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The Relationship between Learning Environment and Academic Performance of Students

Nur Shuhada Najua Elly Shahrulnizam[1], Siti Aisyah Salim[2]*

[1] *Department of Management and Technology, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, 86400, MALAYSIA*
[2] *Department of Information Systems, Faculty of Management, Universiti Teknologi Malaysia, Skudai, Johor, 81310, MALAYSIA*

*Corresponding Author: aisyahsalim@utm.my
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Abstract

The quality of education in Malaysia has been the focus of numerous governmental initiatives aimed at meeting global standards and producing competitive graduates. Despite these efforts, academic performance in Malaysian higher education institutions, including Universiti Tun Hussein Onn Malaysia (UTHM), remains inconsistent and often falls below expectations. The learning environment is recognised as a crucial factor influencing students' academic performance, encompassing both physical aspects, such as facilities and class environment, and social aspects, such as interactions with peers and lecturers. However, challenges persist, as the impact of the learning environment on academic outcomes is not sufficiently explored in the Malaysian higher education context. Existing studies have primarily concentrated on individual factors like socioeconomic status or teaching strategies, leaving a gap in understanding how the overall learning environment affects academic performance. Addressing this gap is essential for designing effective interventions to enhance education quality. This study aims to investigate the relationship between the learning environment and academic performance among UTHM students. A quantitative research approach was employed, with data collected via an online survey from 267 respondents. Analysis using the Statistical Package for Social Science (SPSS) software revealed a significant positive relationship between all variables, with the class environment showing the strongest correlation (coefficient of 0.842). These findings highlight the importance of optimising the learning environment to improve motivation, interest, and academic success. The study offers practical recommendations for policymakers and educators to enhance learning conditions in Malaysian higher education.

1. Introduction

Education in Malaysia has experienced significant transformations to meet global standards and produce competitive graduates. Various initiatives and policies, such as the Malaysia Education Development Plan 2013-2025 (Ministry of Education Malaysia, 2022), have been implemented to enhance education quality, particularly in higher education institutions. Despite these efforts, challenges remain in ensuring consistent academic

performance among students. The learning environment plays a pivotal role in influencing students' academic outcomes. Studies (e.g., Abdullah *et al*., 2021) suggest that a conducive learning environment enhances motivation and interest, thereby improving performance. This encompasses physical factors like facilities and equipment, alongside psychosocial elements such as classroom atmosphere and interactions with peers and lecturers (Azman & Mahmud, 2020). A supportive environment fosters active learning and better engagement between students and educators. Nonetheless, unsatisfactory academic performance in Malaysian higher education institutions persists as a concern. Both internal factors, such as student motivation and attitude, and external factors, like family support and the learning environment, significantly influence outcomes (Norasmah & Khalid, 2019). The integration of technology and e-learning presents additional opportunities for improvement. E-learning offers benefits like flexibility, extensive educational resources, and interactive technologies, yet its success is contingent on creating a conducive and well-supported learning environment (Umaroh & Barmawi, 2022).

Despite significant advancements in Malaysian higher education, challenges affecting students' academic performance persist. One major issue is the inconsistent academic performance of students, which undermines their future job prospects, graduate competitiveness, and Malaysia's broader developmental goals (Bodkhe, 2023). While factors such as socio-economic status, teaching quality, and individual capabilities have been extensively studied (Selvitopu & Kaya, 2021), insufficient attention has been given to the role of the learning environment, including both physical and social aspects, in shaping academic outcomes (Rach & Lounis, 2020).

A review of the literature reveals a limited focus on the influence of the learning environment in higher education, particularly in Malaysia. Studies often overlook aspects such as the adequacy of facilities, cleanliness, technology integration, and the social climate among students and faculty (Mantooth *et al*., 2020). This gap is especially evident in the Malaysian context, where little empirical evidence connects learning environment factors with academic performance outcomes. Moreover, previous research predominantly centres on international contexts or specific aspects of the learning environment without providing a comprehensive analysis. Studies in developed countries often emphasize advanced technological facilities or socio-cultural factors that may not fully align with the challenges faced by Malaysian students. There is also a noticeable lack of research that considers both the physical and social dimensions of the learning environment simultaneously.

