



Measuring the Research Competency Needs of University Student-Researchers: Content Validity and Reliability of a Survey Tool

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ABSTRACT

Measuring the research competency needs of university student-researchers ensures a holistic and responsive approach to addressing their research dilemmas, thereby ensuring the maximum utility of any research projects for learning progress and development. With this intention, the present study proposes a 32-item survey tool to assess research competency needs of student-researchers across eight domains. Using the instrument development research as the design, three experts validated the survey tool, while 30 university students participated in a dry run to establish the instrument's reliability. The survey tool is subjected to validity testing using Kappa Statistics and reliability testing using Cronbach's Alpha. Results indicate that the developed survey tool is highly valid (I-CVI=1.00) and highly reliable ($\alpha=0.963$), making it suitable to assess the research competency needs.

INTRODUCTION

Background and Rationale of the Study

Research competence is important for students entering higher education. Students must navigate a complex body of knowledge through a rigorous research process. Many struggles with their specific area of fieldwork. They have difficulty grasping the discipline, finishing the required literature, and making recommendations based on study findings (Ciraso-Calí et al., 2022; George-Reyes et al., 2022). In research, critical thinking is an essential competency. So is the ability to locate trustworthy sources and apply research techniques (Ciraso-Calí et al., 2022).

Teaching research competencies in higher education is an academic and professional obligation. Universities must reassure stakeholders that graduates can use the scientific method to solve relevant problems (Castillo-Martínez & Ramírez-Montoya, 2021). The competency of research fosters skill acquisition, as well as personal growth and development in identified areas. That is to say, these skills include higher-order thinking, problem-solving, accurate communication, a scholarly disposition, and so forth that can intrinsically inspire inquiry (Azizov & Azizov, 2018; Marushkevych et al., 2022).

The shift in focus toward relevant skills, particularly research skills, plays a crucial role in determining how organizations perform (Azizov & Azizov, 2018; Marin et al., 2017), providing inclusive and equitable research practices for students with attentions given on the strengths, weaknesses, opportunities, and threats on in-placed practices (Pecson, 2025a). In particular, research helps build a mix of professional, social, and group skills by analyzing both individual and group work. These analyses provide essential context and continue to raise new questions for study (Aleksandrova & Sluchavna, 2018; Gorshkova, 2017). Despite these benefits, a key challenge remains: a gap exists between how students rate themselves and how faculty rate them. To remedy this gap, research readiness must be represented in a clearer and more objective manner, rather than relying on a vague understanding of readiness (George-Reyes et al., 2022). Another challenge is the irresponsible and unsupervised use of Artificial Intelligence (AI) in research projects (Aguilar et al., 2025; Pecson, 2025b). More importantly, having a standardized measure that everyone could use may help facilitate a more consistent research practice.

An institution's research capability framework leads to disciplinary excellence, the enhancement of higher-order thinking, the development of work readiness competencies, and workforce preparedness (Bandaranaike & Willison, 2015; Missingham et al., 2016). Limited access to computers, technology, and time constraints makes it difficult for researchers and writers, as well as the limited topic choices (Magnaye & Malabarbas, 2022). Due to these issues and dilemmas that may impact the quality and completion of research projects (Pecson et al., 2025), research skills should be reviewed periodically. The present study aims to address the problem by developing a survey tool.

To address the aforementioned gaps, this study proposes a survey tool to assess research competency needs in student-researchers and subjects it to validity and reliability measures. It is based on existing literature and the preliminary interviews conducted to select university student-researchers. The

tool places research competency needs within their real-world and academic experiences at the university level. This allows Higher Education Institutions (HEIs) to provide targeted guidance, resources, and interventions. By clarifying needs, the tool enables focused support, skill development, and better preparation for research excellence.

Review of Related Literature

Research Competency of Students

Research capacities are essential skills that university students need to develop in order to produce and disseminate research outputs. It is common for students to gain some or even much-needed improvement in their research skills, despite gaps that exist between students' self-assessments of research competency and teachers' notes of competence, which further enhance learning (George-Reyes et al., 2023). Furthermore, there is an extensive variation in student research capacities, depending on their social environment, digital experience, motivation, and pedagogical style. Research competencies are typically unequally impacted by social context, digital literacy, motivation, and teaching strategies, and they are virtually always categorized as cognitive, attitudinal, and technological (Tapullima-Mori et al., 2025). Research competencies are developed primarily through higher educational experiences, which prepare students for professional readiness. Research foundational competencies are generally not developed or modeled in earlier educational settings (Valdiviezo-Villegas & Leyva-Aguilar, 2023).

