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Research Competency Needs of University Students: Baseline for Research Manual Formulation

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ABSTRACT

Purpose – This study describes and analyzes the research competency needs of college students in a state university in the Philippines. The research intends to inform the formulation of a research manual for higher education institutions.

Methodology – The study employed a descriptive, quantitative design using a researcher-developed survey questionnaire (eight domains) that was validated (CVI=1.00) and tested for reliability (α=0.963). One hundred fifty (150) selected student-researchers, acting as leaders and members, participated in the survey process. The said respondents were selected using a simple random sampling technique. Stringent research protocols and ethical considerations were strictly followed. Data from the survey were analysed using descriptive statistics (i.e., mean and standard deviation) and inferential statistics, such as the Kruskal-Wallis (H) test for the non-normal data analysed.

Findings – The results reveal that the student-researchers have the highest research competency needs. Moreover, there is no variation in their research competency needs ($p<0.05$), indicating a statistically identical highest level of need to improve their research competencies. At the outset, a research manual was developed to complement the proposed research policy on standardizing the research format and addressing the research competency needs of university students.

Novelty – The development research manual, as an output of the study, provides an innovative way to contextualize instruction and foster creative thinking and innovative solutions to real-life academic and societal problems.

Significance – The findings serve as a valuable reference for using research-based competency needs assessment to foster innovation in research practices.

Keywords: Research competency needs; Research manual; State university; Student-researchers.

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1. Introduction

Research competency is a critical requirement for college or university students, as undergraduate research programs are shown to enhance analytical thinking, communication, and academic performance (Khan, 2023; Petrella & Jung, 2008). Students engaged in research tend to achieve higher GPAs, graduate earlier, and are more likely to pursue advanced degrees (Chamely-Wiik et al., 2023). However, many students struggle with the core competencies needed to conduct and present research effectively.

A major challenge is the lack of foundational research skills, including the ability to structure research papers—such as crafting introductions, literature reviews, methodologies, findings, and discussions—which are essential for identifying research gaps and initiating new lines of inquiry (Altikriti, 2022; Sitompul & Anditasari, 2022). Students often face difficulties with accurate citation and formatting, leading to unintentional plagiarism due to misunderstandings or a lack of clear guidelines (Pecson et al., 2025; Rezeki, 2018). Common errors include inappropriate titles, unclear problem statements, irrelevant literature reviews, unsuitable methodologies, and improper referencing (Abdullah, 2023).

Writing proficiency is another significant hurdle, influenced by grammatical weaknesses, limited practice, and unfamiliarity with academic writing norms (Budjalemba & Listyani, 2020; Javid & Umer, 2014). Students also report anxiety and stress, particularly when English is the medium of instruction, and often lack access to well-equipped libraries or online resources (Al-Qaseri, 2016; Pecson, 2017). The process of selecting topics, locating relevant literature, and managing time further complicates their research experience (Ngoc & Ngoc, 2021; Qasem & Zayid, 2019).

Guidance and support are frequently insufficient, with students citing unclear feedback, limited exposure to research methods, and a lack of standardized formats for proposals and papers (Javed, 2019; Manchishi et al., 2015). These challenges are exacerbated in regions like ASEAN, where research culture and knowledge sharing among academic support staff may be underdeveloped (Ramos-Eclevia et al., 2018).

To address these needs, educational institutions must provide structured training in research methodologies, writing, and data analysis, and foster positive attitudes toward research (Setiani et al., 2023; Tran et al., 2023). Developing technological literacy for data processing, mathematical and analytical communication skills, and self-directed learning strategies are also essential for building research competency (Angraini et al., 2024; Hanafiani et al., 2023; Suripah & Hidayatul Muslim, 2025). Clear guidelines, regular practice, and contextual relevance in research instruction can help students overcome these barriers and improve the quality and integrity of their work (Brent, 2012; Meerah & Arsad, 2010).

The literature reviewed consistently indicates that while participating in research fundamentally improves college students' critical thinking, academic success, and career readiness (Chamely-Wiik et al., 2023; Khan, 2023), there are still gaps in developing students' research competency, which is foundational in teaching and training them to build capacity for the future. Students struggle with basic skills such as organizing papers, accurately citing, choosing methodologies, and data analysis (Abdullah, 2023; Altikriti, 2020; Ngoc & Ngoc, 2021), and this is often due to inadequate training, vague expectations, and not having access to adequate resources (Abdullah, 2023; Altikriti, 2020; Ngoc & Ngoc, 2021).

Complicating circumstances include internal factors such as anxiety and external institutional factors, particularly in contexts where research cultures are not well established (Al-Qaseri, 2016; Ramos-Eclevia et al., 2018). While research courses and students' positive research attitudes are important (Setiani et al., 2023; Tran et al., 2023), there remains no systematic, structured, context-based manual to fully address those competency gaps. In the present study, the gap was narrowed to the identification of research-related competencies, differentiation in educational spaces, and a more systematic manual to guide students through their research experiences with emphasis on maintaining academic research integrity and quality.

2. Methods

This section provides a detailed description of the research design, respondents and sampling, the instrument, the data-gathering procedure, ethical considerations, and the statistical treatment used to analyze the data from the surveys.

2.1. Research Design

The study utilised a descriptive survey design within a quantitative research framework. The design involved administering structured surveys with closed-ended questions designed to quantify the extent and prevalence of the identified research competency needs. The quantitative component provided a broader perspective by quantifying the issues encountered within the student sample.

