini (2018), effective referencing involves careful attention to details such as accurate page numbers, the correct spelling of authors' names, and the precision of facts cited in the paper. Proper references improve your research skills and credibility with editors, reviewers, and readers.

Table 9 presents respondents' assessments of their research capabilities in statistical analysis.

*Table 9. Statistical Analysis*

| Indicator | Mean | SD | Descriptive Equivalent |
|---|---|---|---|
| determine what statistical treatment to be used. | 2.76 | 1.05 | Moderate (Developing) |
| utilize statistical software such as SPSS, envivo, and the like | 2.80 | 1.12 | Moderate (Developing) |
| perform statistical analysis using software | 2.88 | 1.05 | Moderate (Developing) |
| interpret the results of the statistical treatment | 3.00 | 1.00 | Moderate (Developing) |
| **Composite Mean** | **2.94** | **.98** | **Moderate (Developing)** |

All four indicators in Table 9 are categorized as "Moderate (developing)." This result indicates that respondents generally perceive their statistical capabilities as developing rather than excellent. The composite mean score of 2.94 (SD = 0.98) further indicates moderate or developing competence in this research context.

Among the indicators, the highest rating was given to "interpreting the results of statistical treatment," with a mean score of 3.00 (SD = 1.00). This suggests that respondents feel somewhat confident in this area, although still within the moderate (developing) range. Conversely, the lowest rating was recorded for "determining what statistical treatment to use," with a mean score of 2.76 (SD = 1.05).

Additionally, the standard deviations for all indicators range from 0.98 to 1.12, with the greatest variability observed in the ability to utilize statistical software such as SPSS and NVivo (SD = 1.12). These relatively high standard deviations indicate significant variation in the respondents' self-assessments, suggesting diverse levels of confidence and ability.

The table shows that respondents can interpret the results of the statistical analysis with minimal supervision, with the highest mean rating of 3.0. Likewise, they can determine the appropriate statistical treatment with minimal supervision, with a mean rating of 2.76. In general, the respondents can perform statistical analysis with minimal supervision, with a composite mean rating of 2.86.

It only shows that the respondents are aware of the importance of accurately interpreting statistical results, which is vital for understanding advancements in every research endeavor. It is essential for researchers to understand the importance of sound interpretation grounded in strong evidence and to support decision-making. Data collection and statistical analysis play a crucial role in deepening our understanding of everything from human behavior to the universe. Since our

assumptions about the world are often shaped by personal experiences and anecdotes, which lack a broader perspective. Gaining a true understanding of the world requires time, dedication, and meticulous effort. As in the study by Dibekulu (2020), research is a scientific field that generates new knowledge and solves existing problems. It is a process of collecting, transforming, and converting data to discover the required information. So, data analysis is a crucial part of research, making the study's results more effective. According to Kothari (2004), data analysis involves comparing the effects of various treatments across different groups and determining whether the research objectives have been achieved.

However, respondents rated the statistical treatment as the lowest. It only shows that the respondents have difficulty determining appropriate statistical treatment in their research. Statistical techniques are mathematical representations that involve specific expertise for their interpretation. Without an adequate understanding, the study results can be useless or dangerous. The choice of appropriate statistical treatment is important for generating valid conclusions about specific problems. However, the most common challenge encountered by the researchers is a lack of familiarity with applying appropriate statistical methods to analyze data, which leads to incorrect interpretations of results. Lawan, Mohammed, & Junaid (2013) found that 27 (54%) of the 50 published articles assessed employed incorrect statistical methods, leading to incorrect interpretations of their findings and invalid conclusions. This high percentage could be due to difficulty understanding statistical analysis. Begum and Ahmed (2015) noted that every researcher must understand the statistical methods used in their research and the importance of using appropriate statistical tools in their study or survey. Statistics is a useful tool in almost all fields, especially in research. Therefore, statistical treatment is necessary to control and verify analytical

procedures and the resulting data, ensuring the quality of work and avoiding errors in analytical analyses.

