

Validating the Influence of School Learning Environment on Students' Academic Performance in Selected Universities in Central Uganda

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Abstract

The global demand for higher education has been steadily increasing, leading to a rise in student numbers. This surge in enrollment has significant implications for students' learning environment, including factors such as class size and the availability of lecturers. The study was purposely to validate if the learning environment influences students' academic performance in universities in Central Uganda. The study used 381 final-year undergraduates and 19 lecturers from Nkumba University and Kyambogo University, using a convergent

parallel mixed methods research design. The study took both a subjective and objective epistemological stance. Data were collected using a five-point Likert scale structured questionnaire, interview guides, and findings corroborated with a documentary review. The correlation analysis revealed a positive and significant relationship between students' learning environment and academic performance in the selected universities in Central Uganda ($r=.457$, $p=.000<0.05$), and regression analysis showed that all the constructs of students' learning environment explain 26.7% of the variation in students' academic performance ($R^2=0.267$). Findings from the study may direct evidence-based policy reform in Uganda's higher education. The limitations of the study included the selection of a small sample of only two universities which cannot be generalized to all universities in Uganda. The study recommends that policymakers and university management focus on improving the learning environment in universities in Central Uganda.

Keywords: learning environment, academic performance, universities, Uganda

1. Introduction

As global demand for higher education continues to rise and universities enroll a growing number of prospective students, it becomes crucial for universities to provide a conducive learning environment. This includes ensuring access to academic facilities, employing quality lecturers, admitting eligible students, and providing comprehensive study materials. There is some influence over the factors which determine students' academic performance (Papageorgiou, 2017). According to Malik, et al., (2017), a learning environment encompasses all physical, psychosocial, and pedagogical elements which have an impact on the teaching and learning process, student performance, and attitudes.

Gambo and Shakir (2021), argue that learning environment factors are an emerging situation that integrates learning objects using smart and mobile technologies to provide active learning experiences. Meanwhile, Fraser (1998), cited in Opdenakker and Minnaert (2011), argue that learning environments are the 'social psychological and pedagogical contexts' where learning occurs and which affect students' achievement and attitudes. Indeed, it is assumed that learning environments frequently exert their influence on academic performance (Shernoff et al., 2016). According to Semukono et al. (2014), learning environments are the range of components and activities within which learning takes place. Kagoda (2020), posits that there is a need to improve the learning environment because it has the potential to foster a number of pedagogical advantages, such as increasing learners' participation in lessons.

Improving the quality of the learning environment can have a positive impact on students' behavior and personality. The physical elements of the learning environment play a crucial role in shaping the methods that lecturers use for instruction. Shernoff, et al., (2016), considered that classroom learning environments have an influence on students' learning and academic performance both directly and/or indirectly. For instance, Sanjurjo et al., (2018) found that students from low socio-economic backgrounds obtain significantly lower scores as compared to those from more privileged backgrounds. Similarly, the study by Marcenaro-Gutierrez et al., (2017) also found that adolescents show gender differences in

academic performance.

1.1 Problem Statement

Universities are obliged to provide a conducive learning environment to realize the achievement of the expected learning outcomes. Day et al., (2018) argue that students' academic performance is influenced by the educational environment. Such factors as qualified and sufficient lecturers, students' socioeconomic status, and student characteristics may contribute to this environment. Al Munnr et al., (2017) argue that different age groups and gender among students need to be addressed differently to create a better learning environment. However, the report on the status of higher education in Uganda (NCHE, 2018) highlights that the lecturer-student ratio, an important factor in the students' learning environment, is unsatisfactory in Uganda's universities. The report reveals that there was only a 4.76% improvement in the lecturer-student ratio in 2017. For instance, Kyambogo University had a lecturer-student ratio of 1:53 and 1:25 for Nkumba university (Kasozi, 2016) against the recommended NCHE ratio of 1:20. This has even declined to 1:60 in some universities (Government of Uganda, 2018). With regard to the socio-economic status of students, the Organization for Economic Co-operation and Development (OECD, 2018) found that only 2.9% of disadvantaged students were top performers. Such deterioration of student learning environment factors creates a looming catastrophe in Uganda's higher education and needs to be addressed as soon as possible.

1.2 Conceptualization of the Study Variables

In the context of the study, learning environment was conceptualized as: lecturer-student ratio, lecturer characteristics, student-characteristics and socio-economic status of the students. Among the lecturer characteristics include qualifications, teaching techniques, attitude and length of service; while the student characteristics include gender and age of the students, academic capability and their social backgrounds. This study argues that these characteristics can have an influence on the students' academic performance in the university and therefore improving one of them may enhance the academic performance and vice-versa.

Adediwula and Tayo (2017) assert that a lecturer's ability to teach depends on their knowledge and skills. Tahir and Hanapi (2017) agree, stating that the best lecturer is one who possesses expertise in the subject matter and a variety of teaching strategies. Meanwhile, Bagonza et al. (2019) identified lecturer characteristics as content knowledge, methods, professional competence, and techniques used to assess students' work. This study, however, conceptualizes lecturer characteristics as attitudes, qualifications, and experience in teaching. Bailey (2019) conceptualized student characteristics as task value, self-efficacy, and self-evaluation, while this study identifies student characteristics as differences in gender, age, and academic proficiency. Alkharusi et al. (2014) also suggest that gender should be considered when selecting lecture styles and techniques.