In the study, the descriptive survey design (see Figure 1) was employed through a survey conducted to university student-respondents, wherein their research competency needs were measured in terms of eight domains, namely: (i) formatting; (ii) formulating research questions; (iii) reviewing of literature; (iv) designing studies; (v) addressing ethical concerns; (vi) collecting and analyzing data; (vii) interpreting findings; and (viii) disseminating research results. The gathered data were then analyzed using statistical tools, including the mean and standard deviation. At the outset of the study, a research manual was developed addressing the competency needs of the student researcher-respondents.

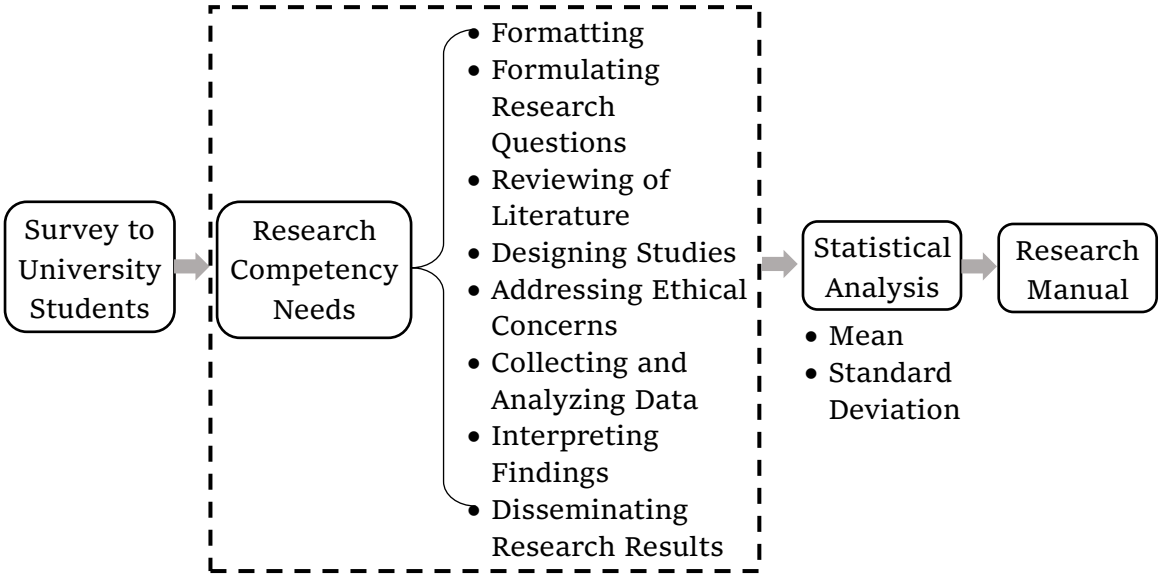

Figure 1. Paradigm of the Study

2.2. Respondents and Sampling Technique

The study tapped students from a state university in the Philippines, specifically in the three colleges (i.e., College of Business and Accountancy (CBA), College of Education (COEd), and College of Social and Behavioral Sciences (CSBS)) as the target population. The said respondents were targeted to provide a comprehensive and holistic presentation of the actual prevalence of the problem under investigation. The study used simple random sampling, ensuring that all population members had an equal chance of being included in the final sample. A simple random sample is a subset of a population where every member has an equal chance of being selected, making it the simplest form of probability sampling (Thomas, 2023).

The student respondents for the survey were randomly selected using a randomizer. From the entire student population, 150 students were randomly selected, 50 from each college, to ensure equal representation. The study inclusion criteria included: (i) the student-researchers were from the selected colleges of the state university; (ii) they had experience in conducting at least one research project on any of their courses or research requirements; and (iii) they acted as study leaders or members.

2.3. Instrument

The primary data collection instrument for the study was the researcher-made survey questionnaire intended to measure the research competency needs of university students in terms of eight domains, namely: (i) formatting; (ii) formulating research questions; (iii) reviewing of literature; (iv) designing studies; (v) addressing ethical concerns; (vi) collecting and analyzing data; (vii) interpreting findings; and (viii) disseminating research results.

Since the survey questionnaire was a researcher-made instrument, further validation from three experts in the field was still needed. Thus, their comments and suggestions were reflected in the final copy of the survey before proceeding to the dry run. Once the instrument's validity had been ascertained through Kappa Statistics, a dry run to 30 students was facilitated, wherein the results were then treated using

Cronbach's Alpha analysis. The CVI of 1.00 indicated that the developed researcher-made survey questionnaire was highly valid. Also, the alpha needed to be 0.70 and above to attest to its reliability. Moreover, the Cronbach's alpha value of 0.963 indicated that the researcher-developed survey questionnaire was highly reliable. Both printed and online copies of the survey were provided to the respondents. The online survey was created using Google Forms. Before conducting the interviews and disseminating the surveys, a permission letter was solicited from the Campus Director and Deans of CBA, COEd, and CSBS of BPSU-Balanga Campus. Consent letters were also provided to help students gather the necessary information.

2.4. Data Gathering Procedure and Ethical Considerations

Permission was requested from the administration to distribute surveys, and consent letters were provided for students to gather the desired information. The researchers ensured the anonymity of the respondents' identities, the confidentiality of the data gathered from them, and the extent of their participation in the study.

