International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Assessing the Research Skills of Bachelor of Elementary Education Students at Apayao State College: A Needs-Based Approach

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Abstract

In today's academic landscape, research competency is a foundational requirement for student success in higher education and lifelong learning. This study aimed to assess the research skills of Bachelor of Elementary Education (BEEd) students at Apayao State College using a contextualized, researcher-developed self-assessment tool grounded in the Philippine Professional Standards for Teachers (PPST). Specifically, the study evaluated student proficiency in seven core research domains: conceptualizing research titles, formulating the statement of the problem, developing the research paradigm, identifying the research design, analyzing data, interpreting and discussing results, and writing conclusions and recommendations.

A descriptive-evaluative research design was employed, involving a total enumeration of 78 first-, second-, and third-year BEEd students. Quantitative data were collected through a 35-item Likert-type instrument, validated by a panel of faculty experts. Statistical analysis was conducted using mean scores to identify skill levels, with descriptors anchored on PPST-based standards.

Findings revealed that the respondents' overall research competence was at the "Developing" level with a grand mean of 2.12, indicating foundational awareness but limited independent application of research processes. The highest-rated skill area was Identifying the Research Design with a mean of 2.57, while the lowest were Developing the Research Paradigm (1.95), Analyzing Data (1.93), and Interpreting Results (1.96). The study identified key skill gaps in higher-order reasoning, synthesis, and data interpretation. Based on these, a needs-based intervention matrix was proposed, including workshops, mentoring, and faculty-led research support strategies.

This study highlights the necessity of structured, contextualized interventions to elevate student research capabilities and strengthen institutional research culture in higher education institutions.

THE PROBLEM AND ITS BACKGROUND

In today's knowledge-driven and globally interconnected society, research competence has emerged as a foundational academic and professional capability [1]. The rapid advancement in knowledge production and the complexity of modern problems necessitate that individuals possess robust skills in inquiry, critical analysis, and information synthesis [2]. Research-literate graduates are not only able to evaluate information critically and solve problems effectively, but also contribute meaningfully to innovation and decision-making across disciplines [3].

In response to these demands, educational institutions worldwide have prioritized the integration of research training into curricula [4]. In Southeast Asia, and particularly in the Philippines, there has been a

pronounced effort to elevate research standards through curriculum reforms, capacity-building programs, and institutional research agendas aligned with national development goals [5]. The implementation of the K–12 educational system and outcomes-based
education frameworks have further underscored the necessity of embedding research competencies across higher education programs [6].

Despite these efforts, studies such as Ramirez (2020) reported persistent gaps in students' research capabilities, especially in areas with limited access to qualified mentors and research infrastructure [7]. Common challenges include difficulty in formulating research questions, conducting literature reviews, choosing appropriate methodologies, and interpreting results [8]. These issues have been echoed at Apayao State College (ASC), where faculty members observed that many students struggled with foundational research tasks, resulting in low confidence and limited academic success in research-based outputs.

In light of these concerns, this study aimed to assess the current research capacities of ASC students and identify specific skill gaps that hinder their academic progress [9]. Adopting a needs-based approach, the research focused on designing targeted interventions that addressed these
deficiencies and enhanced students' competencies through guided support and structured training opportunities [10]. This initiative sought to contribute not only to the institutional goal of academic excellence but also to the national objective of cultivating a research-oriented culture in Philippine higher education [11].

Statement of the Problem

This study aimed to assess the current research skills of students at Apayao State College and develop strategies to enhance these skills based on identified needs. Specifically, it sought to answer the following questions:

1. What is the level of research skills of students based on their self-assessment in the following areas:
a. Conceptualizing research titles
b. Formulating the statement of the problem
c. Developing the research paradigm
d. Identifying the research design
e. Analyzing data
f. Interpreting and discussing results
g. Writing conclusions and recommendations
2. What are the specific research skill gaps identified based on students' self-assessment scores in the aforementioned areas?
3. What targeted, needs-based interventions can be proposed to address the identified research skill gaps, as revealed by the self-assessment findings?

Theoretical Framework

The present study is anchored on three interrelated educational theories that collectively support the process of skill acquisition, diagnostic assessment of learner needs, and the design of targeted interventions.

Kolb's (1984) Experiential Learning Theory posits that learning is a cyclical and iterative process involving four stages: concrete experience, reflective observation, abstract conceptualization, and active