The major aim of this article is to assess how environmental factors such as socioeconomic status, the ratio of lecturers to students, students' personal characteristics such as gender, age, and those of lecturers influence students' academic performance. Socio-economic status is a

broad concept that aims to reflect the financial, social cultural and human capital resources that are available to students (Cowan, 2012). According to a study by the Organization for Economic Co-operation and Development (OECD, 2018), socio-economic status is strongly associated with academic performance in Uganda. Meanwhile, Willms and Tramonte (2015) suggested that socioeconomic status may also refer to the relative position of the individual in a hierarchical social structure based on their access to or control over wealth. In this study socioeconomic status refers to the students' ability to afford the education related services that aid their education at the university.

'Students' academic performance' was conceptualized as; the graduation rates, the cumulative grade point average (CGPA), attainment of the expected learning outcomes (ELOs) and skills acquisition. According to Hernon et al., (2013), expected learning outcomes are defined in terms of the knowledge, skills, mental habits, and capacities that students have acquired as a result of their involvement in a certain set of educational experiences. These ELOs are predetermined before the learning process and they aid in assessing students' performance.

It is assumed that if the elements of the learning environment are improved there may be possibilities of improving students' academic performance in universities in Central Uganda.

1.3 Purpose of the Study

The purpose of the study was to validate the influence of the learning environment on students' academic performance in selected universities of central Uganda.

1.4 Objective of the Study

The objective that guided the study was to analyze the extent of the influence of learning environment on students' academic performance in the selected universities of Central Uganda.

1.5 Research Hypothesis

There is no relationship between the learning environment and students' academic performance in the selected universities of Central Uganda.

1.6 Significance of the Study

The validation of the influence of the learning environment on students' academic performance in selected universities in Central Uganda serves as a critical contribution to the academic community and education policymakers. This research, driven by the purpose to explore and the objective to analyze the extent of this influence, addresses a gap in existing literature and has several noteworthy implications.

Publishing the findings is expected to elevate global awareness regarding the nuanced factors within the learning environment that may impact students' academic performance. By uncovering aspects possibly overlooked in previous studies, this research provides a comprehensive understanding of the subject of this study. These insights not only contribute to the scholarly dialogue on student academic performance, but also offer a basis for informed interventions.

The study's outcomes may facilitate evidence-based policy reviews in higher education. The Ministry of Education and Sports, particularly through National Council for Higher Education in Uganda, stands to benefit from the concrete data and recommendations presented. Implementing stringent higher education policies aimed at enhancing the learning environment, informed by the study's findings, has the potential to fortify the ministry's oversight and supervisory role. Consequently, this intervention may lead to improvements in students' academic performance.

Given the limited research in this specific area, the study's significance extends to future researchers. The findings, serving as a reference point, not only contribute to the existing body of knowledge but also highlight potential areas for further exploration. Identifying gaps that may remain after this study, future researchers can use these insights to build upon the foundation laid by this research, fostering continuous advancement in the understanding of the relationship between the learning environment and students' academic performance in the context of Central Uganda.

2. Literature Review

This study aims to validate the impact of the school learning environment on students' academic performance in selected universities in Central Uganda. The term 'learning environment' refers to the educational approach, cultural context, or physical setting where teaching and learning occur. In universities, students learn in various settings beyond the traditional classroom, including non-school locations and outdoor environments.

Paradewari and Mbato (2018) conducted a study to examine language attitudes based on gender and socioeconomic status in four universities in Yogyakarta, Indonesia. The findings revealed a positive correlation between gender and attitudes towards the English language, with female learners having more favorable sentiments than male learners. Socioeconomic level also influenced language attitudes, with students from upper-class backgrounds exhibiting more positive views towards English language than those from lower-class backgrounds.

Asante et al. (2023) investigated gender differences in academic performance among students studying Science, Technology, Engineering, and Mathematics (STEM) at the University of Ghana. The results showed that male students performed better at the high school level, while female students outperformed males at the tertiary level. Factors such as motivation, teaching methodologies, and parental support contributed to the improvement in female students' academic performance at the tertiary level.

A study by Sanjurjo et al. (2018) found that students from less privileged socioeconomic backgrounds perform significantly worse on tests than those from more privileged environments. Similarly, Omeje et al. (2021) discovered that low socioeconomic status had a significantly negative impact on students' academic performance.

Dube and Mlotshwa (2018) identified various factors that influence students' academic performance, including the socioeconomic background of parents, lecturer-student relationships, academic support services, demographic factors, facilities in the school, and the

level of students' entry qualifications. Considering the studies by Sanjurjo et al. and Omeje et al., it is crucial for lecturers to be aware of and understand students' socioeconomic backgrounds, especially when conducting course assessments.

In a study on gender differences in academic performance, Marcenaro-Gutierrez et al. (2017) conducted research in Spain. Their findings align with previous studies, indicating that there are variations in academic achievement among adolescents based on gender. The study revealed that girls are less likely to receive poor grades compared to boys.