Importance of Measuring the Research Competency of Students

Research competencies have begun to be regarded as essential for academic and professional performance. They permit students to design a coherent research project that meets international standards (Bellido Mujica, 2025). Each research competency includes motivational, cognitive, operational, and personal components. This helps students develop skills such as systematization, planning, and self-education that are essential for research activities in practice (Prosekov et al., 2020). Students will learn many of these skills within their research courses, but they will also need to develop them through independent study and research practice. While students will develop research competencies personally and, in their courses, they may not if they face barriers to their development, such as time shortages, financial issues, and limitations in their prior knowledge about research. These barriers can be alleviated with some instructional supports in the student's learning of research competencies; without these supports, many students will struggle to enhance their research competencies (Caliwan-Fuentes, 2017; Shcherban & Gut, 2023). Indeed, the acquisition of research competencies in university students is crucial for enhancing their research skills in professional performance and as part of their academic training (Al Yahmadi et al., 2025), making academic writing a culture of practice in developing critical thinking skills for higher education, as well as life and career success (Pecson, 2017).

METHODOLOGY

Research Design

The study employs instrument development research, which involves creating a new measure or questionnaire that is context, problem, or phenomenon-specific and establishing its validity and reliability. In the context of the present study, a survey tool was developed to assess the research competency needs of student-researchers, considering the reviewed literature and preliminary interviews conducted. After the development of the survey tool, validation by experts followed, along with a pilot run to establish the survey tool's reliability.

Respondents and Sampling

The respondents of the study are student-researchers from a state university in the Philippines. Specifically, 30 study leaders were purposively selected using the following sequential inclusion criteria: (a) identified as study leaders; (b) completed at least one research project prior to this study; (c) came from a certain college within the university; and (d) excluded from the final pool of student-respondents for the final survey, which occurred after establishing the survey tool's validity and reliability.

Instrument

A survey or questionnaire is used as the primary data-gathering tool, developed and subjected to validation and reliability tests, comprising eight domains: (i) formatting, (ii) formulating research questions, (iii) reviewing the literature, (iv) designing studies, (v) addressing ethical concerns, (vi) collecting and analyzing data, (vii) interpreting findings, and (viii) disseminating research results. The survey tool consists of 32 statements or items, wherein each domain contains 4 statements or items. The instrument in question was developed based on a review of relevant literature that substantiates the subscales or measures of the competency needs of university student-researchers, as well as the results of preliminary interviews conducted with selected university student-researchers prior to validation and reliability testing. For the validation process, three expert-validators in the field of research in higher education confirmed the correctness of the developed survey tool, while for reliability-testing, a dry run was conducted with 30 university student-researchers who are not part of the final pool of respondents after the final survey was established, to test the tool's validity and reliability.

Data Gathering Procedure

Prior to collecting the data, the researchers obtained a permission letter from the university officials. Researchers also obtained consent forms from the university student-respondents. The respondents had the choice of either the hard copy or the online version of the survey tool. Participation in the survey was completely voluntary, having been informed of the study's purposes. The respondents were not offered any financial compensation. After securing the needed sample of responses, the data gathered are prepared for statistical analysis.

Ethical Considerations

There were strict ethical considerations taken into account in the study's conduct – from obtaining consent forms from the university student-researchers, anonymity of the respondents' identity, confidentiality of data collected from them, and their safety, security, and best interest, aligned to the conduct of research in established institutional conduct based on ethics, data privacy, and security.

Statistical Treatment

The study utilizes descriptive statistics to analyze the gathered data. The Kappa Statistics is used in treating the data on the content validation of the survey tool on the research competency needs of students, while the Cronbach's Alpha is used in treating the data gathered for the reliability analysis of the survey tool on the research competency needs of students.

