ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 10| October 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

THE RELATIONSHIP BETWEEN LEARNING ENVIRONMENT AND ACADEMIC ENGAGEMENT OF FIRST YEAR COLLEGE OF COMPUTER STUDIES (CCS) STUDENTS IN ESSU CAN-AVID

Ruby Jane G. Guldarase[1], Faith Glyndel C. Balena[2], Nadine P. Bajado[3], Jean Mae P. Dalina[4], Liala J. Chentes[5]

[1-5]BEED Students, Eastern Samar State University-Can-avid, Can-avid Eastern Samar

ABSTRACT

This study determined the perceived learning environment, the level of academic engagement, and the relationship between the two variables among first-year CCS students at Eastern Samar State University Can-Avid Campus. Specifically, the study assessed the learning environment in terms of seating and classroom space, lighting and ventilation, and availability of learning and instructional materials. It also determined academic engagement in terms of cognitive, affective, and psychomotor engagement. A descriptive-correlational research design was employed. The respondents consisted of 208 first-year CCS. Data were collected using a researcher-created questionnaire entitled Learning Environment and Academic Engagement Questionnaire. Frequency, percentage, mean, and standard deviation were used to describe the data, while Spearman's rank correlation coefficient was used to determine the relationship between the learning environment and academic engagement at the 0.05 level of significance. Results revealed that the overall perceived learning environment was High (M = 2.57, SD = 0.45), with the availability of learning and instructional materials obtaining the highest mean among the three dimensions (M = 2.61). The overall level of academic engagement was Very High (M = 3.54, SD = 0.40), with psychomotor engagement obtaining the highest mean (M = 3.58). The results of the correlation analysis showed that there was no statistically significant relationship between the perceived learning environment and academic engagement (ρ = −0.118, p = .093). The supplementary Pearson correlation also indicated no statistically significant linear relationship (r = .002, p = .973). Therefore, the study failed to reject the null hypothesis at the 0.05 level of significance.

KEYWORDS: *Learning Environment, Academic Engagement, First-Year Students, Classroom Environment, CCS.*

INTRODUCTION

The learning environment is an important part of students' education because it includes physical classroom conditions such as seating, lighting, ventilation, and instructional materials. A supportive learning environment encourages students to focus on their lessons and participate actively in school activities, whereas a poor learning environment may make it difficult for students to concentrate and may reduce their overall engagement. Recent global research indicates that classroom factors such as ventilation, lighting, and comfortable furniture are associated with increased student focus and active participation, demonstrating that the physical conditions of a school may influence how students engage in the learning process.

Many higher education institutions in Asia face challenges in providing adequate learning environments as populations grow and cities expand. Classrooms in developing Asian countries may be overcrowded and may lack adequate climate control, which can affect student motivation and cognitive processing. When university environments do not adequately address factors such as room temperature, humidity, and airflow, students may experience visual and mental fatigue. According to regional studies, poor classroom comfort may reduce student concentration and academic engagement, particularly in areas with limited resources (Olaseni & Saziwa, 2024).

In the Philippines, state colleges and universities continue to face challenges in providing a comfortable physical learning environment. Common concerns include inadequate instructional materials, poor classroom ventilation, and limited classroom space. These conditions may have a significant impact on first-year students, who are still adjusting to college life and may be more affected by their immediate surroundings (Cruz & Santos, 2023). Local studies in provinces such as Nueva Ecija have also identified concerns related to classroom conditions, particularly seating arrangements and room temperature. When classrooms are too hot or overcrowded, students may experience reduced interest and academic engagement (Ramos & Dela Cruz, 2024).

In this context, the researchers sought to determine whether first-year students of the College of Computer Studies (CCS) at Eastern Samar State University (ESSU)–Can-avid Campus experience similar environmental challenges. The study focuses on classroom conditions such as the availability of chairs and tables, classroom space, natural ventilation, room temperature, and the availability of up-to-date educational equipment. It also seeks to determine whether these physical conditions are related to students' academic engagement during lectures, discussions, and other learning activities.

These considerations provided the basis for conducting the study on the relationship between the learning environment and the academic engagement of first-year students at ESSU–Can-avid Campus. The study aims to describe the current learning environment experienced by the respondents and examine its relationship with their academic engagement. The findings may assist school officials in

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 10| October 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

identifying areas of the learning environment that may need improvement and in considering students' feedback when planning for the needs of current and future students.