Similar findings were observed in a meta-analysis by Rodriguez-Hernandez et al. (2020) on the relationship between socioeconomic status and academic achievement. The meta-analysis revealed a weak but favorable connection between these two variables. The study suggested that prior academic achievement, university experience, and employment status have stronger associations with academic performance compared to socioeconomic status. Therefore, it is important to pay equal attention to both genders in the universities, taking into account gender differences.

In Pakistan, the patriarchal culture, places a great burden on women to handle family matters, such as childbirth and family administration. This can impact women's concentration and, consequently, their academic performance (Tabassum et al., 2020). In a study on the relationship between educational output and demographic characteristics, Tabassum and Akhter found that rural students lack access to the same resources as their urban counterparts, particularly regarding quality coaching and facilities. Supporting this claim, Sanjurjo et al. assert that socioeconomic status also influences academic performance. Abenawe (2022) conducted a study to examine the relationship between socioeconomic status and the quality of education in secondary schools in Ibanda district in western Uganda. The study involved 10 headteachers, 80 teachers and 240 students who were selected using simple random sampling. The findings revealed a significant positive relationship between socioeconomic status and quality of education in secondary schools in Ibanda district. Similarly, Maksum and Fifukha (2020) found that academic performance is significantly influenced by factors such as the learning environment, thinking style, and curiosity. Rodriguez-Hernandez et al. (2020) also found a positive yet weak relationship between socioeconomic status and academic performance in higher education institutions. However, the authors argue that there is little correlation between students' socioeconomic background and academic performance. Both studies by (Abenawe 2022; Maksum & Fifukha, 2020) support this perspective. However, it is important to note that Abenawe's study focuses on secondary schools in Ibanda district, while this study was conducted in a university setting. This poses a contextual gap. Furthermore, the study also presents a knowledge gap as it examines the quality of education rather than academic performance. Measuring the variable of quality of education in the context of Uganda may be challenging, making it difficult to compare the findings directly. Age and gender can significantly impact students' academic performance in universities. Papageorgiou (2017) conducted a study on first-year accounting students in South Africa, examining the influence of their age, gender, race, and pre-university knowledge on their academic performance over a five-year period. The findings revealed that student profiles, particularly their gender, race, and pre-university knowledge had an impact on the academic

performance of first-year accounting students. Mutuyimana (2020) conducted a study to examine the relationship between culture, family history, parents' socioeconomic status, and academic achievement of female students at Makerere University. The study found that sexual harassment was prevalent and that little was being done to address it. This issue was negatively impacting the academic performance of female students. Interestingly, the study revealed that parents' educational level did not have a significant impact on their daughters' academic performance. Instead, their financial status had a greater influence, which can be attributed to Uganda's cost-sharing structure and strict tuition collection regulations in universities. Additionally, the domestic tasks assigned to female students also had an impact on their academic performance.

The teaching techniques employed by lecturers can have an impact on students' academic performance in universities. Nwegbu et al. (2015) conducted a study at the University of Nigeria to explore how teaching techniques influence undergraduate students' academic performance. The findings revealed that the adoption of new study techniques depended on students' previous study strategies, the teaching style of the lecturer, and students' financial situation.

In a related study Adeyemi (2017) established a significant relationship between the selected variables of lecturers that influenced students' academic performance. Additionally, Alemiga and Kibukamusoke (2020) found that the presence of unqualified lecturers at university hindered the quality of learning and academic performance. However, in contrast, Lucky (2013) did not find a significant difference in academic performance between lecturers teaching qualifications and those without.

It is crucial to have qualified lecturers who are equipped to teach the students to enhance the learning environment at university, which ultimately improves students' academic performance.

This emphasizes the importance of the learning environment on students' academic performance. The findings revealed a statistically significant relationship between lecturer's GPA and competence, as well as that of students' academic progress and the classroom environment.

In 2020 Kiruy et al. conducted a study in Kenya to examine the relationship between the socioeconomic status of parents and the academic performance of their children in public primary tea estate schools within Kericho. Key informants were interviewed and questionnaires were administered to pupils. The study revealed that the financial status of parents significantly influenced the pupils' academic performance. However, the study had some methodological gaps, including the use of questionnaires that may have been challenging to the pupils to complete. Additionally, the study focused solely on socioeconomic status of parents, leaving a knowledge gap with regard to other factors that may impact students' academic performance. Furthermore, since the study focused on primary school pupils rather than students at university level of education, presents a contextual gap.

Another study conducted by Ngoma et al. (2017) aimed to explore the relationship between socioeconomic factors, student factors, academic aspirations, and students' academic performance. The study found limited relationship between socioeconomic characteristics and students' performance at higher institutions. However, it revealed a significant relationship between student factors and student performance. Similarly, Tusuubira (2019) examined the socioeconomic factors affecting financial literacy among Ugandan university students. The study found that parents' employment, financial status, and parental encouragement to save all had an impact on financial literacy.

From the literature reviewed, factors of the learning environment were found to be critical in influencing students' academic performance. However, there were some methodological, contextual and knowledge gaps identified in the studies of the different scholars that this study aimed to fill. For instance, studies like the one by Marcenaro et al., 2017; Papageorgiou, 2017; and Kiruy et al., 2020 posed contextual gaps as they were not conducted in Uganda. Although the study by Abenawe (2022) was carried out in Uganda, it posed both a contextual and knowledge gap because it was carried out in secondary schools while this study was carried out in university settings. Abenawe's study posed a knowledge gap by studying socio-economic status and quality of education, which may not easily be measurable.