2.5. Statistical Treatment

In analyzing the data, descriptive statistics were used, including the Mean and Standard Deviation (SD) in measuring the research competency needs of university students in terms of formatting, formulating research questions, reviewing literature, designing studies, addressing ethical concerns, collecting and analyzing data, interpreting findings, and disseminating research results. The following norms of interpretation:

Table 1 - Mean and Standard Deviation

Scale	Scale of Means	Descriptive Equivalent (DE)	Interpretation
4	3.26 – 4.00	Strongly Agree	Highly Needed
3	2.51 – 3.25	Agree	Slightly Needed
2	1.76 – 2.50	Disagree	Less Needed
1	1.00 – 1.75	Strongly Disagree	Not Needed

Meanwhile, to determine significant differences in research competency needs among university students across the eight domains, since the data were not normal, the Kruskal-Wallis (H) test was used. A p-value that was higher than 0.05 led to the acceptance of the null hypothesis, while a p-value that was equal to or lower than 0.05 led to the rejection of the null hypothesis.

3. Results and Discussion

3.1. Results

3.1.1 Research Competency Needs of University Students

3.1.1.1 Formatting

It can be gleaned from Table 1 that the indicator "Format citations, references, and tables according to the prescribed citation styles (i.e., APA, Chicago, MLA, etc.)." accumulated the highest rating *(Mean=3.67; SD=0.54; Strongly Agree; Highly Needed)*. Conversely, the indicator "Organize and format visual elements such as tables, figures, and charts in the research work" gained the lowest rating *(Mean=3.62; SD=0.53; Strongly Agree; Highly Needed)*. Generally, the rating *(Mean=3.64; SD=0.44)* indicates that the students responded "*Strongly Agree*" to the statements regarding formatting. Furthermore, the

student's research competency needs to be related to formatting and is classified as "*Highly Needed*." Table 2 presents the university students' research competency needs regarding formatting.

Table 2 - Research Competency Needs of University Students in terms of Formatting

Indicator	Mean	SD	DE	Interpretation
1. Understand and implement the correct formatting guidelines for research papers by the University.	3.64	0.52	Strongly Agree	Highly Needed
2. Format citations, references, and tables according to the prescribed citation styles (i.e., APA, Chicago, MLA, etc.).	3.67	0.54	Strongly Agree	Highly Needed
3. Organize and format visual elements such as tables, figures, and charts in the research work.	3.62	0.53	Strongly Agree	Highly Needed
4. Use software tools or templates to ensure a consistent and accurate format throughout the research paper.	3.63	0.55	Strongly Agree	Highly Needed
Composite	3.64	0.44	Strongly Agree	Highly Needed

3.1.1.2 Formulating Research Questions

Table 3 presents the research competency needs of university students in formulating research questions.

Table 3 - Research Competency Needs of University Students in terms of Formulating Research Questions

Indicator	Mean	SD	DE	Interpretation
1. Develop clear and concise research questions that align with the research objectives.	3.68	0.48	Strongly Agree	Highly Needed
2. Identify gaps in existing research and formulate relevant research questions.	3.67	0.48	Strongly Agree	Highly Needed
3. Balance the feasibility of research questions within resource and time constraints.	3.65	0.52	Strongly Agree	Highly Needed
4. Require guidance in refining and narrowing broad research questions into focused, answerable inquiries.	3.69	0.49	Strongly Agree	Highly Needed
Composite	3.67	0.43	Strongly Agree	Highly Needed

As displayed in Table 3, the indicator with the highest rating is "Require guidance in refining and narrowing down broad research questions into focused and answerable inquiries" *(Mean=3.69; SD=0.49; Strongly Agree; Highly Needed)*. On the other hand, the indicator with the lowest rating is "Balance the feasibility of research questions

within resource and time constraints" *(Mean=3.65; SD=0.52; Strongly Agree; Highly Needed)*. Primarily, the students responded "*Strongly Agree*" to the statements regarding formulating research questions, as denoted by the rating *(Mean=3.67; SD=0.43)*. Moreover, the students' research competency needs for formulating research questions are classified as "*Highly Needed*."

3.1.1.3 Reviewing Literature

Table 4 presents the research competency needs of university students for literature reviews.

Table 4 - Research Competency Needs of University Students in terms of Reviewing Literature

Indicator	Mean	SD	DE	Interpretation
1. Conduct a comprehensive literature search and identify relevant sources for the research.	3.69	0.46	Strongly Agree	Highly Needed
2. Evaluate the credibility, reliability, and relevance of literature sources.	3.70	0.50	Strongly Agree	Highly Needed
3. Organize and synthesize information from multiple sources into a coherent literature review.	3.68	0.55	Strongly Agree	Highly Needed
4. Effectively integrate and cite existing literature to support the research arguments.	3.66	0.50	Strongly Agree	Highly Needed
Composite	3.68	0.44	Strongly Agree	Highly Needed

Based on the results in Table 4, the indicator securing the highest rating is "Evaluate the credibility, reliability, and relevance of literature sources" *(Mean=3.70; SD=0.50; Strongly Agree; Highly Needed)*. Alternatively, the indicator receiving the lowest rating is "Effectively integrate and cite existing literature to support the research arguments" *(Mean=3.66; SD=0.50; Strongly Agree; Highly Needed)*. Overall, the rating *(Mean=3.68; SD=0.44)* indicates that students responded "Strongly Agree" to the statements regarding the literature review. Additionally, the student's research competency related to the literature review is classified as "*Highly Needed*."