Objectives of the Study

The primary objective of this study is to determine the relationship between the learning environment and the academic engagement of first-year CCS students at Eastern Samar State University (ESSU) Can-Avid Campus.

1, What is the status of the learning environment as perceived by the first-year CCS students of ESSU Can-Avid in terms of:

1.1 Seating and classroom space;
1.2 Lighting and ventilation; and
1.3 Availability of learning and instructional materials?

2. What is the level of academic engagement of the first-year students in ESSU Can-Avid across the following dimensions:

2.1 Cognitive engagement;
2.2 Affective engagement; and
2.3 Psychomotor engagement?

3. Is there a significant relationship between the perceived quality of the learning environment and the level of academic engagement of the first-year CCS students at ESSU Can-Avid?

METHODOLOGY

Research Design

This study used a descriptive-correlational research design. The descriptive approach was used to assess the learning environment as perceived by first-year CCS students in terms of seating and classroom space, lighting and ventilation, and the availability of learning and instructional materials. It also determined the level of academic engagement of the students in terms of cognitive, affective, and psychomotor engagement.

The correlational approach was used to determine whether there was a significant relationship between the perceived learning environment and the academic engagement of first-year CCS students at ESSU–Can-avid Campus.

Locale of the Study

The study was conducted at Eastern Samar State University (ESSU) Can-avid Campus, located in Can-avid, Eastern Samar. The campus is selected as the locale because the study focuses on the actual learning environment and academic engagement of first-year students who directly use its classroom facilities. The setting allowed the researchers to gather students' perceptions regarding seating and classroom space, lighting and ventilation, and the availability of learning and instructional materials, as well as their reported cognitive, affective, and psychomotor engagement.

Respondents of the Study

The respondents of the study were first-year CCS students of Eastern Samar State University (ESSU)–Can-avid Campus during the academic year covered by the study. They were selected because they directly used the classroom facilities being assessed and were therefore able to provide relevant information about the learning environment and their academic engagement.

Research Instruments

The primary instrument used in this study was a researcher-created questionnaire titled “Learning Environment and Academic Engagement Questionnaire.” The questionnaire was developed based on the objectives of the study and related literature on student learning environments and academic engagement.The instrument was designed to assess the first-year students' perceptions of the learning environment at ESSU–Can-avid Campus and their level of academic engagement. The data gathered through the questionnaire were used to determine whether there was a significant relationship between the perceived learning environment and the students' academic engagement.

Data Gathering

The researchers began by asking the school administration for approval to conduct our research. After they agreed, the researchers met with the first-year CCS students to explain the research and give them the questionnaires. Since it was a self-administered survey, the students read and answered the questions themselves, though the researchers were right there to help if they got stuck. Finally, the researches collected all the completed papers and sorted them so they could start looking at the data.

Analysis of Data

To process the collected data and address the specific objectives of the study, the following statistical tools were used through appropriate statistical software:

Frequency Count and Percentage. These statistical tools were utilized to present and analyzethe demographic profile of the respondents in terms of age, gender, and academic program. The results provided a clear and systematic summary of the respondents' demographic characteristics.

Weighted Mean. This descriptive statistical tool was used to determine the average scores of the respondents in terms of their learning environment and academic engagement. The resulting weighted means were used to describe the respondents’ perceptions of their learning environment and their level of academic engagement based on the established interpretation scale.

Pearson Product-Moment Correlation Coefficient (r). This inferential statistical tool was used to determine whether a significant relationship existed between the learning environment and academic engagement of first-year students at ESSU Can-Avid. The analysis utilized the computed scores for the respondents’ learning environment and academic engagement. The level of significance was set at 0.05.

Ethical Considerations

The study was conducted in compliance with the ethical considerations for research. First, the researchers obtained approval from the school administration before conducting the study. The respondents were informed that their participation in the survey was entirely voluntary and that they had the right to choose whether to participate. They were also assured that their responses and personal information would be kept confidential and used solely for research purposes. In addition, the researchers ensured that the information gathered was accurately and truthfully reported. No data were falsified,

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 10| October 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

altered, or misrepresented in the presentation and reporting of the findings.

RESULTS

Table 1. ***Age and Sex of the Respondents***

Variable and category	*n*	%
Age		
17–18 years old	82	39.42
19–20 years old	108	51.92
21 years old and above	18	8.65
Sex		
Male	98	47.12
Female	110	52.88

Note. N = 208. Percentages use the complete sample and may total 99.99% because of rounding.