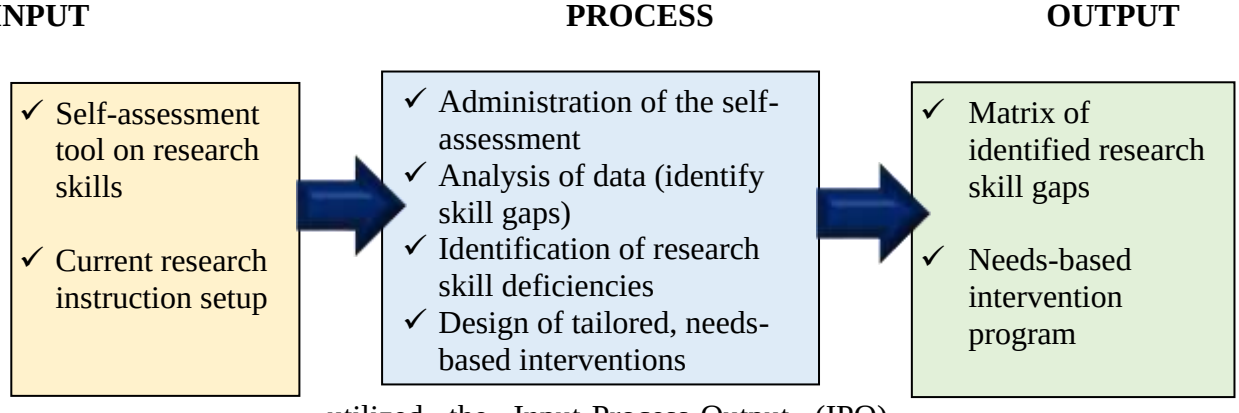
experimentation [12]. In the context of research education, this theory explains how students develop skills by engaging in authentic research tasks (experience), reflecting on outcomes and feedback, forming generalizations and concepts, and applying these insights in future research endeavors. The study aligns with ELT by recognizing that research competence is not merely acquired through instruction, but through repeated, structured engagement with real research processes. Therefore, designing opportunities for hands-on practice, peer review, and reflective feedback cycles becomes essential in improving research performance.

Vygotsky's (1978) theory of the Zone of Proximal Development emphasizes the importance of guided learning and social interaction in the acquisition of complex skills. According to this theory, learners can achieve higher levels of understanding and performance with the support of a more knowledgeable mentor. In this study, the ZPD framework justifies the role of faculty mentorship, collaborative learning, and structured research consultations in supporting students who struggle with specific research skills [13]. The related concept of scaffolding (Wood et al., 1976) is also employed — wherein instructors provide temporary instructional support, gradually reducing it as the student gains independence. This theoretical lens underscores the importance of differentiated, student-centered guidance in bridging gaps in research competencies [14].

Needs-Based Learning Theory advocates that instruction and curriculum development should be tailored based on empirically identified learner needs rather than a one-size-fits-all model (Knowles, 1980). In this study, the assessment of students' self-perceived research skills serves as a diagnostic tool for uncovering skill gaps. The subsequent development of program interventions is informed by these gaps, ensuring that the support provided is targeted, relevant, and context-specific. This theory aligns with the study's methodology and rationale by validating a data-informed approach to improving educational outcomes, particularly in under-resourced or underserved learning environments such as regional colleges [15].

The integration of these three theories forms a dynamic model of skill development. Kolb's ELT emphasizes experience and reflection as key to mastering research tasks. Vygotsky's ZPD and scaffolding highlight the essential role of mentorship and guided instruction. Meanwhile, Needs-Based Learning Theory ensures that instructional strategies are precisely aligned to the
areas of greatest need. This combined framework provides a strong theoretical foundation for assessing students' current research skills, identifying specific deficiencies, and designing responsive interventions to support growth.

Research Paradigm



This study utilized the Input-Process-Output (IPO) model to guide the assessment and enhancement of students' research skills at Apayao State College.

In the Input phase, the study considered the self-assessment tool and the existing research instruction setup as foundational elements for evaluating student competencies.
During the Process phase, the self-assessment was administered and analyzed to identify research skill deficiencies. These findings informed the design of tailored, needs-based interventions, grounded in relevant educational theories.
The Output phase resulted in a matrix of identified research skill gaps and a customized intervention program aimed at improving students' research competencies based on their assessed needs.
The output phase aimed to achieve improved research skills among students, enhancing their competency in formulating research questions, conducting literature reviews, selecting appropriate methodologies, and analyzing data.

RESEARCH METHODOLOGY

This chapter outlines the research methods and procedures used in the conduct of the study. It includes the research design, locale and participants of the study, data gathering instrument, data collection procedures, and the statistical treatment employed in analyzing the data.

Research Design

The study employed a descriptive-evaluative research design to assess the current level of research skills among education students, determine specific skill deficiencies, and recommend appropriate interventions. The descriptive aspect of the design was utilized to gather quantifiable information on students' self-perceived proficiency across various components of the research process. Meanwhile, the evaluative component was used to interpret the results, identify gaps in competencies, and formulate targeted, needs-based interventions. This design was deemed appropriate as it allowed the researcher to systematically assess existing conditions and propose data-informed recommendations for skill enhancement.

Locale of the Study

The study was conducted at Apayao State College, located in San Isidro Sur, Luna, Apayao. Specifically, the focus was on students enrolled in the Bachelor of Elementary Education (BEEd) program, including first-year, second-year, and third-year levels, during the Academic Year 2024–2025.