2. Literature Review

2.1 Academic Performance

Academic performance, often measured by grades, test scores, and overall outcomes, reflects the education system's effectiveness and students' ability to apply their knowledge and skills (Bai *et al*., 2022). Factors influencing performance include individual characteristics like motivation and learning styles, teaching quality, and external support systems (Briones *et al*., 2022). A sense of belonging and student engagement significantly impact academic success (Pedler *et al*., 2021). Participation in academic and co-curricular activities fosters a supportive environment, enhancing enthusiasm for learning and academic outcomes. High performance is linked to better career opportunities, personal growth, and higher education prospects (Kushwaha & Dube, 2023). Teaching quality is crucial, with experienced educators employing effective methods, including educational technology and active learning, to improve comprehension and engagement (Zeng *et al*., 2020; Wekerle *et al*., 2020). External support systems, such as mentoring, counselling, and learning resources, also play a vital role in addressing challenges and maintaining student motivation (Odutayo & Ramsaroop, 2023; Pedler *et al*., 2021).

2.2 Learning Environment

The learning environment, which includes both physical and psychosocial elements, plays a crucial role in shaping students' learning experiences. Key aspects include classroom management, lecturer-student interactions, peer relationships, and the overall institutional climate (Closs *et al*., 2021). A positive learning environment fosters engagement, motivation, and academic success (Cayubit, 2021). Research by Preeti (2020) emphasizes the importance of a supportive environment where students feel safe, respected, and encouraged, which reduces stress and promotes positive attitudes toward learning. Effective classroom management and constructive communication are also vital in creating a conducive environment.

2.2.1 Functional Usage Barriers

Challenges in accessing and utilising learning resources, such as outdated technology or poorly maintained facilities, hinder effective engagement. Limited access to modern educational tools reduces the benefits of interactive and online learning, negatively impacting academic outcomes (Bai *et al*., 2022).

2.2.2 Risk Barriers

Emotional and psychological obstacles, such as fear of failure or negative peer influences, deter active participation in learning activities. A safe and supportive environment is crucial for fostering emotional security and mitigating these barriers, thereby improving academic performance (Pedler *et al*., 2021).

2.2.3 Positive Relationship with Academic Performance

Studies consistently highlight the strong connection between a supportive learning environment and enhanced academic performance. Elements like adequate lighting, effective seating arrangements, and positive peer and lecturer interactions directly contribute to student engagement and success (Edgerton & McKechnie, 2023; Gad *et al*., 2022).

2.3 The Relationship between Learning Environment and Academic Performance

Numerous studies highlight the significant impact of the learning environment on academic performance. A conducive learning environment enhances focus, engagement, and academic outcomes (Koo, 2023), while negative factors like overcrowded classrooms and inadequate facilities hinder success (Jiang, 2021). Positive perceptions of the learning environment correlate with higher academic performance (Edgerton & McKechnie, 2023). Physical elements such as good lighting, acoustics, and classroom arrangement improve learning outcomes (Gad *et al*., 2022). Adequate study spaces, modern technology, and clean facilities reduce distractions and support productivity (Zurainan *et al*., 2021). Psychosocial aspects, including supportive student-lecturer interactions and emotional encouragement, foster collaboration and help students overcome challenges, contributing significantly to academic success (Gobeze *et al*., 2022).

2.4 Theoretical Background

There three significant theories that have been used to explain research on acceptance, such as the Ecological Systems Theory, Self-Determination Theory, and Constructivist Learning Theory. These theories offer insights into how different aspects of the learning environment and academic performance.

2.4.1 Ecological System Theory

Ecological Systems Theory, developed by Urie Bronfenbrenner, highlights the influence of various interconnected environmental systems on individual development. This framework is particularly relevant to learning environments, emphasizing the complex contexts in which students operate. In higher education, students' academic performance is shaped not only by immediate classroom factors, such as resources and interactions, but also by broader influences like institutional policies and societal expectations. The classroom environment, a key part of the microsystem, directly affects learning experiences and outcomes (Bronfenbrenner, 1979).

2.4.2 Self-Determination Theory

Self-Determination Theory (SDT), by Deci and Ryan, highlights the importance of intrinsic motivation, driven by fulfilling three core psychological needs: autonomy, competence, and relatedness. In education, a learning environment that nurtures these needs enhances student motivation, engagement, and academic performance (Deci & Ryan, 2000). For instance, fostering autonomy by involving students in the learning process, providing resources to develop their competence, and creating a supportive, inclusive atmosphere that builds strong connections with peers and lecturers can significantly boost their intrinsic drive to excel academically.