Table 10 summarizes respondents' assessments of their research capabilities.

*Table 10. Summary of Respondents' Research Capabilities*

| Area | Composite Mean | SD | Descriptive Equivalent |
|---|---|---|---|
| Conceptualizing research | 3.34 | .99 | Moderate (Developing) |
| Formulating Research Problems | 3.46 | 1.06 | Moderate (Developing) |
| Writing literature review | 3.25 | 1.03 | Moderate (Developing) |
| Designing research | 3.16 | 1.05 | Moderate (Developing) |
| Determining quantitative research design | 3.12 | 1.06 | Moderate (Developing) |
| Completing other parts of research proposal | 3.27 | 1.11 | Moderate (Developing) |
| Statistical analysis | 2.94 | .98 | Moderate (Developing) |
| **Overall** | **3.22** | **.99** | **Moderate (Developing)** |

As gleaned from Table 10, the respondents considered their research capabilities to be moderate or developing, as indicated by the overall mean (3.22, SD=0.99). All the areas measured were deemed moderate, with the highest mean of 3.34 on conceptualizing research and the lowest mean of 2.94 on statistical analysis.

The standard deviation range of 0.98 to 1.11 suggests a moderate degree of variability in respondents' capabilities across the areas. The highest variability is in "completing other parts of research proposal" (SD = 1.11), while the lowest is in "statistical analysis" (SD = 0.98).

These results suggest that while respondents were moderately capable across all research areas, they were relatively stronger at formulating research problems and relatively weaker in statistical analysis, though all areas indicate room for further development.

**Part III. Attitudes Towards Research**

Table 11 presents the respondents' attitudes toward research, including usefulness, anxiety, and positive research predisposition. The indicators for anxiety are negatively stated, while those of research usefulness and positive research predisposition are positively stated. To ensure the

indicators were in the same direction and the data analysis was accurate, the anxiety indicators were reversed.

*Table 11. Attitude towards Research*

| Indicator | Mean | SD | Implications |
|---|---|---|---|
| Research Usefulness | 4.50 | .48 | Very Positive |
| 1. Research is useful for my career | 4.48 | .59 | Positive |
| 2. Research is connected to my field of study | 4.56 | .58 | Very Positive |
| 3. The skills I have acquired in research will be helpful to me in the future | 4.52 | .51 | Very Positive |
| 4. Research should be indispensable in my professional training | 4.44 | .51 | Positive |
| Lack of Anxiety | 3.20 | 1.01 | Neutral |
| 1. research courses/training does not make me anxious | 3.36 | 1.08 | Neutral |
| 2. research courses/training does not scare me | 3.56 | 1.12 | Positive |
| 3. research courses/training are not stressful | 3.04 | 1.21 | Neutral |
| 4. research courses/training does make me nervous | 3.44 | 1.16 | Neutral |
| 5. research courses/training are not difficult | 2.92 | 1.15 | Neutral |
| Positive Research Predisposition | 3.77 | .49 | Positive |
| 1. I enjoy my research course(s)/ training (s) | 3.88 | .73 | Positive |
| 2. I love research course(s)/ training (s) | 4.08 | .70 | Positive |
| 3. I find research course(s)/ training (s) interesting | 4.12 | .67 | Positive |
| 4. Research course(s)/ training (s) are pleasant | 4.04 | .68 | Positive |
| **Overall** | **3.85** | **.46** | **Positive** |

| ***Scale*** | ***Descriptive Equivalent*** | ***Implications*** |
|---|---|---|
| *4.50 - 5.00* | *Strongly Agree* | *Very positive* |
| *3.50 – 4.49* | *Agree* | *Positive* |
| *2.50 – 3.49* | *Undecided* | *Neutral* |
| *1.50 – 2.49* | *Disagree* | *Negative* |
| *1.0 – 1.49* | *Strongly Disagree* | *Very Positive* |

As shown in Table 11, the respondents expressed a positive attitude towards the usefulness of research (Mean = 4.19, SD = 0.46). They were most positive about the connection between research and their field of study, as well as the usefulness of these skills for them in the future. They were least positive about the indispensability of research in their professional training. The low standard deviations indicate strong agreement among respondents about the usefulness of the research.