Most respondents were aged 19–20 years (108, 51.92%), followed by 17–18 years (82, 39.42%) and 21 years and above (18, 8.65%). There were 110 female respondents (52.88%) and 98 male respondents (47.12%). These counts do not establish differences in engagement or classroom perceptions by age or sex.

Perceived Learning Environment

Table 2. ***Item-Level Ratings of the Learning Environment.*** **Presents the 15 indicators of seating and classroom space, lighting and ventilation, and availability of learning and instructional materials.**

Indicator	*M*	*SD*	Interpretation
Seating and Classroom Space			
SCS1. The classroom has enough chairs and tables for the students.	2.49	0.79	Moderate
SCS2. The chairs and tables are comfortable for classroom activities.	2.63	0.66	High
SCS3. The seating arrangement allows students to participate comfortably in class activities.	2.63	0.67	High
SCS4. There is enough classroom space for students to move comfortably during learning activities	2.50	0.70	Moderate
SCS5. The classroom has enough space to accommodate students without feeling overcrowded.	2.59	0.69	High
Lighting and Ventilation			
LV1. The classroom has adequate lighting for reading and other learning activities.	2.53	0.74	High
LV2. Natural light provides sufficient illumination inside the classroom.	2.63	0.65	High
LV3. The classroom has adequate ventilation during classes.	2.49	0.72	Moderate
LV4. The temperature inside the classroom is comfortable during learning activities.	2.50	0.70	Moderate
LV5. The classroom has sufficient air circulation during class discussions and activities	2.51	0.67	High
Availability of Learning and Instructional Materials			
ALIM1. Learning and instructional materials are available when needed during lessons.	2.58	0.70	High
ALIM2. The classroom has appropriate visual or instructional materials that support lessons	2.62	0.64	High
ALIM3. Learning materials provided in class help support students' understanding of lessons.	2.61	0.63	High
ALIM4. Sufficient learning resources are available for classroom activities.	2.53	0.69	High
ALIM5. The available instructional materials are appropriate for the learning conducted in class	2.71	0.62	High

Note. n = 208 per item. M = mean; SD = sample standard deviation. Item wording follows the supplied questionnaire; codes identify the matching columns in the analysis workbook.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 10| October 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

Eleven indicators were classified as High and four as Moderate. The appropriateness of instructional materials (ALIM5) had the highest mean (M = 2.71, SD = 0.62). Chair and table sufficiency (SCS1; M = 2.49, SD = 0.79) and adequate ventilation (LV3; M = 2.49, SD = 0.72) shared the lowest reported mean. Space for movement (SCS4) and temperature comfort (LV4) each obtained M = 2.50 and remained Moderate under the supplied scale.

The pattern distinguishes perceived material suitability from some less favorably rated physical conditions. It does not establish that all rooms were overcrowded or poorly ventilated. These are students' perceptions, not furniture counts or environmental measurements. Item differences are descriptive; the study did not test differences between indicators.

Academic Engagement

Table 3. ***Item-Level Ratings of Academic Engagement.*** **Presents the 15 cognitive, affective, and psychomotor engagement indicators using the terminology of the administered questionnaire.**

Indicator	*M*	*SD*	Interpretation
Cognitive Engagement			
CE1. I pay close attention during classroom discussions.	3.54	0.64	Very High
CE2. I concentrate on the lesson while my teacher is discussing.	3.55	0.60	Very High
CE3. I think carefully about the ideas and information presented during class.	3.47	0.60	High
CE4. I make an effort to understand difficult lessons or concepts.	3.51	0.62	Very High
CE5. I actively think about possible solutions when working on classroom problems or activities	3.54	0.60	Very High
Affective Engagement			
AE1. I feel interested in the lessons discussed in class.	3.47	0.59	High
AE2. I feel motivated to attend my classes.	3.56	0.58	Very High
AE3. I enjoy participating in classroom discussions and activities.	3.58	0.63	Very High
AE4. I feel comfortable participating in learning activities in my classroom.	3.48	0.56	High
AE5. I maintain a positive attitude toward my learning activities.	3.55	0.60	Very High
Psychomotor Engagement			
PE1. I actively participate in classroom activities.	3.53	0.54	Very High
PE2. I participate in hands-on or practical learning activities when required.	3.65	0.54	Very High
PE3. I participate actively in group activities with my classmates.	3.59	0.55	Very High
PE4. I take part in activities that require me to perform or demonstrate what I have learned.	3.54	0.55	Very High
PE5. I actively carry out the tasks assigned during classroom learning activities.	3.59	0.55	Very High

Note. n = 208 per item. M = mean; SD = sample standard deviation. Part III asks how often statements describe experience but do not name each frequency anchor; none has been invented here.