3.1.1.4 Designing Studies

As shown in Table 5, the indicator "Determine the appropriate data collection methods and techniques for the research objectives" received the highest rating *(Mean=3.68; SD=0.47; Strongly Agree; Highly Needed)*. In contrast, the indicator "Define variables, develop hypotheses, and design research instruments" procured the lowest rating *(Mean=3.59; SD=0.56; Strongly Agree; Highly Needed)*. Universally, students responded "Strongly Agree" to the statements regarding study design, as indicated by the rating *(Mean=3.65; SD=0.45)*. Similarly, the student's research competency in designing studies is classified as "*Highly Needed*". Table 5 describes the research competency needs of university students in designing studies.

Table 5 - Research Competency Needs of University Students in terms of Designing Studies

Indicator	Mean	SD	DE	Interpretation
1. Select appropriate research designs, sampling methods, and sample sizes.	3.67	0.55	Strongly Agree	Highly Needed
2. Define variables, develop hypotheses, and design research instruments.	3.59	0.56	Strongly Agree	Highly Needed
3. Ensure ethical considerations in study design, such as obtaining informed consent/assent, permission, etc.	3.67	0.52	Strongly Agree	Highly Needed
4. Determine the appropriate data collection methods and techniques for the research objectives.	3.68	0.47	Strongly Agree	Highly Needed
Composite	3.65	0.45	Strongly Agree	Highly Needed

3.1.1.5 Addressing Ethical Concerns

Table 6 presents the research competency needs of university students to address ethical concerns.

Table 6 - Research Competency Needs of University Students in terms of Addressing Ethical Concerns

Indicator	Mean	SD	DE	Interpretation
1. Understand and apply ethical guidelines and regulations in research involving human participants or sensitive data.	3.67	0.51	Strongly Agree	Highly Needed
2. Obtain ethical clearance or approval from the institutional review committee.	3.64	0.50	Strongly Agree	Highly Needed
3. Address ethical concerns about participant recruitment, informed consent, and data privacy.	3.66	0.50	Strongly Agree	Highly Needed
4. Ensure data privacy, confidentiality, and protection throughout the research process.	3.67	0.54	Strongly Agree	Highly Needed
Composite	3.66	0.47	Strongly Agree	Highly Needed

According to the outcomes found in Table 6, the indicators with the highest ratings are “Understand and apply ethical guidelines and regulations in research involving human participants or sensitive data” *(Mean=3.67; SD=0.51; Strongly Agree; Highly Needed)* and “Ensure data privacy, confidentiality, and protection throughout the research process” *(Mean=3.67; SD=0.54; Strongly Agree; Highly Needed)*. On the flip side, the indicator with the lowest rating is “Obtain ethical clearance or approval from the institutional review committee.” *(Mean=3.64; SD=0.50; Strongly Agree; Highly Needed)*. The rating *(Mean=3.66; SD=0.47)* indicates that students responded "*Strongly*

Agree" to the statements addressing ethical concerns. Likewise, the student's research competency must address ethical problems, which are classified as "*Highly Needed*."

3.1.1.6 Collecting and Analyzing Data

Table 7 highlights the research competency needs of university students in collecting and analyzing data.

Table 7 - Research Competency Needs of University Students in terms of Collecting and Analyzing Data

Indicator	Mean	SD	DE	Interpretation
1. Select appropriate data collection methods and tools for the research.	3.71	0.49	Strongly Agree	Highly Needed
2. Collect data using surveys, interviews, observations, or experiments.	3.66	0.53	Strongly Agree	Highly Needed
3. Manage and organize collected data to ensure accuracy and reliability.	3.65	0.52	Strongly Agree	Highly Needed
4. Analyze and interpret quantitative or qualitative data using suitable statistical or analytical methods.	3.71	0.47	Strongly Agree	Highly Needed
Composite	3.68	0.45	Strongly Agree	Highly Needed

Given the results in Table 7, the indicators achieving the highest ratings are "Select appropriate data collection methods and tools for the research" *(Mean=3.71; SD=0.49; Strongly Agree; Highly Needed)* and "Analyze and interpret quantitative or qualitative data using suitable statistical or analytical methods" *(Mean=3.71; SD=0.47; Strongly Agree; Highly Needed)*. Nevertheless, the indicator acquiring the lowest rating is "Manage and organize collected data to ensure accuracy and reliability." *(Mean=3.65; SD=0.52; Strongly Agree; Highly Needed)*. In its entirety, the students responded "*Strongly Agree*" to the statements regarding collecting and analyzing data, as proposed by the rating *(Mean=3.68; SD=0.45)*. Similarly, the student's research competency in collecting and analyzing data is classified as "*Highly Needed*."

3.1.1.7 Interpreting Findings

Table 8 shows that the indicator "Connect research findings with existing literature and theoretical frameworks to generate meaningful insights" (Mean=3.67; SD=0.49; Strongly Agree; Highly Needed) received the highest rating. In comparison, the indicators "Interpret and make sense of qualitative and quantitative data analysis results about research questions, assumptions, or hypotheses" *(Mean=3.65; SD=0.51; Strongly Agree; Highly Needed)* and "Draw valid and reliable conclusions based on research findings" *(Mean=3.65; SD=0.52; Strongly Agree; Highly Needed)* got the lowest ratings. The rating *(Mean=3.65; SD=0.46)* indicates that the students responded "*Strongly Agree*" to the statements regarding interpreting findings. Aside from that, the students' research competency needs related to interpreting findings are classified as "*Highly Needed*". Table 8 demonstrates the university students' research competency needs regarding interpreting findings.