When compared to research capabilities, which showed moderate skills, Table 11 reveals an interesting contrast. While respondents have moderate research capabilities, they have very positive attitudes toward the usefulness of research, recognizing its importance despite their developing skills level.

In terms of anxiety, it appears that respondents were neither positive nor negative, with a mean of 3.20. The standard deviation of 1.01 suggests high variability in the respondents' anxiety with research. As shown, the respondents were positive that research courses/training do not scare them. However, they manifest a neutral attitude toward research, making it easy.

Regarding positive research predisposition, the mean of 3.77 and a standard deviation of 0.49 indicate a positive attitude and strong agreement in responses in this area. They were most positive about finding research courses interesting and least about enjoying them.

Overall, the respondents were positive towards research (Mean = 3.85, SD = 0.46), with the highest regard for its usefulness and the least on having no anxiety or confidence.

**Part IV. Profile and Research Capabilities**

Table 12 summarizes the results of the data analysis on the relationship between profile and overall research capabilities. As shown, the Mann-Whitney U test was used to determine whether there are significant differences in research capabilities across profile variables, including gender, age, position, length of service, and training. The Kruskal-Wallis test was used for the highest educational attainment, having three (3) categories.

*Table 12. Profile and Research Capabilities*

| Profile | Mann-Whitney U Test | p-value | Remarks |
|---|---|---|---|
| Gender | 27.50 | 0.13 | Not significant; Do not reject Ho |
| Age | 75.50 | 0.93 | Not significant; Do not reject Ho |
| Position | 45.50 | 0.19 | Not significant; Do not reject Ho |
| Length of Service | 64.00 | 0.45 | Not significant; Do not reject Ho |
| Training | 24.00 | 0.01 | Significant; Reject Ho |
| **Profile** | **Kruskal-Wallis Test** | **p-value** | **Remarks** |

| | | | |
|---|---|---|---|
| Highest Educational Attainment | 6.42 | 0.04 | Significant; Reject Ho |

As shown in Table 12, profiles such as gender, age, position, and length of service do not significantly relate to research capabilities. The Mann-Whitney U test reveals no significance at the 0.05 level, as shown in Table 12.

Interestingly, the level of training is significantly associated with research capabilities. With a Mann-Whitney U test value of 24.00, significant at 0.01, respondents with national or international training experience have significantly higher mean ranks for research capability than those with research training within the institution. Hence, the null hypothesis of no significant difference in mean ranks for overall research capabilities is rejected.

Similarly, the highest educational attainment is significantly associated with overall research capabilities, as evidenced by a significant Kruskal-Wallis's test statistic of 6.42 (p=0.04). The null hypothesis of no significant differences in the overall research capability mean ranks is rejected. Those with higher educational attainment have significantly greater research capabilities.

Table 13 presents the Spearman's rho correlation coefficients between research activities and research capabilities.

*Table 13. Spearman Rho Correlation of Research Activities with Research Capabilities*

| **Research Capabilities** | **R** | **Remarks** |
|---|---|---|
| Conceptualizing research | .74** | High correlation; Significant relationship |
| Formulating Research Problems | .64** | Moderate correlation; Average relationship |
| Writing literature review | .70** | High correlation; Significant relationship |
| Designing research | .58** | Moderate correlation; Average relationship |
| Determining quantitative research design | .64** | Moderate correlation; Average relationship |

| | | |
|---|---|---|
| Completing other parts of research proposal | .71** | High correlation; Significant relationship |
| Statistical analysis | .60** | Moderate correlation; Average relationship |
| **Overall Research Capabilities** | **.70**** | **High correlation; Significant relationship** |