Respondents and Sampling Technique

The respondents of the study were composed of first-year, second-year, and third-year students enrolled in the Bachelor of Elementary Education (BEEd) program at Apayao State College, Luna, Apayao, during the Academic Year 2024–2025. While only the third-year students

were formally enrolled in the Research course, first and second-year students were intentionally included in the study to establish a baseline understanding of their research readiness and to inform future intervention strategies prior to their formal engagement in research coursework.

To ensure inclusivity and accuracy, the study adopted a total enumeration sampling technique, in which all students from the specified year levels were involved. This approach was deemed suitable given the accessible population size and the study's objective of assessing research skill levels across different stages of academic development.

The table below presents the distribution of respondents by year level and gender:

YEAR LEVEL	MALE	FEMALE	TOTAL
First Year	4	20	24
Second Year	6	29	35
Third Year	3	16	19
TOTAL	**13**	**66**	**78**

A total of 78 BEEd students participated in the study, with 13 male and 66 female respondents.

Research Instrument

The primary data-gathering tool used in this study was a contextualized self-assessment questionnaire developed by the research adviser in consultation with the thesis advisee and experts. The instrument consisted of seven sections, corresponding to the key areas of research skill development: The instrument was developed in alignment with Statement of the Problem No. 1, which required assessing skill levels in specific domains: (a) conceptualizing research titles, (b) formulating the statement of the problem, (c) developing the research paradigm, (d) identifying the research design, (e) analyzing data, (f) interpreting and discussing results, and (g) writing conclusions and recommendations.

Each section included five statements, for a total of 35 items, evaluated using a four-point Likert scale (1 = Strongly Disagree to 4 = Strongly Agree). These items were anchored in behavioral indicators and were intended to reflect varying levels of research proficiency—ranging from Beginner to Advanced.

The instrument was developed based on insights drawn from existing self-assessment tools and educational frameworks [7]. Studies such as Villanueva and Guevarra (2017) and Ramirez (2020) informed the structure and content [8], while the Commission on Higher Education (CHED) Outcomes-Based Education (OBE) guidelines provided theoretical alignment [16]. Additionally, recent research by Videnović et al. (2024) emphasized the use of structured Likert-scale self-assessment instruments as effective tools for evaluating skill acquisition in higher education contexts [17].

Prior to data collection, the questionnaire underwent content validation by a panel of research faculty, including the thesis adviser, to ensure clarity, relevance, and alignment with the study's objectives.

Data Gathering Procedure

Prior to the conduct of the study, the researcher sought formal approval from the College President of Apayao State College through a letter of request. Upon receiving approval, the same letter was presented to the Program Chair of the Bachelor of Elementary Education (BEEd) Department, requesting permission to administer the study to BEEd students across first, second, and third-year levels.

Before the distribution of the research instrument, the researcher provided the respondents with a clear orientation regarding the purpose of the study, their role as participants, and the confidential nature of their

responses. Participation was voluntary, and informed consent was
obtained. The entire data collection process was conducted in accordance with ethical research standards, ensuring anonymity, confidentiality, and the dignity of all participants.

Following ethical protocols, the researcher personally administered the researcher-developed self-assessment questionnaire, which had been contextualized based on existing research skill tools and validated by a panel of faculty. The instrument was designed to measure students' self-perceived competency across seven key domains of the research process.

Although initially modeled after tools such as that of Banu et al. (2020) in their study *"Assessment of Research Skills in Undergraduate Students,"* the final version of the questionnaire was developed by the research adviser to directly respond to the study's objectives and tailored to the local context of ASC.

Upon completion of data collection, the responses were tabulated and analyzed to determine the average skill levels in each domain and to identify areas requiring targeted intervention.

Statistical Treatment of Data

The primary statistical method employed in this study was the mean, which was calculated to assess the self-perceived proficiency of students in each of the seven research skill domains. Responses were collected through a structured self-assessment questionnaire using a four-point Likert scale. Individual scores for each item were averaged per domain, and the resulting mean values were interpreted using the descriptive scale shown below.

To ensure interpretive consistency, the proficiency levels were aligned with standardized Likert scale descriptors and value ranges. These categories served as the basis for classifying respondents' skill levels and identifying specific domains that required targeted intervention.

The merged table below reflects the score ranges, corresponding proficiency levels, and the qualitative interpretation of responses:

Score Range	Descriptive Level	Descriptive Value
3.26 – 4.00	Advanced	Strongly Agree / Very Good
2.51 – 3.25	Competent	Agree / Good
1.76 – 2.50	Developing	Disagree / Fair
1.00 – 1.75	Beginner	Strongly Disagree / Poor

Descriptive statistics including frequency, percentage, and mean were used to present the data. These statistical values provided both an overview of the respondents' self-assessed proficiency levels and a detailed analysis of individual skill areas. The results were organized according to the seven domains of the research process, directly corresponding to the study's first statement of the problem (SOP No. 1). Furthermore, the findings served as the basis for identifying research skill gaps (SOP No. 2) and designing contextually appropriate, needs-based program interventions (SOP No. 3).