Table 8 - Research Competency Needs of University Students in terms of Interpreting Findings

Indicator	Mean	SD	DE	Interpretation
1. Interpret and make sense of qualitative and quantitative data analysis results about research questions, assumptions, or hypotheses.	3.65	0.51	Strongly Agree	Highly Needed
2. Draw valid and reliable conclusions based on research findings.	3.65	0.52	Strongly Agree	Highly Needed
3. Connect research findings with existing literature and theoretical frameworks to generate meaningful insights.	3.67	0.49	Strongly Agree	Highly Needed
4. Critically analyze and discuss the implications and significance of research findings.	3.66	0.50	Strongly Agree	Highly Needed
Composite	3.65	0.46	Strongly Agree	Highly Needed

3.1.1.8 Disseminating Research Results

Table 9 presents the research competency needs of university students for disseminating research results.

Table 9 - Research Competency Needs of University Students in terms of Disseminating Research Results

Indicator	Mean	SD	DE	Interpretation
1. Effectively communicate and present research findings in written form, such as publishable research papers, reports, or articles.	3.59	0.53	Strongly Agree	Highly Needed
2. Prepare and deliver oral presentations or posters to communicate research effectively.	3.68	0.48	Strongly Agree	Highly Needed
3. Publish research work in peer-reviewed journals or other relevant outlets.	3.61	0.53	Strongly Agree	Highly Needed
4. Promote and share research findings through conferences, workshops, or online platforms.	3.61	0.53	Strongly Agree	Highly Needed
Composite	3.62	0.46	Strongly Agree	Highly Needed

As revealed in Table 9, the indicator with the highest rating is "Prepare and deliver oral presentations or posters to communicate research effectively" *(Mean=3.68; SD=0.48; Strongly Agree; Highly Needed)*. However, the indicator with the lowest rating is "Effectively communicate and present research findings in written form, such as publishable research papers, reports, or articles" *(Mean=3.59; SD=0.53; Strongly Agree; Highly Needed)*. In the main, the students responded "*Strongly Agree*" to the statements regarding disseminating research results, as presented by the rating *(Mean=3.62;*

SD=0.46). Also, the student's research competency must be related to disseminating research results, which are classified as "*Highly Needed*."

3.1.1.9 Summary Results of the Research Competency Needs of University Students

Table 10 generalizes the university students' research competency needs.

Table 10 - Summary Results of the Research Competency Needs of University Students

Indicator	Mean	SD	DE	Interpretation
Formatting	3.64	0.44	Strongly Agree	Highly Needed
Formulating Research Questions	3.67	0.43	Strongly Agree	Highly Needed
Reviewing Literature	3.68	0.44	Strongly Agree	Highly Needed
Designing Studies	3.65	0.45	Strongly Agree	Highly Needed
Addressing Ethical Concerns	3.66	0.47	Strongly Agree	Highly Needed
Collecting and Analyzing Data	3.68	0.45	Strongly Agree	Highly Needed
Interpreting Findings	3.65	0.46	Strongly Agree	Highly Needed
Disseminating Research Results	3.62	0.46	Strongly Agree	Highly Needed
Composite	3.66	0.38	Strongly Agree	Highly Needed

Table 10 portrays that among all indicators of the research competency needs of the university students, the indicators that attained the highest ratings are "Reviewing of Literature" *(Mean=3.68; SD=0.44; Strongly Agree; Highly Needed)* and "Collecting and Analyzing Data" *(Mean=3.68; SD=0.45; Strongly Agree; Highly Needed)*. It is followed by the indicator "Formulating Research Questions" *(Mean=3.67; SD=0.43; Strongly Agree; Highly Needed)*. The indicator that earned the lowest rating is "Disseminating Research Results" *(Mean=3.62; SD=0.46; Strongly Agree; Highly Needed)*. The rating *(Mean=3.66; SD=0.38; Strongly Agree)* implies that the students' research competency needs are classified as "*Highly Needed*."

3.1.2 Significant Difference in the Research Competency Needs of University Students

Table 11 presents the results on the possible significant difference in the research competency needs of university students.

Table 11 - Significant Difference in the Research Competency Needs of University Students

Indicator	Mean	SD	Kruskal-Wallis (H) Statistic	p-value	Decision / Remarks
Formatting	3.64	0.44	5.83	0.559	Not Significant; Do Not Reject H_0
Formulating Research Questions	3.67	0.43			
Reviewing Literature	3.68	0.44			
Designing Studies	3.65	0.45			
Addressing Ethical Concerns	3.66	0.47			
Collecting and Analyzing Data	3.68	0.45			
Interpreting Findings	3.65	0.46			
Disseminating Research Results	3.62	0.46			

Table 11 portrays that there are no significant differences in the research competency needs of university students (H Statistic=5.83; p=0.559), specifically when

grouped in various domains such as formatting, formulating research questions, reviewing literature, designing studies, addressing ethical concerns, collecting and analyzing data, interpreting findings, and disseminating research results. The data indicate that, across domains, university students have the same level of highest need to improve their research competency.