RESEARCH RESULTS

Content Validation of the Survey Tool on the Research Competency Needs of Students

Table 1. Content Validation of the Survey Tool on the Research Competency Needs of Students

Item	Number of Agreement	Mean	SD	I-CVI
As a university student-researcher, I still need to...				
A. Formatting				
1.Understand and implement the correct formatting guidelines for research papers by the university.	3	3.67	0.58	1.00
2.Format citations, references, and tables according to the prescribed citation styles (i.e., APA, Chicago, MLA, etc.).	3	3.33	0.58	1.00
3.Organize and format the research work's visual elements, such as tables, figures, and charts.	3	4.00	0.00	1.00
4.Use software tools or templates to ensure a consistent and accurate format throughout the research paper.	3	4.00	0.00	1.00
Composite	3	3.75	0.25	1.00
B. Formulating Research Questions				
1.Develop clear and concise research questions that align with the research objectives.	3	4.00	0.00	1.00
2.Identify gaps in existing research and formulate relevant research questions.	3	3.67	0.58	1.00
3.Balance the feasibility of research questions within resource and time constraints.	3	3.67	0.58	1.00
4.Require guidance in refining and narrowing broad research questions into focused, answerable inquiries.	3	4.00	0.00	1.00
Composite	3	3.83	0.14	1.00
C. Reviewing Literature				
1.Conduct a comprehensive literature search and identify relevant sources for the research.	3	3.33	0.58	1.00
2.Evaluate the credibility, reliability, and relevance of literature sources.	3	3.67	0.58	1.00

3. Organize and synthesize information from multiple sources into a coherent literature review.	3	3.00	0.00	1.00
4. Effectively integrate and cite existing literature to support the research arguments.	3	4.00	0.00	1.00
Composite	3	3.50	0.00	1.00
D. Designing Studies				
1. Select appropriate research designs, sampling methods, and sample sizes.	3	3.67	0.58	1.00
2. Define variables, develop hypotheses, and design research instruments.	3	3.67	0.58	1.00
3. Ensure ethical considerations in study design, such as obtaining informed consent/assent, permission, etc.	3	3.67	0.58	1.00
4. Determine the appropriate data collection methods and techniques for the research objectives.	3	3.33	0.58	1.00
Composite	3	3.58	0.14	1.00
E. Addressing Ethical Concerns				
1. Understand and apply ethical guidelines and regulations in research involving human participants or sensitive data.	3	3.33	0.58	1.00
2. Obtain ethical clearance or approval from the institutional review committee.	3	4.00	0.00	1.00
3. Address ethical concerns about participant recruitment, informed consent, and data privacy.	3	3.33	0.58	1.00
4. Ensure data privacy, confidentiality, and protection throughout the research process.	3	4.00	0.00	1.00
Composite	3	3.67	0.14	1.00
F. Collecting and Analyzing Data				
1. Select appropriate data collection methods and tools for the research.	3	4.00	0.00	1.00
2. Collect data using surveys, interviews, observations, or experiments.	3	3.33	0.58	1.00
3. Manage and organize collected data to ensure accuracy and reliability.	3	3.67	0.58	1.00
4. Analyze and interpret quantitative or qualitative data using suitable statistical or analytical methods.	3	4.00	0.00	1.00
Composite	3	3.75	0.00	1.00
H. Interpreting Findings				
1. Interpret and make sense of qualitative and quantitative data analysis results about research questions, assumptions, or hypotheses.	3	4.00	0.00	1.00
2. Draw valid and reliable conclusions based on research findings.	3	3.67	0.58	1.00
3. Connect research findings with existing literature and theoretical frameworks to generate meaningful insights.	3	4.00	0.00	1.00
4. Critically analyze and discuss the implications and significance of research findings.	3	3.33	0.58	1.00
Composite	3	3.75	0.00	1.00
I. Disseminating Research Results				
1. Effectively communicate and present research findings in written form, such as publishable research papers, reports, or articles.	3	4.00	0.00	1.00
2. Prepare and deliver oral presentations or posters to communicate research effectively.	3	3.67	0.58	1.00
3. Publish research work in peer-reviewed journals or	3	4.00	0.00	1.00

other relevant outlets.				
4.Promote and share research findings through conferences, workshops, or online platforms.	3	4.00	0.00	1.00
Composite	3	3.92	0.14	1.00
Kappa Statistic Value	Number of	Mean	SD	Remarks
1.00	Items	3.72	0.03	Excellent
	32			

Content Validity Index (Kappa): $\kappa \geq 0.75$ Excellent; $0.75 > \kappa \geq 0.60$ Good; $0.60 > \kappa \geq 0.40$ Fair; No. of validators=3; **I-CVI**-Item Content Validity Index; **S-CVI**-Scale Content Validity Index

The content validity findings confirm that the survey tool is well-founded and based on a thorough assessment of the research competency needs of university students. The content validity findings support the assertion that the survey instrument is extremely valid and relevant for assessing undergraduate students' research competency needs. The Kappa Statistic Value for agreement among three expert validators was 1.00, indicating perfect agreement among experts and well above the 'excellent' threshold of 0.75. The instrument captured and provided reliable evidence of students' research competencies.