RESULTS AND DISCUSSION

Table 1. Self-assessed research skill level in conceptualizing research titles

A. Conceptualizing Research Titles	Mean	Description
1. I can create a research title that clearly reflects the focus of my study.	2.33	Developing

2. I can formulate research titles that align with the research objectives.	2.27	Developing
3. I can develop concise and specific titles that capture the essence of the research topic.	2.13	Developing
4. I can identify key terms and keywords appropriate for a research title.	2.27	Developing
5. I can revise and improve research titles based on feedback and suggestions.	2.33	Developing
Over-all Mean	**2.27**	**Developing**

Table 1 shows that the students' overall self-assessed skill level in conceptualizing research titles is Developing, with an over-all mean of 2.27. This indicates that most students require some guidance in generating titles that are precise, aligned with objectives, and reflective of academic expectations.

The lowest-rated item was the ability to develop concise and specific titles with a mean of 2.13, suggesting that summarizing complex ideas into focused titles remains a challenge. All five indicators fall within the "Developing" category, implying that students are beginning to grasp the basic standards of title construction but still lack consistency, independence, and refinement.

These results reflect PPST's Developing Level, where students demonstrate foundational awareness but require significant support in producing quality research components [19]. As emphasized by Badke (2012), formulating an effective research title is foundational to scholarly work, as it encapsulates the study's scope, purpose, and direction. A poorly constructed title may mislead readers or reduce a study's discoverability in academic databases [20]. Similarly, Harley (2008) highlighted that concise, clear, and keyword-rich titles significantly enhance a paper's readability and citation potential [21]. Furthermore, Pekmezovic et al. (2020) observed that students frequently struggle with title formulation due to the cognitive demands of synthesis, critical thinking, and alignment with research objectives, skills that typically mature over time through guided academic writing practice [22].

Table 2. Self-research skill level in formulating the statement of the problem

B. Formulating the Statement of the Problem	Mean	Description
1. I can define the main research problem with clarity and precision.	2.13	Developing
2. I can differentiate between general and specific problems in a research context.	2.24	Developing
3. I can write concise and focused problem statements that guide the research process.	2.05	Developing
4. I can formulate research questions that directly address the problem statement.	2.15	Developing
5. I can align the problem statement with the research objectives and goals.	2.18	Developing
Over-all Mean	**2.12**	**Developing**

Table 2 reveals that the respondents rated themselves within the "Developing" level across all five indicators related to Formulating the Statement of the Problem, with an over-all mean of 2.12. This

suggests a foundational understanding but limited independent skill in crafting clear and coherent problem statements.

The lowest-rated item was the ability to write concise and focused problem statements with a mean of 2.05, indicating that students struggle with clarity and direction when articulating research problems. The highest-rated item, differentiating general and specific problems with a mean of 2.24, still falls under "Developing," but suggests slightly greater conceptual awareness. Other indicators, including alignment with objectives (2.18) and formulating relevant questions (2.15), also reflect developing-level competencies.

Results indicate that while students are beginning to grasp the essential elements of problem formulation, they have not yet reached proficiency or autonomy, consistent with the PPST's Developing Level [19].

This challenge aligns with Silverman (2020), who emphasized that clearly defined problem statements are critical for framing meaningful inquiry and theoretical alignment [23]. Bryman et al. (2019) presented a practical framework for refining broad ideas into actionable problem statements [24], while Dunley et al. (2018) advocated for structured techniques that enhance clarity and alignment in student research writing [25]. Additionally, McLeod (2017) underscored the role of cognitive framing and reflective practice in strengthening students' ability to articulate research problems effectively [26].

Table 3. Self-assessed research skill level in developing the research paradigm

C. Developing the Research Paradigm	Mean	Description
1. I can understand and explain various components of a research paradigm.	2.08	Developing
2. I can construct a conceptual framework or model for my study.	2.03	Developing
3. I can identify and link variables in a research paradigm.	1.97	Developing
4. I can explain the relationship between the theoretical framework and the research paradigm.	1.88	Developing
5. I can provide a visual representation of the research paradigm and its components.	2.01	Developing
Over-all Mean	**1.95**	**Developing**

Table 3 presents the respondents' self-assessed skill levels in developing the research paradigm, with an over-all mean of 1.95, classified under the "Developing" level. This indicates that students are still in the early stages of understanding and applying conceptual structures essential to research design.

The lowest-rated item was the ability to explain the relationship between the theoretical framework and the research paradigm with a mean of 1.88, pointing to a weak grasp of foundational theoretical linkages. Other areas also rated low include identifying and linking variables (1.97), constructing conceptual frameworks (2.03), and producing visual representations
of paradigms (2.01). The highest mean was for understanding the basic components of a research paradigm (2.08), but it remains within the Developing category—suggesting a surface-level familiarity rather than competence.

These results reflect the cognitive difficulty students face when engaging with abstract components of research planning. Conceptualizing frameworks, mapping variable relationships,
and aligning with theoretical models require advanced thinking, which typically evolves with academic experience and guided practice.