3.1.3 Proposed Research Manual for University Students

A research manual was developed to complement the proposed research policy, serving as a practical guide for standardizing research practices at BPSU-BC. It provided step-by-step instructions on formatting requirements, ethical considerations, and best practices for each stage of the research process. Designed to be accessible and user-friendly, the manual consolidated essential information into a single resource, reducing ambiguity, ensuring consistency across student outputs, and equipping students with clear guidance to enhance their ability to produce high-quality research aligned with institutional and disciplinary standards.

3.2 Discussion

3.2.1 Research Competency Needs of University Students

The following are key discussions on the research competency needs of university students across the following domains: formatting, formulating research questions, reviewing the literature, designing studies, addressing ethical concerns, collecting and analyzing data, interpreting findings, and disseminating research results.

3.2.1.1 Formatting

Regarding research competency needs in formatting, the data show that students highly value proper citation formatting, rating it as the most important aspect. Although organizing visual elements like tables and charts was rated slightly lower, it was still considered crucial. Overall, students strongly agree that formatting is needed in research, emphasizing the importance of comprehensive formatting guidelines to enhance research quality.

In research publications, journals have unique formatting preferences and specific guidelines. In the study conducted by Polas (2024), he stated that researchers must strictly follow these guidelines and carefully craft the manuscript, adhering to the target journal's rules for content, formatting, and citations. Failure to comply with these requirements can result in delays in the review process or even outright rejection. Moreover, he emphasized that proper formatting ensures professionalism and enhances the clarity and readability of the research. It helps readers understand the study's significant contributions. Authors are often encouraged to use specific templates or follow detailed style guides, such as APA or MLA, to standardize their work and ensure consistency across published works.

3.2.1.2 Formulating Research Questions

Regarding the research competency needs of university students in formulating research questions, the data indicate that students highly value guidance in refining broad research questions into focused inquiries, rating this as the most critical aspect. Although balancing the feasibility of research questions within resource and time constraints was rated slightly lower, it was still considered crucial. Overall, students

strongly agree that support in formulating research questions is highly needed, emphasizing the importance of comprehensive guidance to enhance research competency.

The results align with Johnson et al.'s (2020) emphasis on the importance of clear and focused research questions in qualitative research. Students value guidance in refining broad research questions into focused inquiries, recognizing this as crucial for enhancing research competency. The need for comprehensive support in formulating research questions underscores the significance of a strong conceptual framework and rigorous design to ensure trustworthiness and minimize bias in qualitative studies.

3.2.1.3 Reviewing Literature

In terms of the research competency needs of university students in reviewing literature, as explicated from the data, students highly value evaluating the credibility and reliability of literature sources, rating this as the most critical aspect. Although effectively integrating and citing literature to support research arguments was rated slightly lower, it was still considered crucial. Overall, students strongly agree that competency in reviewing literature is highly needed, emphasizing the importance of thorough guidance to enhance research quality.

Literature reviews are functional when the objective is to outline a research problem or phenomenon. Snyder (2019) emphasized that researchers must ensure that the literature and its sources are accurate, precise, and trustworthy. Additionally, she identified four phases in conducting a literature review: (1) designing the review, (2) conducting the review, (3) analyzing the literature, and (4) writing the review. These phases serve as a roadmap to structure the review process effectively. Researchers must establish clear objectives and criteria for selecting relevant studies in the design phase. During the review phase, systematic and comprehensive searches are essential to gather a broad range of literature, ensuring no significant work is overlooked. The analysis phase requires critical evaluation and synthesis of the literature, identifying gaps, patterns, or contradictions in previous research. Finally, writing the review involves presenting the findings comprehensively and linking them to the last and current studies.

3.2.1.4 Designing Studies

In terms of research competency needs for designing studies, as further articulated in the data, students highly value determining appropriate data collection methods for research objectives, rating this as the most critical aspect. Although defining variables and designing research instruments were rated slightly lower, it was still considered crucial. Overall, students strongly agree that competency in designing studies is highly needed, emphasizing the importance of thorough guidance to enhance research quality.

Purna Singh, Vadakedath, and Kandi (2023) stated that a well-defined research design contains elements such as the specific purpose of the study, methods for collecting and analyzing data, the research methodology for interpreting and discussing the collected data, the research framework, scope and delimitations, and, importantly, the timeline for completing the research. A clear and concise research design provides an approach to address the research problem and ensures that the study is systematic

and organized. In hypothesis testing, research hypotheses are remarkably similar to research questions; however, they are formulated either positively or negatively to predict causality or association between variables.

3.2.1.5 Addressing Ethical Concerns

Regarding the research competency needs of university students in addressing ethical concerns, the findings imply that students strongly emphasize the importance of ethical considerations in research, particularly in applying guidelines and ensuring data privacy. These aspects are essential and reflect a strong commitment to responsible practices. Overall, the high ratings across ethical indicators suggest that students recognize the critical role of ethics in maintaining the integrity and credibility of research.

The main reason for maintaining confidentiality and anonymity during the research process is to protect participants/respondents from potential harm. This is especially important when dealing with vulnerable populations, such as children, economically disadvantaged individuals, Persons Deprived of Liberty (PDL), and employees in the workplace. Participants/respondents must not worry about their private information being exposed. Participation must be purely voluntary, with informed consent obtained to ensure that participants understand their rights and the measures in place to protect their privacy. Additionally, researchers need to build rapport with individuals to gain their trust, thereby improving the quality of collected data and ensuring honest and accurate responses. They must keep participants' information private and implement strict data security measures to safeguard this information (Kang & Hwang, 2023).