3. Methodology

The study adopted both an objective and subjective epistemological stance. Epistemology refers to how we acquire knowledge and the philosophical problems underlying the theories of knowledge (Rehman & Alharthik, 2016). The study was objectivist in that it acknowledged the existence of social entities external to social actors. It was also subjectivist as it recognized that social phenomena are created by the perceptions of social actors (Al-Ababneh, 2020). Respondents were given questionnaire to complete without interference, reflecting an objectivist approach. However, the study also incorporated a subjective approach by allowing participants to share their experiences freely during interviews on the learning environment and academic performance. The researcher then interpreted the participants' responses to derive meaning from their experiences. To ensure confidentiality, the participants' identity was not disclosed. The selection of students was done randomly to ensure equal representation. In the qualitative approach, participants were assigned pseudo-codes known only to the researcher. During the interviews, the researcher maintained a neutral stance and refrained from influencing the responses, but actively engaged in interaction and probing to derive meaning from the data. In contrast, the study took an objectivist approach in the quantitative inquiry, where the researcher's thoughts, perspectives and biases were separated from the subject matter being investigated.

Ontology refers to the nature of reality that exists out there. In this study, a relativist ontological positioning was adopted, aligning with the pragmatism paradigm, which assumes the existence of multiple realities. It recognizes that individuals perceive and interpret the world based on their opinions and experiences. Therefore, the study embraced a relativist ontology, acknowledging the absence of a single uniform opinion or experience.

Under the relativist ontology, reality is considered negotiable. In this study, meaning was

derived from the participants' responses through a process of negotiation conducted by the researcher.

The study employed a convergent parallel mixed methods research design, which enabled the collection of both qualitative and quantitative data at about the same time to identify convergent and divergent data. The design allowed for the integration of both types of data by applying the same constructs when designing the data collection instruments. Data were collected by using a questionnaire survey method, individual interviews, and document review to provide evidence of the results.

This study focused on a sample of 8,233 final-year three students from Nkumba University and Kyambogo University. The selection of third-year students was based on their duration in their program and the assumption that they would provide effective responses to question items related to learning environment and academic performance.

Table 1. Summary of the sampling procedure and distribution for the quantitative approach

| University | Category | Target | Sample | actual | Sampling technique | Tool |
|-------------------------|----------|-------------|------------|------------|------------------------|---------------|
| Nkumba | Students | 1,333 | 62 | 49 | Simple random sampling | Questionnaire |
| Kyambogo | | 6,900 | 319 | 285 | Simple random sampling | Questionnaire |
| Total Population | | 8233 | 381 | 334 | | |

Note. Academic Registrars' Department 2018

3.1 Sample size determination:

The sample size was 381 students from the selected universities. This was determined using the Taro Yamane formula, to determine the sample size from a known population, with a 95% confidence interval and a 0.05 allowable sampling error.

$$n = \frac{N}{1 + N e^2}$$

$$n = \frac{8233}{1 + 8233 \cdot 0.5^2}$$

$$n = \mathbf{381}$$

Where;

n is the sample size

N is the population size

e is the level of precision or allowable sampling error.

To find the proportion sample for each university, the following formula was used:

For Nkumba University

$$P. S = \frac{P.TP \times S.S}{T.TP}$$

$$P. S = \frac{1333 \times 381}{8233}$$

$$P.S = 62$$

For Kyambogo University

$$P. S = \frac{P.TP \times S.S}{T.TP}$$

$$P. S = \frac{6900 \times 381}{8233}$$

$$P.S = 319$$

Where P.S is the proportion sample,

P.TP is the proportion of the total population,

S.S is the sample size,

T.TP is the total target population

The sample for the qualitative approach was arrived at after reaching the point of *thematic saturation*. According to Ritchie and Lewis (2003), the degree of thematic saturation is when the nuances and fresh information from the interviewed participants do not contribute to new conclusions. As a result, increasing the sample size would no longer produce discoveries. Thus, 19 (nineteen) lecturers were interviewed up to saturation, and the 2 (two) academic registrars of the two selected universities were interviewed too.

3.2 Validity and Reliability

Content validity was realized by collecting quantitative data from students and computing a content validity index (CVI) of the questionnaire items by experts in the field of pedagogy. A content validity index of 0.84 was achieved. According to Sarantakos (2005), a value greater than 0.7 is acceptable and qualifies the instrument as valid. According to Ritchie and Lewis (2003), reliability is the degree to which replication can occur. However, since there is no single reality for the pragmatism paradigm that this study followed, it was not possible to have the same experiences or replication. The control of reflexivity in sample selection, recording of personal notes, "bracketing," and providing evidence-based interpretation of results were accordingly used to achieve reliability. For internal consistency of the instrument, a Cronbach's alpha coefficient of 0.847 was obtained, indicating that the instrument was

internally consistent. Manual and Pallant (2010) argue that any value greater than 0.6 is appropriate for data analysis, showing that the instrument exhibited internal consistency.