According to Grant et al. (2024), the conceptual framework functions as a "research blueprint," critical for providing clarity and coherence in study design. Its absence, or weak application, often leads to fragmented inquiry, a pattern observable in the mean score of 1.95 [27]. Creswell (2014) emphasized that developing a research paradigm entail selecting a philosophical stance, aligning with theoretical frameworks, and visualizing variable interactions [28]. Similarly,
Adom et al. (2016) found that students frequently struggle with conceptual models due to a lack of foundational understanding of their methodological and analytical roles in research [29].

Table 4. Self-assessed research skill level in identifying the research design

D. Identifying the Research Design	Mean	Description
1. I can distinguish among different types of research designs (e.g., descriptive, experimental, qualitative).	2.37	Developing
2. I can select an appropriate research design based on the nature of my study.	2.21	Developing
3. I can explain the strengths and limitations of the chosen research design.	2.21	Developing
4. I can identify the appropriate sampling techniques for my research design.	1.97	Developing
5. I can justify the selection of a particular research design for my study.	1.92	Developing
Over-all Mean	**2.14**	**Developing**

Table 4 presents the self-assessed level of skill in identifying the appropriate research design. It reveals that the individual's understanding and application of research design principles is generally in the "Developing" stage. This is evident from the over-all mean score of 2.14 and the "Developing" description assigned to each of the five areas assessed. The highest mean score is 2.37 for distinguishing among different types of research designs which suggesting a relatively stronger understanding in this area compared to others, but still categorized as "Developing". The ability to select an appropriate research design and explain its strengths and limitations received a mean score of 2.21 in both areas indicating a moderate level of understanding but still within the "Developing" stage. The lowest scores are for identifying the appropriate sampling techniques for research design (1.97) and justifying the selection of a particular research design (1.92) suggesting weaker areas, indicating more significant development is needed.
In essence, the results suggest a foundational understanding of research design but indicate a need for further development to achieve proficiency.
Kivunja et al. noted the difficulty learners face in selecting and justifying paradigms and designs due to theoretical abstraction [30]. A study by Brown (2017) highlighted the challenges faced by graduate students in selecting and justifying appropriate research designs, often due to inadequate training and understanding of methodological principles [39]. Similarly, a researched by Smith et al. (2019) underscored the need for explicit instruction in research design to improve researchers' ability to effectively apple different methodologies [40].

Table 5. Self-assessed research skill level in analyzing data

E. Analyzing Data	Mean	Description
1. I can identify the appropriate statistical tools and techniques for data analysis.	1.99	Developing
2. I can use software or manual methods to process and analyze quantitative data.	1.94	Developing
3. I can organize and interpret qualitative data effectively.	1.96	Developing
4. I can ensure the accuracy and reliability of data analysis results.	1.87	Developing
5. I can draw meaningful insights and trends from analyzed data.	1.87	Developing
Over-all Mean	**1.93**	**Developing**

Table 5 presents the students' self-assessed skill level in the domain of data analysis, with an over-all mean of 1.93, placing it within the Developing level. This indicates that students possess basic awareness of data handling techniques but have not yet acquired functional competence.

The lowest-scoring items were ensuring accuracy and reliability of results (1.87), and drawing meaningful insights from data (1.87). These reflect limited understanding of data integrity and inferential reasoning. Slightly higher scores were observed in identifying statistical tools (1.99), processing data (1.94), and interpreting qualitative results (1.96), which suggest introductory knowledge, possibly gained through theoretical exposure rather than practice.

All five indicators remain within the Developing range, highlighting a consistent gap in practical application of data analysis skills. While respondents are likely introduced to software tools and statistical concepts, they appear to struggle with validating findings and drawing interpretative conclusions, skills that require critical thinking and advanced literacy in research logic.

Neuman (2014) emphasized that drawing meaningful insights from data requires both analytical precision and reflective interpretation, skills often underdeveloped at the undergraduate level [32]. Leedy and Ormrod (2015) argued that failure to critically reflect on data patterns results in shallow analysis and weak research conclusions. These findings underscore the need for scaffolded practice in statistical interpretation and analytical reasoning within the curriculum [33].

Table 6. Self-assessed research skill level in interpreting and discussing results

F. Interpreting and Discussing Results	Mean	Description
1. I can interpret research findings in relation to the research objectives.	2.05	Developing
2. I can compare my results with findings from previous studies.	2.13	Developing
3. I can identify patterns, relationships, or discrepancies in the results.	2.00	Developing
4. I can explain the implications of the findings for relevant stakeholders or fields.	1.86	Developing
5. I can organize and present the discussion of results in a logical and coherent manner.	2.03	Developing
Over-all Mean	**1.96**	**Developing**

Table 6 shows that the students' self-assessed skills in interpreting and discussing results fall within the Developing level, with an over-all mean of 1.96. This suggests that foundational competencies are present, but independent analysis and scientific communication remain underdeveloped.

The lowest-rated indicator was explaining the implications of findings for stakeholders or fields (1.86), which indicates difficulty in linking data to real-world relevance or scholarly contribution. Similarly, low scores were recorded for identifying patterns (2.00) and organizing the discussion (2.03), underscoring limitations in data synthesis and narrative flow. The highest-rated item (2.13) pertained to comparing results with previous studies, showing some introductory awareness of how to contextualize findings, albeit with limited depth.

