ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 6 (June 2026)

Research Competence and Training Needs of Third-Year BSBA Human Resource Management Students at Colegio de Montalban: Basis for a Seminar-Training Program

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Date Submitted:
January 25, 2026

Date Accepted:
May 14, 2026

Date Published:
June 30, 2026

DOI:
10.5281/zenodo.21102600

ABSTRACT

This study assessed the research competence and training needs of third-year BSBA Human Resource Management students at Colegio de Montalban, Rizal, as basis for a proposed seminar-training program. A quantitative evaluative research design was used among 183 respondents from the target population of third-year BSBA-HRM students during the Second Semester of School Year 2025–2026. Data were gathered using a validated researcher-made structured questionnaire with excellent reliability coefficients for research competence (Cronbach's alpha = 0.942) and training needs (Cronbach's alpha = 0.952). Frequency, percentage, weighted mean, ranking, and analysis of variance were used to analyze the data. Findings revealed that the respondents generally had low research competence across all dimensions, with composite means ranging from 2.260 to 2.326. Data analysis and interpretation obtained the lowest mean, indicating the weakest competence area, while research writing and presentation obtained the highest but still low mean. Conversely, the respondents reported very high training needs across all 24 research training areas, with means ranging from 3.443 to 3.546. The highest training priorities were choosing the appropriate research design, organizing and encoding survey data, interpreting quantitative results, preparing clear questionnaires, and computing descriptive statistics. Analysis of variance showed no significant differences in research competence across demographic groups, indicating that the identified research deficiencies were broadly shared. The study concludes that a structured seminar-training program is necessary to strengthen students' research concepts, methodology, statistical literacy, citation practices, and research writing skills.

Keywords: *BSBA HRM students, research competence, research training needs, seminar-training program, statistical literacy, quantitative evaluative research*

INTRODUCTION

Research competence has become an essential academic and professional capability in higher education because students are expected to produce evidence-based outputs, analyze information critically, and apply research-based reasoning to real-world problems. In business education, research competence is not limited to fulfilling academic requirements; it also supports organizational decision-making, problem analysis, workforce planning, training evaluation, and evidence-based human resource management practice.

For Bachelor of Science in Business Administration students majoring in Human Resource Management, research competence is particularly relevant because future HR professionals are expected to interpret employee data, assess organizational needs, evaluate development programs, and recommend decisions based on measurable

ISSN: 3116-3475
International Journal
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evidence. Thus, assessing students' research competence provides a meaningful basis for identifying their readiness to perform academic research tasks and future professional responsibilities.

Recent literature emphasizes that university students need research competencies to create, communicate, and apply academic knowledge. George-Reyes, López-Caudana, and Ramírez-Montoya (2023) connected research competence with complex thinking and Education 4.0, while López-Caudana, George-Reyes, and Avello-Martínez (2024) showed that structured research training experiences can strengthen students' basic academic research skills. These findings indicate that competence cannot be assumed from mere exposure to research subjects; it must be assessed systematically.

In the Philippine context, research competence remains a concern in tertiary education because higher education institutions are expected to prepare graduates for a knowledge-based and evidence-driven economy. The Philippine Development Plan 2023–2028 Midterm Update emphasizes future-ready learning and improved human capital development (Department of Economy, Planning, and Development, 2025). This direction aligns with Sustainable Development Goal 4, which stresses quality tertiary education and the development of relevant skills for employment, decent work, and entrepreneurship (United Nations Statistics Division, 2025).

At Colegio de Montalban, Third-Year BSBA Human Resource Management students are at a stage where they are expected to engage more deeply with research-related academic requirements. However, limited evidence focuses specifically on their research competence and seminar-training needs during School Year 2025–2026. This study therefore quantitatively assessed their competence in major research areas and identified the training priorities needed to develop a responsive seminar-training program.

Literature Review

Research Competence in Higher Education

Research competence refers to students' ability to understand, apply, and communicate research processes in a systematic and ethical manner. It includes identifying research problems, reviewing literature, selecting methods, gathering and analyzing data, interpreting findings, and presenting results. George-Reyes et al. (2023) emphasized that research competencies are essential skills that university students must develop in order to create and communicate scientific products during their academic formation.