3.3 Data Collection Methods and Instruments

The questionnaire survey method was used to collect quantitative data. Self-administered questionnaires were distributed to the sampled students of Kyambogo University and Nkumba University. For the qualitative inquiry, the interview method was used. Interviews with the lecturers who lectured third-year students were used for collecting qualitative data. In-depth interviews were conducted with academic registrars, who were thought to be sufficiently knowledgeable about the relationship between the learning environment and students' academic performance in their universities. The pertinent documents, such as the fact books of the universities, Universities and Other Tertiary Institutions Act (2001) that supported the findings, were examined using a checklist for document analysis.

3.4 Data Analysis

The quantitative data collected using self-administered questionnaires was analyzed using descriptive statistics, with SPSS computer software, v.16.0, to compute correlation and regression analyses to establish the relationship and effect between learning environment and students' academic performance. Thematic analyses were used to analyze qualitative data; then the common themes were used to support the quantitative findings. The convergent parallel research design aims to collect both forms of data using the same or parallel variables, constructs, or concepts (Creswell, 2014) and then establish the divergent and convergent data as required by the convergent parallel mixed methods design. The results were supported by document analyses to establish evidence of the research findings. Table 1.2 shows the descriptive statistics for students' learning environment.

4. Results

This section presents the results from the study beginning with the descriptive statistics from the respondents

Table 2. Summary of descriptive statistics on students' learning environment in Kyambogo and Nkumba universities (N=334)

| Students' Learning Environment | SD | D | NS | A | SA | Mean | Std. Deviation |
|---|---------|---------|---------|---------|---------|-------------|-------------------|
| | F (%) | F (%) | F (%) | F (%) | F (%) | | |
| Lecturer-student ratios | | | | | | | |
| We have an adequate number of lecturers as35 students | 33 | 83 | 131 | 52 | 3.40 | 1.18 | |
| | (10.4%) | (9.88%) | (24.8%) | (39.2%) | (15.5%) | | |
| The number of students is manageable by our17 lecturers | 51 | 82 | 101 | 83 | 3.54 | 1.17 | |
| | (5.09) | (15.2%) | (24.5%) | (30.2%) | (24.8%) | | |
| The lecturer-student ratio at this university is37 generally appropriate | 32 | 102 | 120 | 42 | 3.39 | 2.04 | |
| | (11.0%) | (9.58%) | (30.5%) | (35.9%) | (12.5%) | | |
| Sub-mean & Standard deviation | | | | | | 3.44 | 1.46 |
| Lecturer characteristics | | | | | | | |
| All my lecturers demonstrate competence in14 what they lecture to me | 22 | 54 | 143 | 101 | 3.88 | 1.05 | |
| | (4.19%) | (6.59%) | (16.1%) | (42.8%) | (30.2%) | | |
| The lecturers for my course are all14 knowledgeable in what they teach | 16 | 53 | 130 | 121 | 3.98 | 1.05 | |
| | (4.19%) | (4.79%) | (15.8%) | (38.9%) | (36.2%) | | |
| All my lecturers are approachable to me as21 their student | 38 | 69 | 143 | 63 | 3.57 | 1.11 | |
| | (6.29%) | (11.3%) | (20.6%) | (42.8%) | (18.8%) | | |
| Sub-mean & Standard deviation | | | | | | 3.81 | 1.07 |
| Student characteristics | | | | | | | |
| Students demonstrate a willingness to learn 12 | 17 | 74 | 152 | 79 | 3.81 | 0.97 | |
| | (3.59%) | (5.09%) | (22.1%) | (45.5%) | (23.6%) | | |
| My fellow students are good listeners in all13 the lectures of my course | 21 | 70 | 111 | 119 | 3.90 | 1.08 | |
| | (3.89%) | (6.29%) | (20.9%) | (33.2%) | (35.6%) | | |
| The students are willing to participate in the12 lectures of my course at this university | 12 | 60 | 160 | 90 | 3.91 | 0.95 | |
| | (3.59%) | (3.59%) | (17.9%) | (47.9%) | (26.9%) | | |
| Sub-mean & Standard deviation | | | | | | 3.87 | 1.00 |
| Socio-economic status | | | | | | | |

| | | | | | | |
|--|---------|---------|---------|---------|-------------|-------------|
| I am in a position to afford the technology50 facilities required by the course | 40 | 95 | 89 | 60 | 3.21 | 1.29 |
| | (14.9%) | (11.9%) | (28.4%) | (26.6%) | (17.9%) | |
| I always afford all the materials required for28 learning during the lectures | 33 | 92 | 125 | 56 | 3.44 | 1.13 |
| | (8.38%) | (9.88%) | (27.5%) | (37.4%) | (16.7%) | |
| The internet and secretarial needs of the44 course are affordable to me as a student | 44 | 77 | 93 | 76 | 3.34 | 1.32 |
| | (13.1%) | (13.1%) | (23.5%) | (27.8%) | (22.7%) | |
| Sub-mean & Standard Deviation | | | | | 3.33 | 1.25 |
| Pooled Mean & Standard Deviation | | | | | 3.61 | 1.19 |

Legend: 4.20-5.00 Very High, 3.40-4.19 High, 2.60-3.39 Average, 1.80-2.59 Low, 1.00-1.79 Very Low

Note. Primary data (2022).

The learning environment posted a high pooled mean of 3.61 and a standard deviation of 1.19, which means that the majority of the respondents agreed with the statements in the questionnaire. This shows a fair learning environment in the selected universities in central Uganda. The descriptive statistics aided in the correlation analysis as seen below.