The low means across all five indicators highlight students' struggle in transitioning from results reporting to results interpretation, a skill that demands critical reflection, argumentation, and audience awareness. The ability to derive meaning from data, connect it to existing literature, and propose implications requires advanced writing and reasoning skills that may still be developing.

Swales and Feak (2012) emphasized that effective discussion sections must be logically structured and clearly linked to the study's research objectives [34]. As Creswell (2014) noted, students often treat results as self-evident rather than interrogating their significance [28]. Silverman (2016) also warned that failing to analyze patterns and implications undermines the potential contribution of the research to the academic field. These findings affirm the need for enhanced instruction in interpretive reasoning and argument-driven writing [35].

Table 7. Self-assessed research skill level in writing conclusions and recommendations

G. Writing Conclusions and Recommendations	Mean	Description
1. I can summarize the findings of my research clearly and concisely.	1.97	Developing
2. I can formulate conclusions that directly address the research objectives.	1.97	Developing
3. I can provide practical recommendations based on the research outcomes.	1.99	Developing
4. I can identify limitations of the study and suggest areas for future research.	2.06	Developing
5. I can ensure that my conclusions and recommendations are feasible and evidence-based.	2.13	Developing
Over-all Mean	2.03	**Developing**

Table 7 presents students' self-assessed abilities in writing conclusions and recommendations, with an over-all mean of 2.03, which falls within the Developing level. This indicates that while students demonstrate foundational skills in this area, they have not yet reached competence in synthesizing findings and articulating implications.

The lowest-rated indicators were the ability to summarize findings clearly and formulate aligned conclusions with a mean of 1.97. These results suggest difficulty in drawing logical inferences from findings and aligning conclusions with research objectives. The highest mean (2.13) pertained to ensuring conclusions and recommendations are feasible and evidence-based, indicating some awareness of application, albeit still limited. Students showed moderate capability in identifying study limitations (2.06), which implies basic but underdeveloped reflective skills.

All five indicators remain within the "Developing" category, showing that students are still learning how to conclude research with coherence, logic, and practical relevance. Summarization and conclusion writing demand not only synthesis, but also the ability to connect back to objectives and suggest actionable outcomes, a process that students often struggle with at the undergraduate level.

Creswell (2014) emphasized that well-crafted conclusions must synthesize findings and revisit the research objectives [28], while Leedy and Ormrod (2015) underscored the importance of presenting concise, structured summaries [33]. Saunders et al. (2019) advocated that effective recommendations should be context-sensitive, practical, and based on the study's actual findings, areas where novice researchers often fall short due to limited experience in applied reasoning and critical reflection [31].

Table 8. Summary of self-assessed research skills across stages of the research process

Stages of the Research Process	Mean	Description
A. Conceptualizing Research Titles	2.27	Developing
B. Formulating the Statement of the Problem	2.12	Developing
C. Developing the Research Paradigm	1.95	Developing
D. Identifying the Research Design	2.57	Competent
E. Analyzing Data	1.93	Developing
F. Interpreting and Discussing Results	1.96	Developing
G. Writing Conclusions and Recommendations	2.03	Developing
GRAND MEAN	**2.12**	**Developing**

The results summarized in Table 8 reveal a grand mean of 2.12, which corresponds to the "Developing" level, indicating that most students perceive themselves as possessing only foundational research skills, with limited confidence or experience in applying them independently. This finding reinforces the need for structured capacity-building interventions in the research process.

Among all seven skill areas, the highest-rated domain was Identifying the Research Design with a mean of 2.57, which was also the only skill rated as "Competent." This suggests that students are most confident in differentiating between types of research designs and selecting those appropriate to their study objectives. This aligns with the observation by Creswell and Creswell (2018) that research design is often the first area in which students gain confidence, as it is typically introduced early and taught in a more structured format [28].

In contrast, the lowest mean scores were recorded in Developing the Research Paradigm (1.95), Analyzing Data (1.93), and Interpreting and Discussing Results (1.96), three critical areas that require abstract thinking, integration of theory and method, and data-driven interpretation. According to Saldaña et al. (2018), a lack of exposure to paradigmatic thinking hampers students'

ability to link theoretical frameworks to practical research designs [36]. Similarly, Ahmad et al. (2021) reported that in many developing contexts, low confidence in data analysis stems from inadequate exposure to tools, such as SPSS or Excel, and poor quantitative literacy [37]. Bakker et al. (2020) emphasized that interpreting results is a higher-order skill that takes time and structured instruction to develop [38].

The consistently "Developing" ratings across most domains suggest that while students are somewhat familiar with research components, they lack the practical experience and conceptual depth required for

higher-order tasks such as paradigm construction, data interpretation, and critical synthesis of findings. This limited proficiency implies a gap in both instructional support and hands-on engagement with real research activities.