3.2.1.6 Collecting and Analyzing Data

In terms of the research competency needs of university students in collecting and analyzing data, the data suggest that students highly value the skills of selecting appropriate data collection methods and analyzing data using suitable statistical methods, as these indicators received the highest ratings. Despite being the lowest rated, managing and organizing data for accuracy and reliability was still considered highly necessary, reflecting a strong emphasis on data quality. Overall, students strongly agree on the importance of data collection and analysis skills, classifying these competencies as highly needed for effective research.

Mustafa et al. (2022) highlighted that data collection is the most crucial part of a study because it determines the validity and reliability of research findings. Various areas of concern have unique approaches to data collection. Still, they share the same focus and objective: ensuring a specific and accurate selection of data, regardless of data type, research instrument, or sampling technique. However, they revealed that researchers encounter problems such as declining response rates, difficulty analyzing large datasets, difficulty selecting representative samples from the general population, and difficulty finding relevant literature and evidence. Furthermore, the authors noted that addressing these issues often requires innovative strategies and adaptations in collecting data. For instance, researchers might implement follow-up surveys or offer incentives to minimize declining response rates. Utilizing advanced statistical tools or

software may overcome challenges in analyzing large datasets. Also, when difficulties arise in obtaining representative samples, researchers may need to adjust their sampling techniques or expand their outreach efforts. Additionally, finding relevant literature and evidence can be improved by using comprehensive database searches and consulting various sources.

3.2.1.7 Interpreting Findings

In interpreting findings, university students place a high value on connecting research findings with existing literature to generate meaningful insights, as this indicator received the highest rating. Other essential skills, such as interpreting data analysis results and drawing valid conclusions, were also seen as highly necessary, though slightly less emphasized. Overall, students strongly agree on the importance of interpreting research findings, classifying these competencies as highly needed for effective research outcomes.

In a study conducted by Sitompul and Anditasari (2022), they emphasized that analyzing data is as crucial as data collection, as it involves organizing and sorting data related to the research topic. Practical data analysis helps understand patterns and trends and draw meaningful conclusions from collected data. The authors noted that respondents/participants often find it challenging to elaborate on the findings of their study and their research implications. This difficulty can arise from various factors, including a lack of clarity in how the results connect to broader theoretical frameworks or applications. Additionally, respondents/participants might struggle to translate data into actionable insights or to integrate their findings with existing literature.

3.2.1.8 Disseminating Research Results

In terms of research dissemination competency needs, university students highly value the ability to prepare and deliver effective oral presentations or posters to communicate research findings, as this skill received the highest rating. In contrast, disseminating research in written form, such as through publishable papers, was rated slightly lower but still considered highly necessary. Overall, students strongly agree that effectively communicating research results is highly needed for successful research communication, and they classify these competencies as highly needed for successful research communication.

The results align with Waluyo and Rofiah's (2020) findings, highlighting the importance of practical oral presentation skills in communicating research findings. Students highly value the ability to deliver oral presentations or posters, recognizing this as crucial for successful research dissemination. While written communication, such as publishable papers, is also considered necessary, oral presentation competence is rated higher. This emphasis on oral skills underscores the need for structured presentation courses and teacher feedback to enhance students' confidence and proficiency in communicating their research effectively.

3.2.2 Summary Results of the Research Competency Needs of University Students

It can be further noted that student-researchers highly prioritize the skills of literature review, as well as collecting and analyzing data, as these indicators received the highest ratings. Formulating research questions was also highly valued, strongly emphasizing

foundational research competencies. In contrast, disseminating research results was rated slightly lower but considered highly necessary. Overall, students perceive their research competency needs as highly necessary, underscoring the importance of comprehensive training in research skills.

The results, which highlight Philippine student-researchers' strong prioritization of literature review, data collection, and analysis, and research question formulation, mirror global trends, where foundational research competencies are consistently valued across contexts (Clarin et al., 2025). However, the slightly lower—yet still high—emphasis on disseminating research results contrasts with challenges documented in Africa and parts of Southeast Asia, where institutional and resource constraints (such as limited internet access, library resources, and workshops) significantly impede both research conduct and communication (Mapolisa & Mafa, 2012). While the Philippine context benefits from proactive use of university resources and academic databases, it shares with the broader Southeast Asian region the urgent need to strengthen research capacity amidst the pressures of massification, privatization, and internationalization (Songkaeo & Yeong, 2016; Huang, 2018). Unlike the individual-level challenges reported in internationalization efforts across Asia (Kanmodi et al., 2024), Philippine students' focus on methodological and analytical skills indicates a solid foundational approach but also underscores the ongoing need for integrated support systems to address gaps in research dissemination and practical application.