Tapullima-Mori, Pizzan-Tomanguillo, Pizzan-Tomanguillo, Vásquez-Sánchez, and Soria-Quijaite (2025) described research competence as a multidimensional academic skill involving cognitive abilities, methodological knowledge, ethical awareness, communication skills, and critical use of information. This supports the present study because BSBA-HRM students are expected to develop evidence-based thinking that can be applied in organizational analysis, employee development, and HR decision-making.

In the Philippine setting, Gacula (2025) found that college students were relatively capable in identifying research problems and implementing data collection procedures but experienced difficulty in inquiry, literature review, interpretation, and presentation of findings. This finding supports the need to measure research competence by specific dimensions rather than as a general academic ability.

Demographic Profile, Research Resources, and Student Readiness

Students' background characteristics may influence research competence and training needs. In this study, demographic variables included age, sex, academic performance in research-related subjects, previous research exposure, and access to research resources. Simovic, Domazet, and Stojanovic (2023) noted that demographic characteristics are often examined to determine whether background variables contribute to differences in skill acquisition.

Previous research exposure is important because students who have completed research papers, presented outputs, or attended seminars may be more familiar with the research process. López-Caudana et al. (2024) showed that structured research training experiences can strengthen students' basic academic research skills. Access to research resources is also significant because credible journals, databases, library materials, internet access, and instructor support shape students' ability to conduct quality research.

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De Jesus, Galita, Antonio, De Jesus, and Tuazon (2025) emphasized that research performance is linked to information-seeking and literacy skills, including the ability to access, evaluate, and use sources responsibly. These findings justify the inclusion of access to research resources and primary research resources used as important profile indicators in the present study.

Core Research Skills and Training Needs

Understanding research concepts, formulating problems, reviewing literature, selecting methodology, gathering data, analyzing results, observing ethical practices, and writing research reports are core components of research competence. For BSBA-HRM students, these skills support academic work and future HR functions such as employee needs assessment, training evaluation, performance analysis, and evidence-based policy recommendation.

Several studies identify literature review, methodology, data interpretation, and presentation as recurring areas of student difficulty. Gacula (2025) reported difficulty in literature review, interpretation, and presentation of results, while Garcia and Pantaleon (2025) found that students identified statistical concepts, data interpretation, and reporting results as challenging research-statistics areas. These findings are relevant because quantitative research requires students to organize survey data, compute descriptive statistics, and interpret findings according to research objectives.

Ethical research practices and citation are also essential. Students must understand informed consent, confidentiality, honest reporting, plagiarism avoidance, paraphrasing, and APA citation. De Jesus et al. (2025) linked information literacy with source evaluation and citation practices, while Zahro', Muzzazinah, and Ramli (2025) emphasized that undergraduate research skills training should include structured learning, supervision, literature access, data analysis, and communication of findings.

Theoretical and Conceptual Basis of the Study

The study is anchored on Competency-Based Education, Human Capital Theory, and Training Needs Assessment. Competency-Based Education supports the idea that research ability should be measured through specific skills rather than assumed from exposure to instruction alone. Human Capital Theory explains that research competence contributes to students' future productivity, professional capability, and evidence-based decision-making.

Training Needs Assessment explains that an effective academic intervention should begin with identifying the gap between current competence and desired competence. In this study, research competence was measured first, and training needs were assessed using parallel research indicators. The proposed seminar-training program was then developed from the areas where students showed low competence and very high training needs.