2.4.3 Constructivist Learning Theory

Constructivist Learning Theory, based on the works of Piaget and Vygotsky, emphasises that learners actively construct knowledge through experiences and reflection. This approach underscores the need for a supportive learning environment that promotes active participation, critical thinking, and collaboration (Piaget, 1952; Vygotsky, 1978). The theory suggests that environments fostering hands-on activities, peer collaboration, and interactive learning, such as well-equipped laboratories, collaborative spaces, and technology-enhanced classrooms, enhance student engagement and understanding. By making learning more relevant and practical, these environments contribute to improved academic performance and deeper comprehension of subject matter.

2.5 Conceptual Framework

The conceptual framework as shown in Fig. 1 illustrates the relationship between independent variables, namely class environment, facility amenities, and peer/lecturer influence, and the dependent variable, which is academic performance.

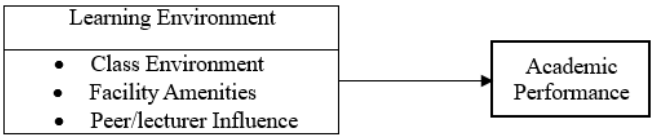

Fig. 1 *Research framework*

2.5.1 Classroom Environment

The classroom environment significantly influences learning through factors such as classroom management, teacher-student interactions, and overall climate. Effective classroom management, including clear rules and constructive discipline, ensures order and minimises distractions (Shinta *et al*., 2021). Positive teacher-student relationships, marked by empathy and support, boost students' motivation, self-confidence, and engagement. A supportive classroom climate fosters active participation and improves academic performance. Studies confirm that strong teacher-student connections correlate with better academic outcomes and positive attitudes toward learning (Amerstorfer & Von Münster-Kistner, 2021). Educational institutions should prioritise enhancing classroom management and teacher-student interactions to promote academic success.

2.5.2 Facility Amenities

Facilities refer to the physical resources available to students, such as libraries, laboratories, and technological equipment. Access to modern, well-maintained facilities enhances the learning experience and academic performance (Bai *et al*., 2022). Well-equipped libraries and laboratories enable students to conduct research and experiments effectively, bridging theory with practical application. Technological tools, including computers, software, and high-speed internet, also play a crucial role in supporting learning. Studies indicate that students with access to advanced technological facilities perform better academically due to the availability of online resources and collaborative learning tools (Gordillo-Tenorio *et al*., 2023). Educational institutions must ensure their facilities are well-maintained and aligned with students' needs to foster academic success.

2.5.3 Peer/lecturer Influence

Peer influence refers to the social interactions and relationships among students, which can enhance motivation, engagement, and academic success (Golsteyn *et al*., 2021). Positive peer interactions, such as emotional support, study assistance, and encouragement, can foster a similar positive attitude towards learning. Study groups and peer discussions improve understanding and retention of information. Additionally, lecturers' influence is crucial in students' academic performance. Lecturers who provide guidance, feedback, and emotional support help motivate students to reach their potential. Strong lecturer-student relationships improve engagement and communication, contributing to better academic performance (Montenegro, 2022). Therefore, positive interactions with peers and lecturers are essential for creating a supportive learning environment that fosters academic success.

2.6 Hypothesis

The research hypotheses are formulated from the research question: "What is the relationship between the learning environment and academic performance among students at UTHM?" This study explores the variables related to the learning environment to address the research objectives effectively. Key dimensions, such as class environment, facility amenities, and peer/lecturer influence, are analysed to understand their impact on academic performance. The hypotheses are developed based on the theoretical and practical significance of the learning environment in shaping student outcomes. Based on these arguments, the following hypotheses are proposed:

H1: There is a significant relationship between class environment and academic performance of students.
H2: There is a significant relationship between facility amenities and academic performance of students.
H3: There is a significant relationship between peer/lecturer influence and academic performance of students.

3. Research Methodology

3.1 Research Design

This study employs both a descriptive research design and a quantitative approach. Descriptive research offers a detailed and precise representation of the subject matter, while quantitative research involves generating numerical data and converting it into statistical analysis. The quantitative method focuses on measuring and analysing variables to draw conclusions, making it a suitable choice due to its efficiency and ability to cover a

broad range of scenarios by selecting a sample that represents the target population. Additionally, secondary data enhances the depth of research by providing high-quality information that extends beyond literature reviews or research proposals.