The results align with Comon and Corpuz's (2024) findings, highlighting the importance of foundational research competencies such as reviewing literature, collecting and analyzing data, and formulating research questions. More so, the high prioritization among student-researchers for foundational research competencies, such as reviewing literature, collecting, and analyzing data, and formulating research questions, strongly aligns with established educational theories and frameworks (Alipour et al., 2024; Girard et al., 2024; Li et al., 2024; Sajitha, et al., 2024; Xie et al., 2025). This emphasis on active engagement in the research process resonates with Constructivist Learning Theory, which posits that learners actively construct knowledge rather than passively receiving it (Özcan & Zengin, 2024). By actively engaging in literature review and data analysis, students are building their understanding and creating meaning, which is a core tenet of constructivism (Salinas-Navarro et al., 2024). Furthermore, the prioritization of these skills underscores the importance of self-regulated learning, as students must employ strategic planning and autonomous motivation to successfully navigate these complex tasks (Gorbunova et al., 2024; Hey et al., 2024). The ability to set goals, monitor progress, and adapt strategies during research activities is a crucial self-regulatory skills that predict academic achievement (Hey et al., 2024; Malanchini et al., 2024; Pecson & Sarmiento, 2024, 2025). The Research Skill Development (RSD) Framework, often attributed to Willison and O'Regan (2006, 2012), further supports this, advocating for structured development in these competencies as essential for progression through research stages (Yousef, 2024; Yang et al., 2024). The observed lower, though still significant, rating for disseminating research results, relative to foundational skills, is consistent with 21st Century Skills Competency Models which, while valuing communication, often emphasize critical

thinking, problem-solving, and foundational research methods as primary requirements for navigating complex academic and professional landscapes (Jantassova et al., 2024; Malay et al., 2024; Yang et al., 2024). This suggests a perceived hierarchy in which mastering the investigative aspects of research is seen as a prerequisite for effectively communicating findings (Li et al., 2024). Overall, the findings indicate a clear understanding among university students of the necessity for comprehensive training in these core research skills to enhance their overall research engagement and competence (Baltador et al., 2024; Wang et al., 2024).

3.2.3 Significant Difference in the Research Competency Needs of University Students

The data analysis shows no considerable differences in research competency needs among respondents. This lack of variability means there is a high priority for supporting research competency in every domain. In other words, no domain was prioritized, and all areas equally need a holistic approach to developing research competency.

The data analysis, which reveals no significant differences in research competency needs across respondents, underscores a critical policy and pedagogical insight: research competency development must be universally integrated and systematically supported across all domains. This finding challenges the tendency to allocate resources or design interventions based on perceived disparities, advocating a holistic, inclusive approach to curriculum design, faculty training, and institutional support instead. Practically, it suggests that educational institutions and policymakers should prioritize the creation of standardized, accessible research training programs that address foundational skills universally, rather than targeting specific disciplines or groups. Such an approach not only democratizes research capacity but also ensures that all learners and professionals are equally equipped to contribute to evidence-based practice and innovation, thereby enriching the broader body of knowledge.

Moreover, the results show significant similarities in respondents' perceptions of research competency. This finding aligns with the literature, which shows that students commonly face writing challenges. These include disorganized writing (Altikriti, 2022; Sitompul & Anditasari, 2022), citation and formatting errors causing plagiarism (Rezeki, 2018; Abdullah, 2023), poor writing skills (Budjalemba & Listyani, 2020; Javid & Umer, 2014), and resource or language barriers (Al-Qaseri, 2016; Pecson, 2017). These issues highlight the need for fair and comprehensive support in all competency areas.

3.2.4 Proposed Research Manual for University Students

The research manual for BPSU-BC was developed through a collaborative process involving input from faculty, researchers, and academic experts to ensure it met students' needs and aligned with institutional standards. It was designed to be user-friendly, consolidating essential information on formatting, ethical considerations, and best practices for each stage of the research process. The manual may be implemented through workshops and integration into the curriculum, ensuring that students and faculty are well-versed in its use. Evaluation of its effectiveness may be conducted through user feedback surveys and assessments of student research outputs to ensure consistency and high quality, with regular updates based on this feedback to keep the manual relevant and practical.

The development of the BPSU-BC research manual aligns with international research skill frameworks, such as those outlined by the American Educational Research Association (AERA), the American Psychological Association (APA), and UNESCO. The collaborative, expert-informed process mirrors AERA's emphasis on rigorous, inclusive, and contextually relevant research practices, while the focus on ethical considerations and user-friendly design aligns with APA's standards for research integrity and accessibility. UNESCO's framework, which advocates for research capacity-building and continuous improvement, is evident in the manual's integration into curriculum and workshops, as well as its iterative evaluation through user feedback and output assessments—ensuring the manual remains responsive to evolving academic and professional needs. These organizations advocate for structured curricula that instill foundational research competencies, including ethical conduct, rigorous methodology, and effective dissemination, rather than just technical skills (Cutillas et al., 2024).

5. Conclusions

Student-researchers value skills such as reviewing the literature, collecting and analyzing data, and formulating research questions, emphasizing foundational research competencies. Although disseminating research results is rated slightly lower, it remains crucial. Students recognize the importance of comprehensive training in research skills to meet their needs. More so, there are no significant differences in the research competency needs of the university students, attesting to the same level of higher needs to improve their research competencies.

Moreover, a research manual was developed to complement the proposed research policy by standardizing the research format and addressing the research competency needs of university students. It provides a practical guide for standardizing research practices. It provides clear instructions on formatting, ethical considerations, and best practices, ensuring consistent student outputs and enhancing research quality. As for the recommendations, comprehensive training programs may be conducted, focusing on foundational research skills and the importance of disseminating research results. More so, the developed research manual shall be continuously promoted across programs as a primary resource and regularly updated to reflect current best practices.

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Conflict of Interest

The authors declare no conflicts of interest.

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