**. Correlation is significant at the 0.05 level (2-tailed).*
***. Correlation is significant at the 0.01 level (2-tailed).*

| ***R*** | ***Interpretation*** |
|---|---|
| *±0.90 – ±1.00* | *Very high correlation; Very Significant relationship* |
| *±0.70 – ±0.89* | *High correlation; Significant relationship* |
| *±0.40 – ±0.69* | *Moderate correlation; Average relationship* |
| *±0.20 – ±0.39* | *Low correlation; Small relationship* |
| *0 – ±0.19* | *Very Low correlation; Almost no relationship* |

As shown in Table 13, research activities and capabilities are highly correlated (R = 0.70), suggesting that greater activities are associated with greater capabilities, and vice versa. The table also reveals that specific research capabilities, such as conceptualizing research, writing a literature review, and completing other parts of a research proposal, are highly correlated with research activities. This result indicates the relevance of research engagement in enhancing research capabilities.

**Part V. Profile and Attitude towards Research**

Table 14 presents the relationship between profile variables and attitude toward research, using the Mann-Whitney U test for two (2) categories and the Kruskal-Wallis test for more than two (2) categories.

*Table 14. Profile and Attitude towards Research*

| Profile | Mann-Whitney U Test | p-value | Remarks |
|---|---|---|---|
| Gender | 44.000 | 0.72 | Not significant; Do not reject Ho |
| Age | 37.000 | 0.03 | Significant; Reject Ho |
| Position | 47.000 | 0.22 | Not significant; Do not reject Ho |
| Length of Service | 68.000 | 0.59 | Not significant; Do not reject Ho |
| Training | 61.000 | 0.71 | Not significant; Do not reject Ho |
| **Profile** | **Kruskal-Wallis Test** | **p-value** | **Remarks** |
| Highest Educational Attainment | 0.722 | 0.70 | Not significant; Do not reject Ho |

Evidently, profile variables such as gender, position, length of service, and training are not significantly associated with attitude toward research. The table shows that these variables have p-values greater than 0.05; hence, the null of equal mean ranks is not rejected. Likewise, the highest educational attainment was not significantly related to attitude toward research, as indicated by Kruskal-Wallis's test value of 0.72 and a p-value of 0.70. The data does not provide sufficient evidence that these variables are related.

However, age was shown to relate to attitude towards research. The Mann-Whitney U test value of 37.00 is significant at the 0.03 level. It appears that younger respondents, aged 30 to 49, have significantly more positive attitudes towards research than those aged 50 or older.

Table 15 displays the Spearman's rho correlation coefficients between research activities and attitude towards research. The correlation coefficients indicate the strength and direction of the relationship between these variables.

*Table 15. Spearman Rho Correlation of Research Activities with Attitude toward Research*

| Attitude towards Research | R | Remarks |
|---|---|---|
| Research Usefulness | .093$^{ns}$ | Very Low correlation; Almost no relationship |
| Lack of Anxiety | .350 $^{ns}$ | Low correlation; Small relationship |
| Positive Research Predisposition | .240 $^{ns}$ | Low correlation; Small relationship |
| **Overall** | **.334 $^{ns}$** | **Low correlation; Small relationship** |

*ns – not significant at the 0.05 level (2-tailed).*

As gleaned from Table 15, all coefficients are marked as "ns" (not significant at the 0.05 level), suggesting that none of these relationships are statistically significant. The research usefulness and attitude towards research variables showed a correlation coefficient of 0.093, indicating a very weak correlation or almost no relationship. Since the relationship is not significant, the participants' perceptions of research usefulness do not have a meaningful impact on their attitude toward research.

Similarly, lack of anxiety or the ease or comfort respondents feel with research does not correlate significantly with attitude towards research (R=0.35). Also, positive research predisposition does not significantly relate to attitude towards research (R = 0.24). These relationships are not statistically significant; hence, any link between the absence of anxiety about research and a positive predisposition toward research may not be a reliable or consistent finding.