Twelve indicators were Very High and three were High. Hands-on or practical participation (PE2) had the highest mean (M = 3.65, SD = 0.54). Group participation and task completion (PE3 and PE5) each obtained M = 3.59. These favorable self-reports do not independently establish performance quality or mastery of course outcomes.

Thinking carefully about ideas (CE3; M = 3.47), lesson interest (AE1; M = 3.47), and participation comfort (AE4; M = 3.48) were relatively lower but remained High. Thus, visible participation should not be equated with uniformly strong reflection, interest, or comfort. These descriptive differences were not tested for statistical significance.

Dimension and Overall Results

Table 4. ***Descriptive Statistics for Dimension and Overall Mean Scores***

Scale	*M*	*SD*	Median	Interpretation
Seating and Classroom Space	2.57	0.53	2.40	High
Lighting and Ventilation	2.53	0.51	2.40	High
Availability of Learning and Instructional Materials	2.61	0.50	2.60	High
Cognitive Engagement	3.52	0.48	3.80	Very High
Affective Engagement	3.53	0.44	3.60	Very High
Psychomotor Engagement	3.58	0.40	3.80	Very High
Overall Learning Environment	2.57	0.45	2.47	High
Overall Academic Engagement	3.54	0.40	3.67	Very High

Note. n = 208 for every row. Dimension scores average five items; overall scores average 15 items. SD describes variation between respondents' mean scores.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 10| October 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

Interpretation

Learning environment was High (*M* = 2.57, *SD* = 0.45). Materials (2.61), seating and space (2.57), and lighting and ventilation (2.53) were all close to the lower boundary of High, qualifying the favorable overall label.

Engagement was Very High (*M* = 3.54, *SD* = 0.40). Psychomotor (3.58), affective (3.53), and cognitive engagement (3.52) were favorably rated. These small differences were descriptive, not tested.

Lower environmental ratings can guide classroom review, while favorable engagement ratings identify reported strengths. Read group labels alongside individual classifications. Neither the labels nor the numerical difference between constructs establishes a respondent-level relationship.

Distribution of Individual Mean-Score Classifications

Table 5. ***Distribution of Respondents by Overall Mean-Score Classification***

Classification	Environment *n*	Environment %	Engagement *n*	Engagement %
Very High	14	6.73	142	68.27
High	85	40.87	64	30.77
Moderate	109	52.40	2	0.96
Low	0	0.00	0	0.00

Note. N = 208 for each construct. Individual mean scores were classified using Table 1. A High group mean does not imply that most individuals fall in the High category.

Despite the High group environment mean, 109 respondents (52.40%) had Moderate individual scores, 85 (40.87%) had High scores, and 14 (6.73%) had Very High scores. None were Low. The environmental median of 2.47 was also Moderate. Therefore, a high group mean does not imply that most respondents were in that category.

Engagement was Very High for 142 respondents (68.27%), High for 64 (30.77%), and Moderate for two (0.96%); none were Low. These separate distributions do not identify respondents' paired classifications or establish a relationship between the constructs.

Individual distributions prevent the overall mean from obscuring the Moderate environment group's concerns. Anonymous follow-up could identify the rooms, activities, or class periods associated with lower ratings. Engagement support should remain available despite the favorable group profile. A score category alone does not establish why a student responded as they did.

Monitoring should retain numerical scores and classifications, so that specific changes in conditions and experiences are not reduced to a shift in the group label.