4.1 Correlation Results

To achieve the study objective, a Pearson correlational analysis was taken to establish if there was a relationship between students' learning environment and students' academic performance in the selected universities in central Uganda.

Table 3. Correlation results between students' learning environment and students' academic performance in universities in central Uganda

| Correlations | | Students' academic performance |
|--------------------------------|---------------------|--------------------------------|
| Lecturer-student ratios | Pearson Correlation | .263** |
| | Sig. (2-tailed) | .000 |
| | N | 334 |
| Lecturer-characteristics | Pearson Correlation | .443** |
| | Sig. (2-tailed) | .000 |
| | N | 334 |
| Student-characteristics | Pearson Correlation | .465** |
| | Sig. (2-tailed) | .000 |
| | N | 334 |
| SES of students | Pearson Correlation | .283** |
| | Sig. (2-tailed) | .000 |
| | N | 334 |
| Students' learning environment | Pearson Correlation | .457** |
| | Sig. (2-tailed) | .000 |
| | N | 334 |

****.** Correlation is significant at the 0.05 level (2-tailed).

Note: Primary data (2022).

The results from the Pearson correlational analysis revealed a significant positive relationship between students' learning environment and students' academic performance ($r = .457$, $p = .000 < 0.05$). Since the p -value of .000 obtained was less than 0.05 ($p = .000 < 0.05$), the null hypothesis that there is no significant relationship between students' learning environment and academic performance in the selected universities in central Uganda is therefore rejected. This then provides sufficient evidence of a relationship between students' learning environment and students' academic performance in the selected universities. This significant influence implies that improvement in the student's learning environment is likely to be followed by progress in students' academic performance in the selected universities in central Uganda.

From the interviews with the key informant, whether lecturers' characteristics influenced

students' academic performance, the key respondent said that it is essential to gain experience and qualifications to teach the students well at the university:

... yes, they influence a lot because the more one goes higher in qualifications, the more one gets exposed the delivery in class. The rank of the lecturers is critical in learning, because of experience and exposure, which are fundamental in teaching, even how to handle sensitive matters like assessment. It takes away insecurity within you. Experienced lecturers can give career guidance because of exposure... Source: Key informant...NU

The respondent, being a key informant, is well aware that there is a need to improve the quality of lecturers as part of the enablers of the learning environment. This could be capacity-building arrangements and obtaining the required academic credentials.

Section 119 of Universities and Other Tertiary Institutions Act (2001) regulates that, *...no University or tertiary institution shall employ a lecturer, instructor or other person recruited for the purpose of teaching or giving instructions to students whose qualifications do not conform to the standards set by the National Council for Higher Education...* Similarly, section 21 (3) of the statutory instrument No. 85 of 2005, regulates that, *... a person shall not be recruited as an academic or technical staff unless he or she possesses qualifications approved by the National Council...* Similarly, for the same question, one lecturer's response was that:

...for the basic sciences, the junior lecturers tend to give more of the primary content they have a lot of information on basics, but the seniors provide more application, so the students benefit from the application of knowledge from the methods of the seniors, because without application, the students will have to cram and can't think critically to apply knowledge... Source: L004.KyU

This implies that the highly qualified lecturers gain experience and exposure in practices such as assessment, fostering critical thinking among students, and even providing counseling to students at universities. In Uganda, university students face a range of social challenges that require the guidance of experienced lecturers to help them improve their academic performance.

4.2 Regression Results

This section presents the results from the multivariate regression analysis, purposely to show the effect of learning environment on the students' academic performance.

Table 4. *Multivariate regression results for the effect of students' learning environment on students' academic performance in universities in central Uganda.*

| Coefficients ^a | | | | | | |
|---------------------------|-----------------------------|-------------------|---------------------------|------|-------|------|
| Model | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | |
| | B | Std. Error | Beta | | | |
| | (Constant) | 1.698 | .192 | | 8.864 | .000 |
| | Lecturer-student ratio | .016 | .038 | .023 | .409 | .683 |
| 1 | Lecturer characteristics | .219 | .054 | .245 | 4.042 | .000 |
| | Students' characteristics | .276 | .054 | .301 | 5.117 | .000 |
| | Socioeconomic status | .029 | .041 | .041 | .712 | .477 |
| | R= | .516 ^a | | | | |
| | R Square = | .267 | | | | |
| | F= | 29.896 | | | | |
| | P-Value = | .000 ^b | | | | |

a. Dependent Variable: Students' academic performance

Note: Field data 2022.

The different constructs of the learning environment: lecturer-student ratio, student characteristics, lecturer characteristics, and socioeconomic status are combined significant factors that explain the variations in students' academic performance ($F = 29.896$, $p = .000 < 0.05$).

This provides evidence that the learning environment in which students study has an impact on their academic performance in the selected universities in Central Uganda. The ratios of lecturers to students, as well as the characteristics of both lecturers and students, along with

socioeconomic status, can only account for 26.7% of the variation in academic performance among students in these universities ($R^2 = .267$). The remaining (70.2%) of the variation *may* be attributed to other factors that were not accounted for in this study.