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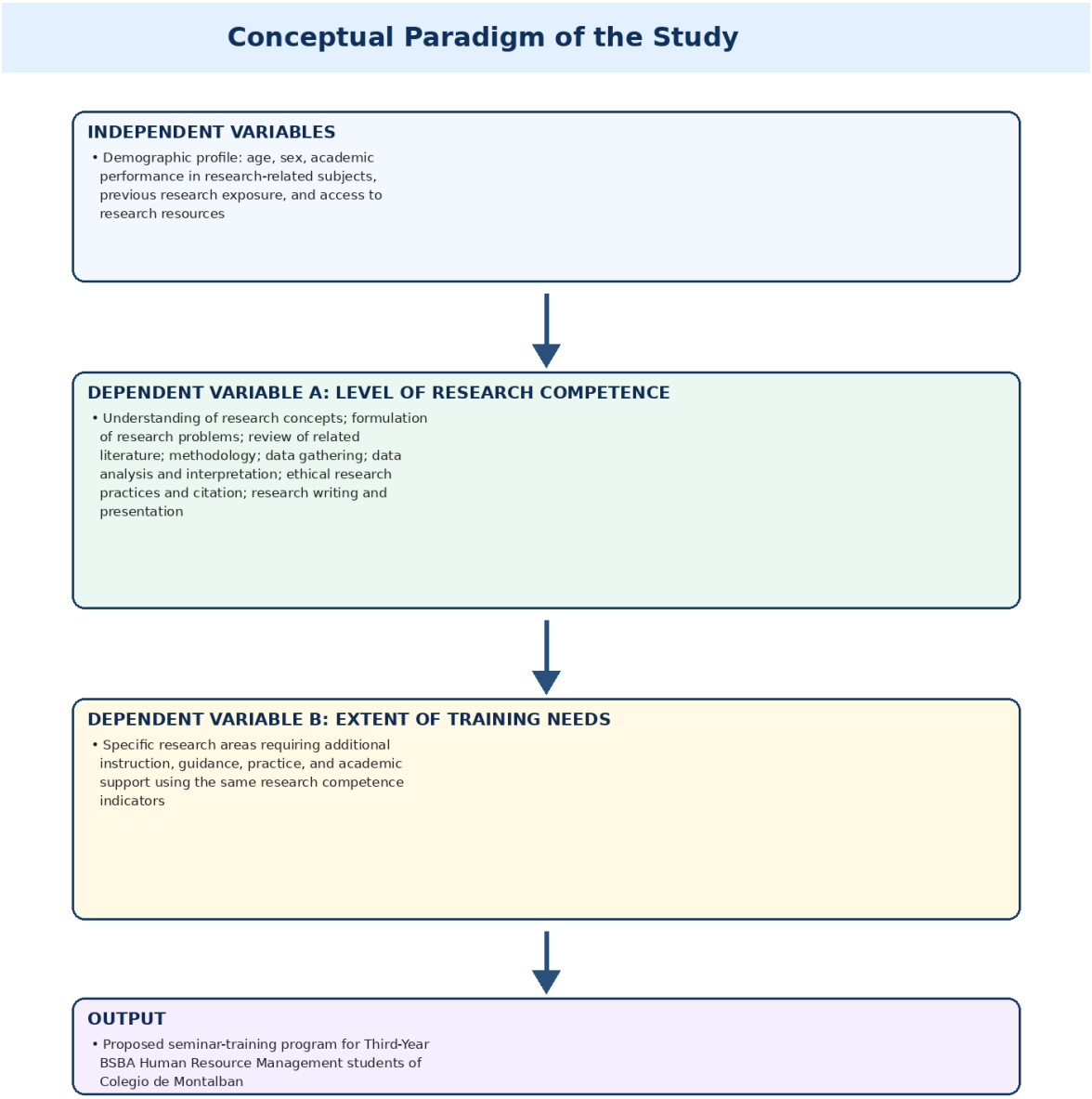
Figure 1. *Conceptual Paradigm of the Study*



The figure shows that the respondents' demographic profile may be examined in relation to research competence and training needs. The measured competence and identified needs serve as the basis for developing the proposed seminar-training program.

METHODS

Research Design

The study employed a quantitative evaluative research design. This design was appropriate because the study gathered numerical data through a structured questionnaire and analyzed the responses using descriptive and inferential statistical procedures. The evaluative component was used to determine the respondents' existing level of research competence and extent of training needs as basis for a proposed seminar-training program.

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Research Locale

The study was conducted at Colegio de Montalban, Rodriguez, Rizal, a local higher education institution offering the Bachelor of Science in Business Administration major in Human Resource Management. The locale was appropriate because the study focused on third-year BSBA-HRM students who were expected to engage in research-related academic requirements during School Year 2025–2026.