This study seeks to evaluate the impact of the learning environment on academic performance among UTHM students and to determine their academic performance levels. Additionally, it examines the relationship between the learning environment and academic achievement. Data will be gathered through a quantitative approach using Google Form questionnaires to enhance accessibility and participation. The research will take place at Universiti Tun Hussein Onn Malaysia (UTHM), Parit Raja, Batu Pahat Main Campus, involving students from various courses. Students are selected as respondents due to their direct interaction with UTHM's learning environment, offering valuable perspectives on its effect on their academic outcomes.

3.2 Research Instrument

This research utilised a quantitative approach with a structured questionnaire serving as the primary research instrument. Designed to systematically collect data, the questionnaire was divided into three sections, each addressing key aspects of the study variables. Section A focused on gathering demographic information, including respondents' age, gender, and educational background, to provide a comprehensive overview of the sample. Section B concentrated on assessing the learning environment by exploring dimensions such as the class environment, facility amenities, and the influence of peers and lecturers. Finally, Section C evaluated the academic performance of students, emphasising their motivation, focus, and overall academic success. The questionnaire was adapted from the work of Alani and Hawas (2021) to ensure reliability and validity. Each question utilized a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), enabling respondents to indicate their level of agreement. The development of the questionnaire involved a thorough review of relevant literature to align the instrument with the research objectives and ensure comprehensive variable coverage. A pilot test was conducted with 30 participants to refine the questionnaire, ensuring its clarity and effectiveness prior to wider distribution.

3.3 Data Collection

3.3.1 Data Analysis

Data analysis was conducted to identify the research findings and determine whether the study meets its objectives. The data collected from primary sources, specifically questionnaires, were analysed using descriptive analysis and correlation analysis methods.

3.3.2 Descriptive analysis

Descriptive analysis was applied to examine percentages, mean values, and frequency distributions. In this study, descriptive analysis helps in understanding how population characteristics can be inferred from the sample. The statistical analysis for this research was conducted using SPSS software. Additionally, this method allows for the clarification of fundamental findings by interpreting percentages and mean values.

3.3.3 Correlation Analysis

Correlation analysis assesses the relationship between variables (Akhilesh, 2019). In this study, it is employed to measure the degree of association between variables. Spearman's correlation coefficient was used to determine the strength of relationships since the normality test indicated that the data were not normally distributed (Patrick *et al*., 2018).

4. Data analysis and findings

This chapter presents the research data and findings obtained through questionnaires completed by respondents via Google Forms. To achieve the study's objectives, data analysis was performed using the Statistical Package for the Social Sciences (SPSS). The analysis included reliability testing, demographic analysis, descriptive analysis, and inferential analysis.

4.1 Respond Rate

According to Krejcie and Morgan (1970), the sample size should be calculated based on the population size. For this study, at least 377 respondents were needed to complete the questionnaire as shown in Table 1. However, only 267 respondents participated in the online survey, which was distributed through social media platforms.

Table 1 *Survey response rate*

Population	Sample Size	Questionnaire Distribute	Questionnaire Returned	Percentage
200000	377	377	267	70.82%

4.2 Reliability Test

The data collected from the distributed questionnaires were assessed for validity and reliability using the Cronbach's Alpha coefficient values as indicated in Table 2.

Table 2 *Reliability coefficient value*

Cronbach's Alpha (α)	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 \geq \alpha \geq 0.8$	Good
$0.8 \geq \alpha \geq 0.7$	Acceptable
$0.7 \geq \alpha \geq 0.6$	Be Disputed
$0.6 \geq \alpha \geq 0.5$	Bad
$0.5 \geq \alpha$	Unacceptable

4.2.1 Pilot Study

The pilot study played a crucial role in the initial phase of this research. In this study, 30 respondents who were students from Universiti Tun Hussein Onn Malaysia (UTHM) participated in the pilot test. The collected data were analysed using SPSS to assess the reliability of the research instruments. Table 3 presents the reliability statistics for the pilot study. Based on the findings, the Cronbach's Alpha values for class environment, facility amenities, peer/lecturer influence, and academic performance were recorded as 0.979, 0.984, 0.984, and 0.968, respectively. These values indicate excellent internal consistency for all variables, confirming that the research instruments are reliable and suitable for use in the actual study.