A defining feature of these results is the perfect Item-Content Validity Index (I-CVI) of 1.00 for all 32 survey items. This score means every item was unanimously rated by validators as clear, relevant, and essential. This unanimous result confirms that the tool fully addresses the required research competencies and precisely identifies where students need support.

Minimal variability among validators shows the tool is cohesive and uniform in measuring research competencies. This consistency is essential for effectively guiding educational strategies, curriculum improvements, and targeted support.

The composite scores for each of the eight competency areas reflect strong content validity. The aforementioned categories include formatting, formulating research questions, conducting a literature review, study design, addressing ethical issues, data collection and analysis, and interpreting findings and reporting research results, and each area obtained an I-CVI value of 1.00. These results affirm that the tool effectively captures the breadth and depth of research skills that students need to master.

Reliability Analysis of the Survey Tool on the Research Competency Needs of Students

Table 2. Reliability Analysis of the Survey Tool on the Research Competency Needs of Students

Item	Mean	SD	Alpha if the item is deleted
As a univeristy student-researcher, I still need to...			
A. Formatting			
1.Understand and implement the correct formatting guidelines for research papers by the university.	3.63	0.62	0.895
2.Format citations, references, and tables according to the prescribed citation styles (i.e., APA, Chicago, MLA, etc.).	3.63	0.62	0.911

3. Organize and format the research work's visual elements, such as tables, figures, and charts.	3.63	0.62	0.895
4. Use software tools or templates to ensure a consistent and accurate format throughout the research paper.	3.67	0.55	0.956
Cronbach's Alpha Value 0.936	No. of items 4	Remarks Excellent	
B. Formulating Research Questions			
1. Develop clear and concise research questions that align with the research objectives.	3.70	0.47	0.900
2. Identify gaps in existing research and formulate relevant research questions.	3.63	0.49	0.940
3. Balance the feasibility of research questions within resource and time constraints.	3.70	0.47	0.900
4. Require guidance in refining and narrowing broad research questions into focused, answerable inquiries.	3.73	0.45	0.924
Cronbach's Alpha Value 0.936	No. of items 4	Remarks Excellent	
C. Reviewing Literature			
1. Conduct a comprehensive literature search and identify relevant sources for the research.	3.70	0.47	0.792
2. Evaluate the credibility, reliability, and relevance of literature sources.	3.80	0.41	0.750
3. Organize and synthesize information from multiple sources into a coherent literature review.	3.53	0.57	0.813
4. Effectively integrate and cite existing literature to support the research arguments.	3.63	0.49	0.782
Cronbach's Alpha Value 0.828	No. of items 4	Remarks Good	
D. Designing Studies			
1. Select appropriate research designs, sampling methods, and sample sizes.	3.73	0.45	0.873
2. Define variables, develop hypotheses, and design research instruments.	3.70	0.47	0.922
3. Ensure ethical considerations in study design, such as obtaining informed consent/assent, permission, etc.	3.67	0.48	0.868
4. Determine the appropriate data collection methods and techniques for the research objectives.	3.67	0.48	0.838
Cronbach's Alpha Value 0.905	No. of items 4	Remarks Excellent	
E. Addressing Ethical Concerns			
1. Understand and apply ethical guidelines and regulations in research involving human participants or sensitive data.	3.67	0.48	0.920
2. Obtain ethical clearance or approval from the institutional review committee.	3.67	0.48	0.943
3. Address ethical concerns about participant recruitment, informed consent, and data privacy.	3.70	0.47	0.922
4. Ensure data privacy, confidentiality, and protection throughout the research process.	3.73	0.45	0.964
Cronbach's Alpha Value 0.953	No. of items 4	Remarks Excellent	
F. Collecting and Analyzing Data			
1. Select appropriate data collection methods and tools for the research.	3.70	0.47	0.875
2. Collect data using surveys, interviews, observations, or experiments.	3.67	0.55	0.877