Identified Research Skill Gaps of BEEd Students

The table below presents the specific research skill gaps identified from the results of the self-assessment conducted among BEEd students, as reflected in Tables 1 to 7. The skill gaps were determined based on three criteria: (1) indicators that were consistently rated within the "Developing" range (mean scores between 1.76 and 2.50), (2) items that registered as the lowest mean scores within each research domain, and (3) competencies that involve higher-order thinking skills, such as analysis, interpretation, synthesis, and theoretical integration, particularly those that fell below a mean score of 2.00. These gaps represent critical areas where students demonstrate limited proficiency and require targeted support to develop the competencies essential for conducting rigorous academic research.

Table 9. Identified Research Skill Gaps of BEEd Students

Research Area	Findings Based on Self-Assessment	Identified Skill Gaps
Conceptualizing Research Titles	Students showed difficulty in developing concise and specific research titles (Mean - 2.13).	Limited ability to synthesize a research focus into a clear, precise title.
Formulating the Statement of the Problem	Students struggled to write focused problem statements (Mean - 2.05) and define the research problem clearly (2.13)	Weak formulation and articulation of research problems aligned with objectives.
Developing the Research Paradigm	All indicators scored below 2.10, with the lowest mean (1.88) in explaining the link between theoretical framework and paradigm.	Poor integration of theoretical foundations with conceptual design; difficulty linking variables or providing visual frameworks.
Identifying the Research Design	Despite the "Competent" over-all mean (2.57), two items were below 2.00: - Justifying the selected research design (1.92) - Identifying sampling techniques (1.97)	Students lack rationale-based decision-making and sampling alignment within design.
Analyzing Data	Low scores in: - Ensuring data reliability (1.87) - Drawing insights from data (1.87)	Poor statistical reasoning, weak familiarity with tools and interpretation logic.

Interpreting and Discussing Results	Explaining implications of findings (1.86)	Difficulty translating results into meaningful interpretations for academic or practical use.
Writing Conclusions and Recommendations	Lowest items include summarizing findings (1.97) and formulating aligned conclusions (1.97)	Inadequate synthesis of findings and alignment with research objectives.

Proposed Action Plan

Title: Research Lens: A Masterclass on Academic Research Writing

A Seminar-Writeshop Series for Faculty and Student Researchers of Apayao State College

I. Rationale

In response to observed gaps in research competencies among pre-service teachers and early-career faculty researchers, this initiative aims to promote a strong, output-oriented research culture within Apayao State College. Grounded in the findings of recent institutional studies and recommendations made by research panel evaluators, the need for a structured, practical, and scaffolded training program in academic research writing has become increasingly evident.

This masterclass specifically addresses the seven critical stages of the research process: conceptualizing research titles, formulating the statement of the problem, developing the research paradigm, identifying the research design, analyzing data, interpreting and discussing results, and writing conclusions and recommendations. These stages have consistently been identified as areas where students and novice researchers struggle, often due to a lack of structured guidance, real-time feedback, and exposure to practical applications.

By combining expert-led lectures with guided writeshop sessions, this seminar-writeshop series offers a balanced platform for theoretical grounding and immediate practical application. Resource speakers with expertise in educational research will lead each session, providing modules, supplemental materials, and in-depth training tailored to both student and faculty needs. This program is designed not only to improve writing proficiency but also to build confidence, strengthen research mentoring practices, and increase institutional research productivity.

II. Objectives

This program aims to:

1. Enhance faculty and student researchers' proficiency in each of the seven stages of academic research writing.
2. Provide expert-led instruction supplemented by guided writeshop activities to develop concrete research outputs.
3. Equip participants with ready-to-use frameworks, writing templates, and references for future thesis and publication projects.
4. Promote a collaborative, mentoring-driven research environment among faculty advisers and student researchers.
5. Contribute to the overall improvement of research culture and output quality in Apayao State College.

III. Program Description / Content Overview

"Research Lens: A Masterclass on Academic Research Writing" is a modular, seminar-writeshop series designed to equip faculty and student researchers with practical, output-oriented skills across the seven

stages of the academic research process. Delivered over four full-day Saturday sessions, the program will feature lectures by invited experts followed by intensive writeshop activities designed to produce actual research writing outputs.

Each session will begin with a focused lecture from a resource person specializing in a specific stage of research writing. Participants will then engage in guided writeshop exercises using provided templates, sample outputs, and supplemental materials. The combination of theory and practice ensures that participants not only understand research principles but also apply them immediately in a collaborative learning environment.