In the fitted model in Table 1.3, students' academic performance does not depend on lecturer-student ratios in the selected universities in Central Uganda ($\beta = 0.016, p = .683 > 0.05$). This is because the *p-value* of .683 is greater than 0.05 ($p = .683 > 0.05$) and thus makes it statistically insignificant to influence students' academic performance in the selected universities of Central Uganda.

In the model in Table 1.3, a unit improvement in the lecturer characteristics results in a 0.219 (21.9%) increase in students' academic performance if other factors are kept constant ($\beta = 0.219, p = .000 < 0.05$). Such an increase in students' academic performance resulting from improved lecturer characteristics is statistically significant since $p = .000$ is less than 0.05 (5%).

Therefore, it implies that the increase in students' academic performance in the selected universities in Central Uganda is statistically significantly dependent on the improvement in the lecturer characteristics. This was consistent with Olaitan (2018) that teachers' competence affected students' cumulative grade point average (CGPA). Similarly, it is consistent with Adeyemi (2017) that lecturers' variables significantly influenced students' academic performance. During the interviews, one lecturer was very positive in considering such attributes as lecturers' attitude during class if students' academic performance was to be improved:

...i realized the temperaments and personalities when I am teaching and I try to be lively and create jokes and laughter; the students understand better than when I am tough and rigid on them, and their grades turn out to be low. In terms of delivery approach, I ask my students about their opinions on my delivery methods; I improve and usually try to look for feedback after delivering the modules... **Source:** L002...KyU

This response makes it clear that establishing a friendly and conducive students' learning environment may help enhance students' academic performance in universities. It is therefore essential to have lecturers with pedagogical competencies, such as being approachable and supportive.

In the model in Table 1.3, a unit increase in the characteristics of students results in a 0.276 (27.6%) improvement in students' academic performance if other factors are kept constant ($\beta = 0.276, p = .000 < 0.05$). This improvement in the academic performance of students as a result of that improvement in the student characteristics is statistically significant since $p = .000$ is less than 0.05.

Therefore, it means that the improvement in students' academic performance in the selected universities in Central Uganda is statistically and significantly dependent on the type of student characteristics. This then implies that even if student characteristics explain less to students' academic performance (27.6%), if attributes like gender, age of the students and those students with special educational needs are taken care of, it could lead to the

enhancement of their academic performance.

Those students who were admitted to university with higher scores could also shape the type of academic performance in universities. Similarly, the way lecturers handle students with different intellectual abilities, such as those with lower or higher entry points, determines how they perform. For instance, Kapinga and Amani (2016) in Tanzania found a significant relationship between the entry points and students' academic performance. This was also supported by an interview response about the entry qualifications of students from one lecturer:

...with the educational background of the students, those who performed poorer at admission tend to perform better and improve, and the ones who joined with good grades tend to relax. The students who scored more inferior grades at entry end up graduating as top students while those with good grades end up as mediocre... Source: L002... KyU

It is incumbent on university management not to consider only students' scores but also other students' attributes. However, in the same study, Kapinga and Amani contested that gender did not have any significant impact on students' academic performance. Their finding differed from the interview response of a lecturer that students' gender was affected differently, especially when they engage in relationships, *...for instance, like the gender aspect, especially the female, are affected significantly when they are involved in relationships... Source: L002...KyU*

Several interventions like counselling sessions are required to help students' settle on track of their academics to enhance their academic performance.

As in the fitted model in Table 1.3, students' academic performance does not depend on university socioeconomic status. ($\beta=0.029$, $p=.477>0.05$). This is so because of the statistically insignificant *p-value* of 0.477, which is greater than 0.05 ($p=.477>0.05$). This implies that socioeconomic status does not influence students' academic performance in the selected universities in Central Uganda.

In the interview with one lecturer on how socioeconomic status influenced students' academic performance, he responded that:

... student economic background, low-income students don't exploit their academic potential fully because they divide their time between looking for survival and getting knowledge. One of the ways of survival is by limiting expenditure, so when you restrict expenditure, you don't get exposure, while students from high-income backgrounds ... Source: L001...KyU

This indicates that the socioeconomic status of students plays a very critical role in shaping their learning and shaping the direction of their academic performance. For instance, sometimes students from better socioeconomic status can afford all their tuition obligations with ease and may tend to concentrate and therefore perform well.

The purpose of the study was to validate the influence of students' learning environment on their academic performance in the selected universities in Central Uganda. Pearson correlation analysis revealed a significant albeit moderately weak, positive relationship

between students' learning environment and their academic performance in these universities. In addition, the analysis revealed that the relationship between socioeconomic status and academic performance, as well as the relationship between lecturer-student ratio and students' academic performance was weak. However, the regression analysis indicated that students' learning environment on their academic performance was significantly positive, but the variation was only explained by 26.7% ($R^2=0.267$). Furthermore, the results revealed that students' academic performance depended on their characteristics and lecturer characteristics but was not on socioeconomic status or lecturer-student ratio, as these factors were statistically insignificant.