Table 6. ***Association Between the Two Overall Mean Scores***

Analysis	*n*	Coefficient	95% CI	*p*
Spearman (rank-based)	208	-.118	[-.264, .037]	.093
Pearson (linear)	208	.002	[-.134, .138]	.973

Note: Significant at alpha level a=0.05

The findings revealed that there was no statistically significant relationship between the learning environment and academic engagement of the 208 first-year students at ESSU Can-Avid. The Spearman correlation showed a weak negative association ($\rho = -0.118$, $p = 0.093$), while the Pearson correlation indicated almost no linear relationship ($r = 0.002$, $p = 0.973$). Since both p-values exceeded the 0.05 level of significance, the null hypothesis was not rejected. This indicates that the study did not establish a significant relationship between the two variables. However, the findings do not prove that the learning environment has no influence on academic engagement. Despite the nonsignificant relationship, improvements in classroom facilities, particularly furniture, ventilation, and temperature comfort, are still recommended to provide students with a more conducive learning environment.

CONCLUSIONS

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

1. There was no significant relationship between the perceived learning environment and the academic engagement of first-year CCS students. The statistical analysis failed to reject the null hypothesis at the 0.05 level of significance.
2. The respondents generally rated their learning environment as **High**. However, they identified some physical aspects of the learning environment, particularly the availability of chairs, classroom size, ventilation, and comfortable temperature, as areas with relatively lower ratings.
3. Despite the identified physical limitations, the respondents demonstrated a **Very High** level of academic engagement across the cognitive, affective, and psychomotor dimensions.
4. The findings indicate that the perceived learning environment was not significantly related to the academic engagement of first-year CCS students. Thus, variations in the students' perceptions of their learning environment were not statistically associated with variations in their academic engagement based on the results of the study.

RECOMMENDATIONS

Based on the findings and conclusions of the study, the following recommendations are presented:

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 10| October 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

1. **School Administrators and Facilities Managers**. Should conduct focused room assessments with an emphasis on the moderately rated indicators, particularly inspecting the chair and availability of tables, the number of seats available in the classroom, and any cooling or ventilation systems in use during class.
2. **Faculty Members**. Keep implementing practical, hands-on group activities that promote high psychomotor engagement while offering instructional support to facilitate students' comfort and reflection.
3. **Students.** Students should be encouraged to take an active role in maintaining classroom cleanliness, following classroom rules, participating in academic activities, and providing constructive feedback regarding the conditions of their learning environment.
4. **Future Researchers.** To learn more about the factors influencing student engagement, conduct additional research using explicit survey response anchors, direct measurements of environmental conditions (like physical room audits), and classroom observations.