Table 3 *Reliability test for pilot study*

No	Variables	Number of items	Cronbach's Alpha (α)
1.	Class Environment	4	0.979
2.	Facility Amenities	4	0.984
3.	Peer/Lecturer Influence	4	0.984
4.	Academic Performance	4	0.968

4.2.2 Actual Study

After achieving reliability from the pilot study, the actual study was conducted with 267 respondents from Universiti Tun Hussein Onn Malaysia (UTHM). The reliability test was repeated using SPSS to verify the internal consistency of the research instruments. Table 4 presents the reliability statistics for the actual study. The Cronbach's Alpha values for class environment, facility amenities, peer/lecturer influence, and academic performance were 0.883, 0.875, 0.889, and 0.871, respectively. All variables demonstrated acceptable reliability, as the values exceeded 0.7. These results confirmed that the research instruments maintained their reliability in the larger sample size, allowing the study to proceed with confidence in the collected data.

Table 4 *Reliability test for the actual study*

No	Variables	Number of items	Cronbach's Alpha (α)
1.	Class Environment	4	0.883
2.	Facility Amenities	4	0.875
3.	Peer/Lecturer Influence	4	0.889
4.	Academic Performance	4	0.871

4.3 Demographic Analysis (Demographic)

Table 5 shows questions designed in section A that are related to demographic information of the respondents. The questions related to gender, race, age, and education level, year of study, current CGPA and option for learning

session. The findings show that the items studied were outstanding, and the data acquired in the actual study had great reliability and validity. The questions used were suitable for this research.

Table 5 *Summary of demographic analysis*

Demographic	Item	Frequency (N)	Percentage (%)
Gender	Male	127	47.6
	Female	140	52.4
Race	Malay	84	31.5
	Chinese	84	31.5
	Indian	66	24.7
	Others	33	12.4
Age	18 to 22 years old	57	21.3
	23 to 27 years old	76	28.5
	28 to 32 years old	59	22.1
	33 to 37 years old	47	17.6
	Above 38 years old	28	10.5
Education Level	Diploma	39	14.6
	Degree	162	60.7
	Master	58	21.7
	PhD	8	3.0
Year of study	Year 1	28	10.5
	Year 2	82	30.7
	Year 3	66	24.7
	Year 4	91	34.1
Current CGPA of students	0 to 1.0	33	12.4
	1.1 to 2.0	66	24.7
	2.1 to 3.0	89	33.3
	3.1 to 4.0	79	29.6
Option for learning session	Blended learning (online mix with physical)	111	41.6
	Collaborative learning	48	18.0
	Online learning	45	16.9
	Physical learning	63	23.6

4.4 Descriptive Analysis (Variables)

Descriptive analysis is performed to assess the data and calculate the mean and standard deviation for all variables, such as class environment, facility amenities, peer/lecturer influence, and academic performance. This approach effectively differentiates each component of the mean distribution, utilising a Likert scale to measure the extent of both independent and dependent variables. Table 6 displays the central tendency values for each item in the questionnaire.

Table 6 *Level of measurement*

Average Mean Score	Level
1.00 – 2.33	Low
2.34 – 3.67	Medium
3.68 – 5.00	High

4.4.1 Class Environment

Based on Table 7, the mean, standard deviation, and variable levels for each question under the Class Environment variable are presented. The results indicate that both the class environment and academic performance levels are high, with an average mean of 4.21.

Table 7 *Mean and standard deviation analysis for class environment*

No	Item Integrity	Mean (M)	Std. Deviation (SD)	Level
1	A learning environment that is clean enhances the quality of the educational experience, promoting focus and engagement.	4.13	1.007	High
2	A learning environment that meets the right specifications creates an enjoyable and effective learning experience.	4.29	0.878	High
3	A learning environment that is secure help students focus and manage their work, making it easier to concentrate on their studies.	4.10	0.899	High
4	A learning environment with proper ventilation and lighting boots focus and promotes effective learning.	4.32	0.885	High
Total Average		4.21	0.790	High

4.4.2 Facility Amenities

Based on Table 8, the mean, standard deviation, and variable levels for each question under the Facility Amenities variable are presented. The results indicate that both facility amenities and academic performance levels are high, with an average mean of 4.15.