Participants and Sampling Technique

The target population consisted of 195 officially enrolled Third-Year BSBA Human Resource Management students distributed across four sections: BSBA 3A, BSBA 3B, BSBA 3C, and BSBA 3D. Total enumeration was initially adopted because the population was manageable. However, 183 students submitted complete and usable responses, representing approximately 93.85% of the target population. Students from other year levels, other majors, faculty members, and administrators were not included.

Table 1. *Respondents and Research Instrument Reliability*

Item	Source result
Target population	195 Third-Year BSBA Human Resource Management students
Actual respondents	183 complete and usable responses
Sampling approach	Total enumeration/census invitation with voluntary participation
Pilot testing	30 Second-Year BSBA-HRM students not included in the actual respondents
Research competence scale	40 items; Cronbach's alpha = 0.942; Excellent
Training needs scale	24 items; Cronbach's alpha = 0.952; Excellent

Research Instrument

A researcher-made structured questionnaire was used as the primary data-gathering instrument. Part I gathered demographic profile data: age, sex, academic performance in research-related subjects, previous research exposure, access to research resources, and primary research resource used. Part II measured research competence across eight dimensions using a four-point Likert scale. Part III measured the extent of training needs using parallel research indicators. Part IV identified preferred seminar-training topics.

The instrument was submitted to expert validation and pilot testing. The reliability results showed excellent internal consistency for the full research competence scale and training needs scale, indicating that the questionnaire consistently measured its intended constructs. Minor wording and formatting revisions were made before final administration.

Data Gathering Procedure

The researcher prepared the final instrument, secured permission from appropriate school authorities, coordinated with program personnel, and administered the questionnaire through an online survey platform. Respondents received an explanation of the study and provided informed consent before answering. Completed responses were checked for completeness, encoded, and prepared for statistical analysis.

Data Analysis

Frequency and percentage were used to describe the demographic profile. Weighted mean and ranking were used to determine the respondents' level of research competence and priority training needs. One-way analysis of variance was used to determine whether significant differences existed in research competence when respondents were grouped according to demographic variables. The hypotheses were tested at the 0.05 level of significance.

Ethical Consideration

The study observed voluntary participation, informed consent, confidentiality, anonymity, and responsible data handling. Respondents were informed that participation or nonparticipation would not affect their academic standing. Data were reported in aggregate form only. The study also followed data privacy principles by collecting only necessary information, storing data securely, and limiting access to authorized persons.

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RESULTS AND DISCUSSION

Demographic Profile of the Respondents

The respondents were mostly 20–21 years old (70.49%) and female (67.76%). Most had grades of 1.51–2.00 in research-related subjects (38.25%), followed by 2.01–2.50 (27.87%). In terms of research exposure, the largest group had presented a research output in class or a school activity (30.60%), while only 2.73% had attended a research seminar or workshop. Most respondents reported limited or moderate access to research resources, and Google Scholar was the most commonly used primary research resource.

Table 2. *Summary of Respondents' Demographic Profile*

Profile variable	Leading category/major finding	Frequency	Percentage
Age	20–21 years old	129	70.49%
Sex	Female	124	67.76%
Research-related grade	1.51–2.00	70	38.25%
Previous research exposure	Presented a research output in class or school activity	56	30.60%
Access to resources	Limited access	66	36.07%
Primary resource used	Google Scholar	73	39.90%

This profile indicates that the respondents were generally within the expected age range for third-year college students and had some course-based research exposure. However, the very low participation in formal research seminars and the limited access to research resources suggest a need for structured capability-building and stronger resource orientation.

Level of Research Competence

The respondents demonstrated low research competence across all eight dimensions. Composite weighted mean scores ranged from 2.260 to 2.326, all interpreted as Disagree or Low Research Competence. Data analysis and interpretation obtained the lowest composite mean, while research writing and presentation obtained the highest mean but still remained in the low competence range.