REFERENCES

1. *Al-Otaibi, K. (2024). Classroom environmental conditions, thermal comfort, and cognitive performance in higher education. Journal of Educational Environment and Health, 18(2), 112–125.*
2. *Al-Qahtani, M. (2023). Acoustic quality, classroom temperature, and student engagement in tertiary education. International Journal of Environmental Research and Public Education, 15(4), 201–215.*
3. *Aquino, R., & Salazar, M. (2024). Environmental comfort and physical facility conditions in rural state universities. Philippine Journal of Higher Education Development, 8(1), 45–59.*
4. *Bautista, J., & Mercado, L. (2023). Classroom technology and academic performance among first-year university students in the Ilocos Region. Journal of Educational Technology and Society, 11(2), 88–102.*
5. *Brooks, D. C. (2011). Space matters: The impact of formal learning environments on student learning. British Journal of Educational Technology, 42(5), 719–726. https://doi.org/10.1111/j.1467-8535.2010.01098.x*
6. *Buan, A., Del Rosario, C., & Santos, E. (2024). Resource constraints and instructional physical layouts in Mindanao public colleges. Journal of Philippine Education and Learning, 19(1), 34–48.*
7. *Castillo, D. (2025). Classroom space, learning layout, and collaborative participation among first-year business students. Davao Educational Review, 7(1), 14–29.*
8. *Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16(3), 297–334. https://doi.org/10.1007/BF02310555*
9. *Cruz, A., & Santos, M. (2023). Classroom facilities and the academic adjustment of first-year college students in public universities. Philippine Journal of Development Education, 12(3), 145–160.*
10. *Delos Santos, K., & Macapagal, J. (2024). Academic fatigue, classroom environment, and absenteeism in Philippine higher education. Asian Journal of University Research, 9(2), 77–91.*
11. *Fernandez, P., & Reyes, G. (2024). Classroom cleanliness, facility maintenance, and student motivation among undergraduate students in Southern Tagalog. Journal of Institutional Research and Evaluation, 6(2), 101–114.*
12. *Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. Review of Educational Research, 74(1), 59–109. https://doi.org/10.3102/00346543074001059*
13. *Gonzales, R. (2023). Classroom overcrowding, student stress, and concentration among first-year college students. Visayas Journal of Educational Psychology, 10(1), 55–68.*
14. *Jackson, K., & Taylor, S. (2025). Comparative impact of flexible seating and traditional classrooms on team dynamics and participation. Journal of Learning Space Design, 14(1), 22–37.*
15. *Kumar, A., & Patel, R. (2024). Multimedia integration, instructional resources, and conceptual understanding in engineering education. International Journal of Engineering Pedagogy, 14(3), 180–195.*
16. *Macaranas, C., & Tolentino, E. (2023). Classroom temperature, ventilation, and academic performance among teacher education students. Central Luzon Educational Review, 15(2), 89–103.*
17. *Martinez-Sánchez, L., Gomez, H., & Ruiz, V. (2023). Perceptions of classroom aesthetic cleanliness and academic self-confidence. European Journal of Higher Education Studies, 21(4), 310–324.*
18. *Müller, H., Weber, J., & Becker, K. (2023). Automated ventilation systems, lighting quality, and cognitive focus in secondary and tertiary settings. European Journal of Educational Psychology, 38(2), 205–220.*
19. *Nguyen, T., & Le, H. (2023). Physical maintenance, classroom environment, and student retention in Vietnamese higher education. Asian Pacific Education Review, 24(3), 411–425.*
20. *Olaseni, O., & Saziwa, M. (2024). Classroom environmental quality, ventilation, and cognitive engagement in global higher education. International Journal of Educational Facilities, 8(1), 15–29.*
21. *Ramos, E., & Dela Cruz, J. (2024). Classroom environment and learning engagement among first-year college students in Manila. Journal of Asian Educational Studies, 16(1), 33–47.*
22. *Rossi, M., & Bianchi, L. (2024). Ergonomic seating interventions and concentration stability in lecture halls. Italian Journal of Educational Research, 19(2), 67–81.*
23. *Salvatierra, R., & Diaz, M. (2024). Classroom infrastructure, environmental challenges, and academic performance among first-year college students. Samar Higher Education Journal, 5(1), 40–53.*
24. *Sijtsma, K. (2009). On the use, the misuse, and the very limited usefulness of Cronbach's alpha. Psychometrika, 74(1), 107–120. https://doi.org/10.1007/s11336-008-9101-0*
25. *Silva, R., & Santos, F. (2024). Environmental dissatisfaction and early dropout intentions among undergraduate students. South American Journal of Tertiary Education, 11(2), 112–126.*
26. *Smith, A., & Brooks, E. (2023). Spatial limitations, classroom overcrowding, and student anxiety in first-year university cohorts. Higher Education Research & Development, 42(4), 980–994.*
27. *Soriano, F. (2024). Classroom lighting, eye strain, and laboratory performance among engineering freshmen. Bicol Educational Research Journal, 8(2), 62–75.*
28. *Tan, K., & Ibrahim, M. (2023). Ergonomic physical conditions, technology availability, and active engagement in Malaysian universities. Journal of Southeast Asian Higher Education, 29(1), 50–64.*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 12| Issue: 10| October 2026|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2026: 8.753 || ISI Value: 1.188

29. *The SciPy community. (n.d.-a). pearsonr. SciPy reference guide. https://docs.scipy.org/doc/scipy/reference/generated/scipy.stats.pearsonr.html*
30. *The SciPy community. (n.d.-b). spearmanr. SciPy reference guide. https://docs.scipy.org/doc/scipy/reference/generated/scipy.stats.spearmanr.html*
31. *Villafuerte, D., & Legaspi, N. (2025). Physical learning environment, classroom facilities, and academic performance among first-year university students in Leyte. Leyte Academic Journal, 6(1), 18–31.*
32. *Wasserstein, R. L., & Lazar, N. A. (2016). The ASA's statement on p-values: Context, process, and purpose. The American Statistician, 70(2), 129–133. https://doi.org/10.1080/00031305.2016.1154108*
33. *Zhou, Y. (2025). Facilities quality, self-efficacy, and cognitive performance: A structural equation modeling approach. Journal of Asian Educational Research, 33(1), 102–118.*
34. *Zhou, Y., & Kim, H. (2023). Movable furniture and active learning design in higher education classrooms. Journal of Active Learning Solutions, 12(2), 89–104.*