3.Manage and organize collected data to ensure accuracy and reliability.	3.80	0.41	0.858
4. Analyze and interpret quantitative or qualitative data using suitable statistical or analytical methods.	3.80	0.41	0.858
Cronbach’s Alpha Value 0.896	No. of items 4	Remarks Good	
G. Interpreting Findings			
1.Interpret and make sense of qualitative and quantitative data analysis results about research questions, assumptions, or hypotheses.	3.77	0.43	0.860
2.Draw valid and reliable conclusions based on research findings.	3.77	0.43	0.827
3.Connect research findings with existing literature and theoretical frameworks to generate meaningful insights.	3.67	0.48	0.796
4.Critically analyze and discuss the implications and significance of research findings.	3.77	0.43	0.750
Cronbach’s Alpha Value 0.851	No. of items 4	Remarks Good	
H. Disseminating Research Results			
1.Effectively communicate and present research findings in written form, such as publishable research papers, reports, or articles.	3.70	0.47	0.896
2.Prepare and deliver oral presentations or posters to communicate research effectively.	3.70	0.47	0.896
3.Publish research work in peer-reviewed journals or other relevant outlets.	3.67	0.48	0.893
4.Promote and share research findings through conferences, workshops, or online platforms.	3.70	0.47	0.870
Cronbach’s Alpha Value 0.914	No. of items 4	Remarks Excellent	
Overall Cronbach’s Alpha Value 0.963	Number of Items 32	Remarks Excellent	

Cronbach's Alpha: $\alpha \geq 0.9$ Excellent; $0.9 > \alpha \geq 0.8$ Good; $0.8 > \alpha \geq 0.7$ Acceptable; $0.7 > \alpha \geq 0.6$ Questionable; $0.6 > \alpha \geq 0.5$ Poor; $0.5 > \alpha$ Unacceptable; **M**-Mean; **SD**-Standard Deviation; No. of respondents=30

The reliability analysis of the survey tool assessing the research competency needs of university student-researchers indicates excellent overall internal consistency, with a Cronbach's alpha of 0.963 across 32 items, which signifies that the survey items reliably measure the constructs of research competency needs. When broken down by specific competency areas, the formatting subscale showed excellent reliability with an alpha of 0.936, indicating that items related to understanding and applying proper formatting guidelines are consistently measured. Similarly, the subscale on formulating research questions also achieved excellent reliability with an alpha of 0.936, reflecting consistent responses from participants on their ability to develop clear and feasible research questions.

The reviewing literature subscale demonstrated good reliability, with a Cronbach's alpha of 0.828. Although this value was slightly lower than in other areas of the survey, it still indicated a good level of internal consistency in

measuring students' capabilities in conducting literature searches, evaluating sources, and synthesizing information. The alpha value for the research design subscale was 0.905, indicating strong confidence in measuring student ability in relation to research, design, sampling, defining ethical issues, and data collection methods.

Regarding ethical considerations, the ethics subscale yielded the highest reliability, at 0.953, indicating very consistent responses and judgments in understanding ethical research guidelines and procedures. Data collection/data analysis also received a good reliability rating of 0.896, indicating that the survey items were well-written and reliably assessed students' abilities in managing and analyzing data collection techniques and quality. The interpretation of findings subscale was rated as reliable (0.851), indicating that it could measure students' abilities to interpret and make sense of research findings and/or results.

The ability to disseminate research findings was also assessed with excellent reliability (0.914), demonstrating consistency in the way participants evaluated students' abilities to disseminate research findings through writing, presentations, publications, and multiple settings. Overall, all subscales demonstrated good to excellent internal reliability, confirming the survey tool's robustness in assessing the multifaceted research competency needs of university students.

DISCUSSION

Content Validation of the Survey Tool on the Research Competency Needs of Students

The findings of content validity strongly indicate that the survey tool is well-researched and highly effective for assessing research competency needs among university students. The experts agreed on (or assessed) that every survey item was clear, relevant, and necessary, indicating that the tool is able to capture the full range of research competencies required. This unanimous consensus among validators not only strengthens the validity of the instrument but also enhances the ability to identify gaps where students may need assistance. Furthermore, the agreement also highlights the tool's unity and reliability, which we find to be an important factor in using the tool for educational improvement, curricular revision, and intervention development. Every subscale or competency area—formatting, formulating research questions, reviewing literature, designing studies, addressing ethical concerns, collecting and analyzing data, interpreting findings, and disseminating research results—was validated for each expert, indicating that the tool is closely aligned to comprehensively address student research skills to the degree of depth and breadth to inform student success.