Table 8 *Mean and Standard Deviation Analysis for Facility Amenities*

No	Item Privacy	Mean (M)	Std. Deviation (SD)	Level
1	A learning environment enhanced by technology makes lessons more interactive and engaging, improving the educational experience.	4.28	0.888	High
2	A learning environment with ample tools creates an engaging atmosphere, boosting productivity and encouraging active participation.	4.09	0.905	High
3	A learning environment with comprehensive facilities enhances enjoyment and promotes a positive learning experience.	3.94	1.002	High
4	A learning environment with full facilities allows for seamless learning, helping students focus entirely on their studies.	4.29	1.063	High
Total Average		4.15	0.825	High

4.4.3 Peer/lecturer Influence

Table 9 shows the value of mean, standard deviation, and level of variables of each question for the Peer/lecturer Influence variable. The level of Peer/lecturer Influence and academic performance is high with an average mean of 4.20.

Table 9 *Mean and standard deviation analysis for peer/lecturer influence*

No	Item Authentication	Mean (M)	Std. Deviation (SD)	Level
1	A learning environment with supportive peers helps students stay interested and involved in their learning.	4.32	0.893	High
2	A learning environment with creative lecturers makes learning enjoyable and gets students to join in.	4.23	0.874	High
3	A learning environment with active instructors helps students learn better and go deeper.	4.00	1.035	High
4	A learning environment with positive peer role models creates a space for focused learning.	4.25	0.880	High
Total Average		4.20	0.799	High

4.4.4 Academic Performance

Based on Table 10, the mean, standard deviation, and variable levels for each question under the Academic Performance variable are shown. The results indicate that the level of academic performance is high, with an average mean of 4.22.

Table 10 *Mean and standard deviation analysis for academic performance*

No	Item Customer Satisfaction	Mean (M)	Std. Deviation (SD)	Level
1	The learning environment improves students' academic performance by offering sufficient resources and support.	4.16	0.756	High
2	The learning environment boosts students' academic performance by providing adequate tools and strong guidance.	4.16	0.847	High
3	The learning environment fosters academic excellence by offering supportive lecturers and actively engaged peers.	4.19	1.045	High
4	The learning environment enhances students' academic performance by cultivating focus and motivation during studies.	4.37	0.810	High
Total Average		4.22	0.740	High

4.4.5 Analysis on Learning Environment and Academic Performance

Based on Table 11, the variable that had the highest mean score is a dependent variable which is Customer Satisfaction with total average value (M= 4.55). The variable that had the lowest mean score is Privacy with total average value (M= 4.32).

Table 11 *Analysis on learning environment and academic performance*

Item	Average Mean Score	Level
Class Environment	4.21	High
Facility Amenities	4.15	High
Peer/Lecturer Influence	4.20	High
Academic Performance	4.22	High

4.5 Normality Test

According to Ghasemi (2012), a normality test is performed to determine whether the study population follows a normal distribution. If the data is normally distributed, a parametric test, such as the Pearson correlation test, is applied. If the data is not normally distributed, a non-parametric test, like the Spearman correlation test, is used. To assess data normality, researchers typically use the Kolmogorov-Smirnov or Shapiro-Wilk test.

Table 12 presents the results of the normality test conducted using the Kolmogorov-Smirnov and Shapiro-Wilk tests. The analysis, based on 267 respondents, considers the Kolmogorov-Smirnov test values. The results indicate that normality is not achieved, as all variable p-values are <0.001. Consequently, the data is non-normal and classified as nonparametric. To examine the relationship between security and customer satisfaction while addressing the study objectives, the Spearman correlation test was employed.

Table 12 *Normality test*

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Class Environment	0.321	267	<0.001	0.752	267	<0.001
Facility Amenities	0.252	267	<0.001	0.776	267	<0.001
Peer/Lecturer Influence	0.233	267	<0.001	0.776	267	<0.001
Academic Performance	0.318	267	<0.001	0.689	267	<0.001

4.6 Correlation Analysis

Correlation analysis is a statistical tool to decide whether there is a relationship between two variables. Correlation analysis can determine the strong relationship between two variables, and there are two types of correlation coefficients, which are Pearson and Spearman, to test the linear relationship between independent and dependent variables (Aggarwal & Ranganathan, 2016). Using correlation analysis, the patterns can be found within datasets. The correlation is positive when both variables rise in proportion to one another, and when one variable increases as the other drops, the correlation is negative (Emily James, 2023).