Table 3. *Summary of Research Competence by Dimension*

Research competence dimension	Composite mean	Interpretation	Key implication
Understanding of research concepts	2.318	Low	Students need stronger foundation in research terms, types, and alignment of questions, objectives, and methods.
Formulation of research problems and objectives	2.282	Low	Students need guided practice in developing researchable problems and aligned objectives.
Review of related literature and studies	2.269	Low	Students need support in source searching, paraphrasing, synthesis, and identifying research gaps.
Research methodology	2.287	Low	Students need training in research design, respondents, sampling, instruments, and data-gathering procedures.
Ethical research practices	2.321	Low	Students need practical orientation on consent, confidentiality, honesty, and avoidance of plagiarism.
Data analysis and interpretation	2.260	Low	This was the weakest area; students need statistics and results interpretation training.
Citation, referencing, and academic integrity	2.294	Low	Students need APA 7th citation, paraphrasing, and reference-list practice.
Research writing and presentation	2.326	Low	This was the highest area but still low; students need writing and presentation workshops.

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These findings support Gacula's (2025) observation that students may show partial familiarity with research tasks but still experience difficulty in literature review, interpretation, and presentation. The low means across all dimensions indicate that the research difficulty was systemic rather than confined to a single research skill.

Extent of Training Needs

The respondents expressed very high training needs across all 24 research training areas. Means ranged from 3.443 to 3.546, showing that the need for research training was broad and urgent. Choosing the appropriate research design ranked first, followed by organizing and encoding survey data and interpreting quantitative results. Other high-priority areas included preparing a valid and clear questionnaire, computing descriptive statistics, presenting findings in tables, using APA 7th edition, and explaining the research gap.

Table 4. *Highest Priority Research Training Needs*

Rank	Training area	Mean	Interpretation
1	Choosing the appropriate research design	3.546	Very High Training Need
2.5	Organizing and encoding survey data	3.530	Very High Training Need
2.5	Interpreting quantitative results	3.530	Very High Training Need
4.5	Preparing a valid and clear questionnaire	3.524	Very High Training Need
4.5	Computing frequency, percentage, weighted mean, and ranking	3.524	Very High Training Need
7	Identifying and explaining the research gap	3.519	Very High Training Need
7	Using APA 7th edition citation and referencing	3.519	Very High Training Need
7	Presenting findings in tables	3.519	Very High Training Need

The training priorities mirror the competence findings. The weakest competence area was data analysis and interpretation, and the highest training priorities also focused on research design, survey data organization, statistical computation, and quantitative interpretation. These results align with Garcia and Pantaleon (2025), who identified statistical concepts, interpretation, and reporting as professional-development needs in research statistics.

Significant Differences by Demographic Profile

Analysis of variance showed no significant differences in respondents' research competence across the tested dimensions when grouped according to demographic profile. All probability values were greater than the 0.05 level of significance. Thus, the null hypothesis was not rejected. The findings indicate that the respondents' research competence limitations were broadly shared and not concentrated in a specific demographic group.

Table 5. *ANOVA Summary for Research Competence*

Research dimension	F	p-value	Decision	Interpretation
Understanding of research concepts	1.197	.316	Failed to reject Ho	Not significant
Formulation of research problems and objectives	1.303	.273	Failed to reject Ho	Not significant
Review of related literature and studies	0.256	.906	Failed to reject Ho	Not significant
Research methodology	1.805	.132	Failed to reject Ho	Not significant
Ethical research practices	0.733	.571	Failed to reject Ho	Not significant
Data analysis and interpretation	0.411	.801	Failed to reject Ho	Not significant
Citation, referencing, and academic integrity	1.045	.387	Failed to reject Ho	Not significant
Research writing and presentation	1.731	.148	Failed to reject Ho	Not significant

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The absence of significant differences implies that the proposed seminar-training program can be offered broadly to the third-year BSBA-HRM cohort. A program-wide intervention is appropriate because students' weaknesses and training needs were common across groups.

Proposed Seminar-Training Program

The proposed Research Capability Enhancement Seminar-Training Program was developed from the low research competence means and very high training-needs means. It prioritizes research foundations, problem formulation, literature synthesis, quantitative methodology, statistics, citation, academic integrity, research writing, results discussion, and presentation.