This study's findings align closely with existing research on research competency in university student populations. The study emphasizes the need for tools that are validated for use and comprehensive in assessing and addressing gaps in research skills. The survey tool has been validated unanimously by experts and expands upon some of the skills identified, which can include formulating research questions, addressing ethics, conducting data

analysis, and disseminating results. These broader areas of research competency specification also acknowledge the multidimensional nature identified in the previous studies. The instrument is found to be useful in helping identify student strengths and weaknesses as they relate to research competency. This is important as time limitations, financial constraints, and previous learning gaps can prolong required development without targeted support (Caliwan-Fuentes, 2017; Shcherban & Gut, 2023). The validation indicates that the instrument is a trustworthy one, and this process highlights the use of the tool for guiding curriculum and intervention to support student academic and professional success (Bellido Mujica, 2025; Al Yahmadi et al., 2025).

Reliability Analysis of the Survey Tool on the Research Competency Needs of Students

The analysis of the survey tool's reliability indicates that it accurately measures the research competency of university student-researchers and exhibits a high degree of internal consistency across all domains. Each of the subscale or competency area—formatting, formulating research questions, reviewing literature, designing studies, addressing ethical concerns, collecting and analyzing data, interpreting findings, and disseminating research results—produced reliable results, with ethics and dissemination aspects being the most robust. The subscale measuring literature review had the least consistency but had acceptable reliability, further confirming the validity of the survey as a whole. Overall, the findings enhance the reliability of the tool used to assess students' research abilities and provide insight into pathways to improve research training opportunities for students.

The analysis of the survey tool's reliability indicates the survey is a useful instrument for assessing research competency amongst university students, exhibiting high internal consistency across all domains, especially in ethics and dissemination—areas critical for producing research to international standards (Bellido Mujica, 2025). There are also strong results outlining the survey's potential to identify areas in need of attention and support to address gaps commonly found in students' self-reported competencies (Valdiviezo-Villegas & Leyva-Aguilar, 2023). Providing reliable findings will inform instructional design and support students' research engagement, while helping them navigate limitations such as time and prior knowledge, and preparing them for graduate studies, research, and/or their future profession (Prosekov et al., 2020; Shcherban & Gut, 2023). Improved instructional supports, along with appropriate, timely intervention, can assist students as they become more academically and professionally ready and their competencies evolve.

Since the reliability of the survey tool has been established, it can be used by Higher Education Institutions (HEIs) and other academic institutions to gauge students' research competencies, improve curricula, provide research training, and improve students' performance in research courses. Such may serve as a viable tool for profiling students and providing targeted intervention,

ensuring the development of higher research competencies essential for lifelong learning.

CONCLUSION AND RECOMMENDATION

The survey tool underwent content validation and reliability analysis, both of which confirmed the tool's effectiveness and robustness in identifying university students' needs for competency in research. Experts agreed on the clarity, relevance, and completeness of the tool in each of the identified key competency areas: formatting, formulating research questions, reviewing literature, designing studies, addressing ethical concerns, collecting and analyzing data, interpreting findings, and disseminating research results, all of which suggest that it captures the full range of research skills development. The reliability analysis revealed high internal consistency for most subscales, with ethics and dissemination exhibiting particularly high internal consistency. While one sub-scale (literature review) had lower internal consistency, the level of reliability was still acceptable. The overall content validity and reliability of the tool confirm that it can be used as an effective means of identifying student gaps in competency, drawing attention to the need for improved curricular support, and ensuring that targeted interventions can be developed to maximize student research training and success.

ADVANCED RESEARCH

Future research may utilize the validated survey tool longitudinally to measure outcomes in an intervention study after using training modules. The survey can be administered before and after the student's training modules in core areas of competency (i.e., lowest and highest internal consistencies). This would allow for measuring gains in competency and changes in self-awareness. By comparing pre- and post-intervention data along with qualitative data or feedback with students and expert-instructors, researchers can measure the tool's sensitivity to change, determine gaps that persist, and improve upon evidence-based interventions to continuously support instructional design for research training.

Several studies have been conducted to develop survey tools for assessing university students' research competencies. However, few focus on the specific research competency needs in local public state universities, such as formatting, formulating research questions, reviewing literature, designing studies, addressing ethical concerns, collecting and analyzing data, interpreting findings, and disseminating results. Hence, the study is limited only within the context of the University students' experiences and realities in research writing.

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