4.6.1 The relationship between Learning Environment and Academic Performance

Table 13 shows the result on the relationship between learning environment and academic performance by using Spearman's correlation coefficient. The result indicates the value of Spearman's rho correlation is 0.842 with a significant value $p<0.001$. This shows that there is a positive and moderate relationship between class environment and academic performance.

Table 13 *Spearman's Correlation between Integrity and Customer Satisfaction*

		Customer Satisfaction
Class Environment	Correlation Coefficient	0.842**
	Sig. (2-tailed)	<0.001
	N	267

4.6.2 The relationship between Facility Amenities and Academic Performance

Table 14 shows the results on the relationship between facility amenities and academic performance by using Spearman's correlation coefficient. The result indicates the value of Spearman's rho correlation is 0.811 with a significant value $p<0.001$. This shows that there is a positive and moderate relationship between facility amenities and academic performance.

Table 14 *Spearman's correlation between privacy and customer satisfaction*

		Customer Satisfaction
Facility Amenities	Correlation Coefficient	0.811**
	Sig. (2-tailed)	<0.001
	N	267

4.6.3 The relationship between Peer/Lecturer Influence and Academic Performance

Table 15 shows the result on the relationship between peer/lecturer influence and academic performance of students by using Spearman's correlation coefficient. The result indicates the value of Spearman's rho correlation is 0.722 with a significant value $p<0.001$. This shows that there is a positive and high relationship between peer/lecturer influence and the academic performance of students.

Table 15 *Spearman's Correlation between authentication and customer satisfaction*

		Customer Satisfaction
Peer/Lecturer Influence	Correlation Coefficient	0.722**
	Sig. (2-tailed)	<0.001
	N	267

5. Conclusion

Based on the three dimensions of learning environment, the level of all dimensions, which are class environment, facility amenities, and peer/lecturer influence, is at a high level. The result significantly confirms the hypothesis that has been set, which is that there is a positive and significant relationship between class environment, facility amenities and peer/lecturer influence with academic performance. This result shows that learning environments are strong factors that impact academic performance. These results align with previous studies, which have emphasised the importance of a conducive learning environment in supporting student learning outcomes (Azman & Mahmud, 2020; Preeti, 2020).

This finding shows that the overall level of academic performance is high. The highest-rated item emphasised the role of the learning environment in enhancing focus and motivation, underscoring the importance of tailored

resources and supportive academic interactions. These findings are consistent with studies by Gad *et al*. (2022) and Koo (2023), which highlight the significance of learning environments in fostering academic success.

The result shows that all the hypotheses have been accepted and all of them have a moderate level of correlation coefficient. This result shows that there is a significant positive relationship between class environments, facility amenities and peer/lecturer influence and academic performance. The strongest relationship was identified between class environment and academic performance (r = 0.842), suggesting that a well-organised and supportive class environment is critical for academic success. These results are consistent with prior research, including Bronfenbrenner's Ecological Systems Theory (1979), which emphasises the role of environmental systems in individual development.

This study successfully identified the levels of the learning environment and academic performance among UTHM students. The findings highlight the significant role of factors such as the classroom environment, facility amenities, and peer/lecturer influence in shaping academic outcomes. Although the results indicate a positive educational atmosphere, the moderate correlations suggest areas for improvement, particularly in strengthening peer and lecturer influence. Despite challenges in data collection and time constraints, the study provides valuable insights and serves as a foundation for future research and recommendations aimed at enhancing the educational experience at UTHM. Addressing the identified limitations and implementing the proposed recommendations could lead to more comprehensive and impactful outcomes, ultimately contributing to improved academic performance and learning environments across higher education institutions.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: ***study conception and design:*** *Nur Shuhada Najua Elly Shahrulnizam, Siti Aisyah Salim;* ***data collection:*** *Nur Shuhada Najua Elly Shahrulnizam;* ***analysis and interpretation of results:*** *Nur Shuhada Najua Elly Shahrulnizam;* ***draft manuscript preparation:*** *Nur Shuhada Najua Elly Shahrulnizam, Siti Aisyah Salim. All authors reviewed the results and approved the final version of the manuscript.*

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