Table 6. *Proposed Seminar-Training Program*

Session	Training topic	Objectives	Suggested activities	Expected output
1	Research Foundations and Problem Formulation	Strengthen understanding of concepts, variables, research problems, and objectives.	Mini-lecture, guided worksheet, and critique of sample titles and SOPs	Improved title, problem, and objectives
2	Background, Research Gap, and Literature Synthesis	Train students to identify research gaps and synthesize literature.	Literature mapping, source evaluation, and synthesis writing	Draft background and synthesis paragraph
3	Quantitative Research Design and Methodology	Improve understanding of design, respondents, sampling, questionnaires, and data gathering.	Methodology analysis, questionnaire review, and peer checking	Draft methodology framework
4	Basic Statistical Treatment and Data Analysis	Develop ability to compute and interpret frequency, percentage, weighted mean, ranking, and correlation.	Computation drills, spreadsheet practice, and table interpretation	Computed and interpreted sample results
5	APA Citation, Referencing, and Academic Integrity	Improve citation, paraphrasing, and referencing using APA 7th edition.	Citation exercises, paraphrasing drills, and plagiarism-awareness activity	Corrected APA citations and references
6	Research Writing, Results Discussion, and Presentation	Strengthen results writing, discussion, presentation, and defense readiness.	Results-writing workshop, mock defense, and oral presentation practice	Draft results discussion and presentation outline

CONCLUSION

The study concludes that Third-Year BSBA Human Resource Management students at Colegio de Montalban had limited research competence across all assessed dimensions. Although the respondents had some research-related exposure and generally satisfactory grades in research-related subjects, they did not perceive themselves as sufficiently competent in performing essential research tasks. The weakest area was data analysis and interpretation, indicating a clear need for statistical literacy and results-interpretation training.

The respondents also demonstrated very high training needs across all research areas. The strongest training priorities were research design selection, survey-data organization, quantitative interpretation, questionnaire preparation, descriptive statistics, research-gap identification, APA citation, and tabular presentation of findings. These needs show that students require practical, guided, and skills-based research training rather than general orientation alone.

The absence of significant differences in research competence across demographic groups indicates that research difficulties were shared by the student population as a whole. Therefore, the proposed seminar-training program should be implemented as a cohort-wide academic intervention that supports the research readiness of all third-year BSBA-HRM students.

Recommendation

Colegio de Montalban should implement a comprehensive research enhancement program for Third-Year BSBA Human Resource Management students, focusing on foundational research concepts, problem formulation, literature review, methodology, data analysis, citation, ethics, research writing, and presentation. The proposed seminar-training program may be adopted as an initial framework for this intervention.

The college administration should improve students' access to research resources by strengthening library services, increasing access to academic databases, supporting the use of Google Scholar and online journals, and providing orientation on source evaluation and responsible academic information use.

Research instructors should integrate more hands-on activities into research-related subjects, including title critiquing, literature mapping, questionnaire construction, spreadsheet-based data encoding, descriptive-statistics drills, APA citation exercises, and mock research presentations. Special attention should be given to data analysis and interpretation because this was the weakest competence area.

Students should be encouraged to participate in research seminars, colloquia, workshops, and research presentations to strengthen confidence and practical exposure. Future researchers may replicate the study in other programs or institutions and may evaluate the effectiveness of the proposed seminar-training program through a pretest-posttest or follow-up assessment design.

References

Aldeguer, C. A. (2025). Research competence of Grade 10 students in relation to demographic profile: Implications for educational intervention. Psychology and Education: A Multidisciplinary Journal, 48(1), 114–127. https://doi.org/10.70838/pemj.480109

Bujang, M. A., Omar, E. D., Foo, D. H. P., & Hon, Y. K. (2024). Sample size determination for conducting a pilot study to assess reliability of a questionnaire. Restorative Dentistry & Endodontics, 49(1), Article e3. https://doi.org/10.5395/rde.2024.49.e3

Classmate.ph. (2023, June 29). Colegio de Montalban. https://classmate.ph/colegio-de-montalban/

Creswell, J. W., & Creswell, J. D. (2023). Research design: Qualitative, quantitative, and mixed methods approaches (6th ed.). SAGE Publications.