Generally, doing research activities and attitude towards research (R = 0.334) are categorized as "low correlation/small relationship." This result is not significant, suggesting that the overall relationship between research activities and attitudes toward research is weak and does not reach statistical significance at the 0.05 threshold. It can be surmised that conducting research does not strongly affect attitudes towards research, whether in terms of research usefulness, anxiety, positive predisposition, or overall

**Part VI. Research Capabilities and Attitude towards Research**

Table 16 presents the relationship between respondents' research capabilities and their attitudes toward research.

*Table 16. Spearman rho correlation between Attitude towards Research and Research Capabilities*

| Research Capabilities | Research Usefulness | Lack of Anxiety | Positive Research Predisposition | Overall Attitude towards Research |
|---|---|---|---|---|
| Conceptualizing research | .11 $^{ns}$ | .43$^{*}$ | .27 $^{ns}$ | .40$^{*}$ |
| Formulating Research Problems | .13 $^{ns}$ | .47$^{*}$ | .18 $^{ns}$ | .39 $^{ns}$ |
| Writing literature review | .14 $^{ns}$ | .42$^{*}$ | .37 $^{ns}$ | .42$^{*}$ |
| Designing research | .16 $^{ns}$ | .30 $^{ns}$ | .40$^{*}$ | .36 $^{ns}$ |
| Determining quantitative research design | .20 $^{ns}$ | .31 $^{ns}$ | .48$^{*}$ | .41$^{*}$ |
| Completing other parts of research proposal | .08 $^{ns}$ | .30 $^{ns}$ | .37 $^{ns}$ | .32 $^{ns}$ |
| Statistical analysis | .07 $^{ns}$ | .28 $^{ns}$ | .52$^{**}$ | .37 $^{ns}$ |

| | | | | |
|---|---|---|---|---|
| **Overall Research Capabilities** | **.13 ns** | **.37 ns** | **.34 ns** | **.38 ns** |

**. Correlation is significant at the 0.05 level (2-tailed).*
***. Correlation is significant at the 0.01 level (2-tailed).*
*ns – not significant at 0.05 level*

As reflected in Table 16, research capabilities are not significantly correlated with research usefulness. It is interesting to note that lack of anxiety is significantly related to formulating research problems (R=0.47), conceptualizing research (R=0.43), and writing a literature review (R=0.42). Also, a positive research predisposition is most strongly correlated with statistical analysis (R = 0.52) and with the selection of a quantitative research design (R = 0.48).

Statistical analysis and positive research predisposition showed the most significant relationships in the table. Their correlation coefficient (0.52, $p<0.01$) indicates a moderately strong positive relationship.

The correlation between stronger research problem-formulation capabilities and lower anxiety ($r = 0.47$, $p < 0.01$) suggests that those with stronger research problem-formulation capabilities are less anxious about research.

Overall, research capabilities and attitudes toward research do not correlate significantly ($R = 0.38$, $p > 0.05$). Though the coefficient indicates a low relationship, this correlation is not significant. The data does not provide sufficient evidence to show that these variables are significantly related.

## V. Conclusions

1. The profiles of the respondents, such as gender, age, position, and length of service, do not significantly relate to research capabilities. Therefore, the null hypotheses are accepted. While the level of training is significantly associated with research capabilities. Thus, the null hypothesis is accepted.

2. In terms of profile and attitudes towards research, gender, position, length of service, and training are not significantly associated with attitudes toward research. Therefore, the null hypothesis is accepted. However, age was shown to relate to attitude towards research; thus, the null hypothesis is rejected.
3. The respondents' research capabilities and attitudes toward research do not significantly correlate; thus, the null hypothesis is accepted.

## VI. Recommendations

1. Develop clear policies, procedures, and guidelines, and provide dedicated funding, time allowances, and infrastructure to support research initiatives.
2. Provide institutional support for research through dedicated resources, training, and mentorship. Developing a structured framework for research that will include support for faculty, students, and staff in securing grants and conducting studies.
3. Implement mentorship programs that pair experienced researchers with early-career faculty to enhance research skills and foster a supportive academic environment.
4. Recognize and reward research achievements through awards, publications, and presentations, motivating faculty and students to contribute to the maritime research community.

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