5. Discussion

The study was to validate whether students' learning environment influences their academic performance in the selected universities in Central Uganda. A review of several research studies on students' learning environment was conducted, and correlation and regression analyses were performed. The results revealed that there was a relationship between students' learning environment and their academic performance to some extent. Nyadanu et al. (2015) supported the findings of the Pearson correlation analysis, noting that the declining academic performance in Ghana was attributed to the school environment. Furthermore, Shernoff et al. (2016) observed that classroom settings generally have either a direct or indirect impact on students' academic performance. Although the analysis conducted in this study could help to explain the relevance underlying the correlation result, Shernoff et al., did not specify the 'classroom setting' factors that impact students' academic performance. I argue that students' learning environment extends beyond the physical classroom setting to include the characteristics of lecturers, the students and their socioeconomic status.

Nassimbwa (2019) avers that factors in the school learning environment, such as large, well-equipped, and adequate-sized lecture halls, as well as the diversity of the academic staff and their degree of competence, impact student completion. This was consistent with a study by Olaitan (2018) that explored the relationship between perceived classroom climate and teacher competence. As Shernoff et al. (2016) claim, this suggests that, the student's academic performance may continue to decline or stagnate if the learning environment for students is not improved, such as by increasing the lecturer-to-student ratios, educating/training the lecturers in sound pedagogical practices, and providing students all their learning needs. However, the study by Nassimbwa and Olaitan thoroughly studied different outcome variables that do not explain students' academic performance as the current study sought. For instance, any student could complete but without attaining the educational targets of academic performance.

The Pearson correlation analysis finding is also consistent with Olaitan (2018) that students' academic performance is influenced by lecturers' expertise and perceptions of the classroom setting. Nwegbu et al. (2015) found that adopting new study techniques depended on the lecturers' teaching style and students' financial situation. Olaitan's research findings revealed a statistically significant relationship between lecturers' competence and GPA, as well as a statistically significant interaction between the academic performance of students, and the

classroom environment. Olaitan emphasizes the notion that students' academic success at universities is influenced by their learning environment, especially the qualifications of their lecturers. This is underscored by Nwegbu et al., that students' socioeconomic status also determines the learning environment. Both scholars emphasize the perceived importance of a conducive student learning environment in the selected universities in Central Uganda.

There may not be much cause for concern over the lecturer-student ratios in the selected universities in Central Uganda since students' academic performance in these universities is not statistically dependent on them. Despite a large number of students enrolling in these universities, the result is supported by Varughese (2017) that the supply of higher education rather than its availability is the main issue for countries like India. Therefore, it is the responsibility of policymakers and university administration to set up infrastructure that can help students learn properly and achieve the necessary academic performance.

However, a study by Amertodzi (2017) revealed that students' acquisition of skills is affected by large class sizes. Olaitan (2018) showed a significant relationship between teachers' competencies and academic progress. Nwegbu et al. (2015) found that lecturers' teaching techniques affected students' academic performance. Skills acquisition needs close collaboration with the lecturer and among peers which the size of the classes may hamper. In support of this conviction, Amertodzi further asserts that students in the small classes exhibited high scores and high skill proficiencies.

The finding in the regression analysis is that socio-economic status does not significantly influence students' academic performance in the universities in central Uganda. This was consistent with Okore (2019) in Kenya that socio-economic status has no significant relationship with students' academic performance. Rodriguez-Hernandez et al. (2020) also established a positive yet weak relationship between socioeconomic status and academic performance in higher education institutions. However, the results were inconsistent with Omeje et al. (2021), who aver that students' academic performance significantly decreases with low socioeconomic status, and thus socioeconomic status has a negative significant influence on students' academic performance.

On the contrary, Rodriguez-Hernandez et al. (2020) tend to differ from Omeje et al. (2021) in that there is little correlation between pupils' socioeconomic background and academic performance. The report by OECD (2018) revealed that socioeconomic status is strongly associated with academic performance. Further still, studies by Dube and Mlotshwa (2018), Papageorgiou (2017), Nwegbu et al. (2015), Ngoma et al. (2017) and Rodriguez-Hernandez et al. (2020) all affirm the importance of socioeconomic status to students' academic performance. The study by Kiruy et al. (2020) revealed that the socioeconomic status of their parents significantly influenced academic performance. However, the study aimed at students' socioeconomic status at the selected universities. This contradiction in several findings by different scholars could imply a dearth of knowledge on the influence of socioeconomic status which needs more conceptualization, given the few studies in the context of Uganda's universities.

6. Conclusion

The study concludes that there was a positive significant relationship between students' learning environment and their academic performance in the selected universities in Central Uganda ($r=.457, p=.000$). The results of the regression analysis showed that all the constructs of students' learning environment explain 26.7% of the variation in students' academic performance ($R^2=0.267$).

However, the study was only limited to a selected sample of two universities from central Uganda and done with a design that required the collection of data in a short period. The author cannot claim that the findings represent all the universities in Uganda, especially given their different regional endowments. Future researchers should, therefore, consider more universities in Uganda and also use other research designs like the longitudinal research design to understand how the influence of the learning environment has influenced students' academic performance over years or more.

6.1 Recommendation

Policy practitioners and university administration should prioritize understanding students' social backgrounds to develop inclusive policies that cater for the needs of all students.

6.2 Funding

The study was part of a thesis, and one of the objectives was to come up with a manuscript. This study did not attract any funding of whatever form.

6.3 Conflict of Interest

The author declares no conflict of interest.

Informed Consent

Obtained.

Provenance and Peer Review

Not commissioned; externally double-blind peer reviewed.

Data Availability Statement

The data that support the findings of this study are available on request.

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