De Jesus, L. F., Galita, W. M., Antonio, L. D. G., De Jesus, A. N. B., & Tuazon, C. B. (2025). Examining graduate students' research performance through competency and information-seeking skills. Educational Process: International Journal, 18, Article e2025453. https://doi.org/10.22521/edupij.2025.18.453

Department of Economy, Planning, and Development. (2025). Philippine Development Plan 2023–2028 2025 midterm update. https://pdp.depdev.gov.ph/philippine-development-plan-2023-2028-midterm-update/

Gacula, A. Q. (2025). Research competencies of college students in a public higher education institution in Ilocos Sur, Philippines: Bases for a capacity building program. International Journal of Research Studies in Education, 14(16), 1–11. https://doi.org/10.5861/ijrse.2025.25281

Garcia, M. T. T., & Pantaleon, A. P. (2025). Statistical literacy among MAEd students: A needs assessment for a professional development program in research statistics. Asian Journal of Education and Social Studies, 51(10), 520–533. https://doi.org/10.9734/ajess/2025/v51i102511

George-Reyes, C. E., López-Caudana, E. O., & Ramírez-Montoya, M. S. (2023). Research competencies in university students: Intertwining complex thinking and Education 4.0. Contemporary Educational Technology, 15(4), Article ep478. https://doi.org/10.30935/cedtech/13767

Izah, S. C., Sylva, L., & Hait, M. (2024). Cronbach's alpha: A cornerstone in ensuring reliability and validity in environmental health assessment. ES Energy & Environment, 23, Article 1057. https://doi.org/10.30919/esee1057

Kidder, D. P., Fierro, L. A., Luna, E., Salvaggio, H., McWhorter, A., Bowen, S.-A., Murphy-Hoefer, R., Thigpen, S., Alexander, D., Armstead, T. L., August, E., Bruce, D., Clarke, S. N., Davis, C., Downes, A., Gill, S., House, L. D., Kerzner, M., Kun, K., & CDC Evaluation Framework Work Group. (2024). CDC program evaluation framework, 2024. MMWR Recommendations and Reports, 73(6), 1–37. https://doi.org/10.15585/mmwr.rr7306a1

López-Caudana, E. O., George-Reyes, C. E., & Avello-Martínez, R. (2024). Developing the skills for complex thinking research: A case study using social robotics to produce scientific papers. Frontiers in Education, 9, Article 1322727. https://doi.org/10.3389/feduc.2024.1322727

National Privacy Commission. (n.d.). Republic Act 10173: Data Privacy Act of 2012. https://privacy.gov.ph/data-privacy-act/

Philippine Health Research Ethics Board. (2022). National ethical guidelines for research involving human participants. https://www.pchrd.dost.gov.ph/wp-content/uploads/2023/05/2022-NEGRIHP_Official-Gazatte_Ver-5-1.pdf

Ranganathan, P., Caduff, C., & Frampton, C. M. A. (2023). Designing and validating a research questionnaire—Part 1. Perspectives in Clinical Research, 14(3), 152–155. https://doi.org/10.4103/picr.picr_140_23

Ranganathan, P., Caduff, C., & Frampton, C. M. A. (2024). Designing and validating a research questionnaire—Part 2. Perspectives in Clinical Research, 15(1), 42–45. https://doi.org/10.4103/picr.picr_318_23

Simovic, V., Domazet, D., & Stojanovic, M. (2023). The association of socio-demographic characteristics of university students and digital education competence acquisition. BMC Medical Education, 23, Article 777. https://doi.org/10.1186/s12909-023-04754-8

Tapullima-Mori, C., Pizzan-Tomanguillo, S. L., Pizzan-Tomanguillo, N. de P., Vásquez-Sánchez, M., & Soria-Quijaite, J. J. (2025). Charting the path to excellence: A review of research competencies in university students. Journal of Technology and Science Education, 15(2), 364–379. https://doi.org/10.3926/jotse.2729

United Nations Statistics Division. (2025). The sustainable development goals report 2025. https://unstats.un.org/sdgs/report/2025/

Zahro', A., Muzzazinah, & Ramli, M. (2025). Research skills training implementation and challenges in undergraduate students. Journal of Education and Learning, 19(2), 880–889. https://doi.org/10.11591/edulearn.v19i2.21326