Below is the proposed training matrix:

Date	**Session Topic**	**Format**	**Resource Person**	**Expected Output**
Day 1 AM	Conceptualizing Research Titles	Lecture and Guided Writeshop	Invited Research Expert	Drafted, peer-reviewed research titles aligned with objectives and keywords
Day 1 PM	Formulating the Statement of the Problem	Lecture and Writeshop with Feedback	Invited Research Methodologist	Well-structured problem statements and SMART research questions
Day 2 AM	Developing the Research Paradigm	Lecture and Framework Workshop	Theoretical Framework Specialist	Draft of conceptual framework and visual research paradigm
Day 2 PM	Identifying the Research Design	Lecture and Sampling & Design Task	Research Design Expert	Output identifying appropriate research design and sampling technique with rationale
Day 3 AM	Analyzing Data	Lecture and Tool/Application Demo	Statistics or Educational Data Expert	Sample data table, use of basic statistical tool (e.g., Excel/SPSS demo)
Day 3 PM	Interpreting and Discussing Results	Lecture and Interpretation Template	Educational Research Author	Structured interpretation draft with key findings and supporting RRL
Day 4 AM	Writing Conclusions and Recommendations	Lecture and Guided Synthesis Writeshop	Faculty Research Coach	Complete draft of aligned conclusions and feasible, evidence-based recommendations
Day 4 PM	Integration and Research Clinic	Output Presentation and Mentoring	Panel of Faculty Mentors	Full portfolio submission; peer critique or oral consultation feedback

All sessions will be supported by printed or digital modules, writing templates, and reflection sheets to assist participants during and after the workshop. Faculty are also encouraged to join as research mentors to reinforce long-term writing development and follow-through.

IV. Expected Outputs

Upon the completion of the seminar-writeshop series, the following outputs are expected:

1. Drafted components of research manuscripts by faculty and student participants, including:
   - Research titles aligned with focus and objectives
   - Problem statements and SMART research questions
   - Conceptual and theoretical frameworks
   - Research design and sampling justifications
   - Preliminary data presentation formats or mock datasets
   - Structured result interpretation aligned with objectives and literature
   - Evidence-based conclusions and aligned recommendations
2. A compiled portfolio of written research outputs per participant, serving as an initial draft of their academic research project or undergraduate thesis.
3. Enhanced repository of instructional materials and writing templates, curated and contextualized for Apayao State College researchers.
4. Strengthened mentoring relationships between faculty and students through collaborative writing and feedback sessions.
5. Consolidated documentation of session outputs, evaluation forms, and attendance records, which may serve as supporting documents for internal and external quality assurance and accreditation processes.

V. Target Participants

The seminar-writeshop series is open to the following:

- Faculty researchers across departments who are currently engaged in or planning research projects, thesis advising, or academic publication.
- Students (3rd to 4th year students) currently enrolled in research courses, thesis writing, or practicum subjects.
- Advisers and research panel members interested in reinforcing research supervision competencies and aligning advising practices with current academic standards.

VI. Budget / Logistics

The following items are proposed for financial support, subject to institutional guidelines and availability of funds:

Expense Item	**Details**
Honorarium for Resource Speakers	Based on standard institutional rates per hour/session
Meals and Snacks	For speakers, participants, and support staff (AM & PM sessions)
Training Materials	Printed modules, activity sheets, writing templates
Supplies and Printing	Paper, folders, certificates, documentation forms
Venue Preparation	Physical setup, sound system, presentation equipment
Token of Appreciation	For guest speakers and evaluators
Documentation Support	Photocopying, digital documentation, evaluation tool encoding

CONCLUSIONS

Based on the findings of this study, the following conclusions were drawn:

1. Students of Apayao State College (BEEd program) demonstrate a "Developing" level of research competency, as evidenced by the grand mean score of 2.12. This reflects foundational awareness but a lack of confidence and independence in applying key research processes.
2. The only research domain rated as "Competent" was *Identifying the Research Design* with a mean of 2.57, suggesting students are most confident in recognizing and selecting research designs, likely due to structured exposure in coursework.
3. The lowest competencies were observed in Developing the Research Paradigm (1.95), Analyzing Data (1.93), and Interpreting Results (1.96). These areas require higher-order skills, such as theoretical integration, analytical reasoning, and evidence-based interpretation, which students found most challenging.
4. Across all areas, students struggled most with justification, synthesis, and application—indicating that while they may recognize concepts, they have difficulty operationalizing them in independent research writing.
5. The consistent "Developing" scores across domains imply a systemic gap in hands-on research experience and applied instruction, calling for intentional and contextualized skill-building interventions.

RECOMMENDATIONS

In light of the study's conclusions, the following are recommended:

1. Integrate thematic research skill-building workshops throughout the BEEd curriculum, focusing on the most challenging areas: paradigm construction, data analysis, and result interpretation.
2. Design a structured Research Mentoring Program wherein faculty guide students through research components via one-on-one or small-group sessions, especially during thesis and practicum phases.
3. Develop modular learning resources (print or digital) tailored to ASC students, covering evidence-based writing, data handling tools (e.g., Excel, SPSS), and conceptual framework modeling.
4. Facilitate peer-led research clinics and journal clubs, encouraging collaborative learning and exposure to real student research papers with guided critique and rewriting.
5. Provide faculty development seminars on mentoring student research and scaffolding theory-to-practice integration, ensuring alignment between faculty support and student needs.
6. Strengthen early-year exposure to research components by integrating mini-research tasks in general education subjects to build gradual familiarity and reduce anxiety around research expectations.

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