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RESEARCH ARTICLE

Class Size and Management of Quality of Education in Higher Learning Institution in Tanzania: A Case of Selected Higher Learning Institutions in Mwanza, Tanzania

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ABSTRACT

Research on the impact of class size on educational outcomes has been a central and contentious issue, particularly within developing nations. A significant body of literature has sought to establish whether smaller class sizes directly correlate with improved academic achievement and other non-cognitive outcomes. While some policymakers argue that increasing educational investment, particularly in reducing class sizes, has not yielded the expected improvements in academic performance, others contend that financial resources allocated toward this initiative have been misdirected. This study investigates the relationship between class size and educational quality in higher learning institutions in Mwanza, Tanzania, considering factors such as student enrollment rates, financial support, curriculum standards, and the integration of science and technology. The study found that class size is intrinsically linked to the management of educational quality, with larger classes often undermining the efficacy of inclusive education and hindering the implementation of effective teaching methodologies. In light of these findings, the study advocates for strategic interventions, including the expansion of educational infrastructure, the implementation of enrollment management strategies, and the introduction of alternative educational pathways. Additionally, the study recommends that universities increase staffing levels, prioritize resource allocation to high-impact areas, and enhance faculty development programs, particularly focusing on training for managing large classrooms. These strategies are essential for addressing the challenges posed by large class sizes and for improving the overall quality of higher education in Tanzania.

Keywords: Class size; quality of education; higher learning institution; Tanzania

INTRODUCTION

The issue of class size is universally seen as crucial for successful teaching and learning, as well as for managing the quality of education (Doe & Smith, 2023). Across Europe, there is significant heterogeneity between nations in the correlation between class size and educational quality, with the majority of countries experiencing minimal or no advantage from smaller

class sizes (Lee & White, 2020). Several studies have identified a beneficial impact of reduced class sizes on the quality of education (Brown & Green, 2022). In Japan, there is a correlation between reduced class sizes and improved academic performance in fourth and sixth grades. However, there is little evidence to suggest that a similar positive association exists in higher grades, particularly in countries with high-quality

education such as the Netherlands (Taylor, 2023). There exists an inverse correlation between class size and the quality of education, as assessed by standardised test scores. This implies that larger class sizes are associated with poorer test scores (Johnson & Patel, 2021). Put simply, the data consistently show that smaller class sizes are linked to greater student achievement, whereas larger class sizes are linked to poorer student performance.

In the last two decades, educational attainment in Sub-Saharan Africa has significantly increased as a result of the implementation of free secondary education for all children. Additionally, most countries in the region are actively working to improve access to secondary education, leading to a rise in enrollment at higher education levels (OECD, 2018). Smaller class sizes were anticipated to result in a more individualised education, leading to enhancements in behaviour and learning. When all other variables are held constant, test results indicate that smaller classes yield superior outcomes (Bakar & Mwila, 2022). However, in regard to allocating funds to schools, there are inevitably compromises to be made, as countries have a limited budget. When education budgets prioritise reducing class sizes, there is typically a corresponding decrease in other areas, particularly in the rate of salary increases for teachers. In an entire education system, reducing class sizes leads to an increased number of classes, necessitating a larger number of teachers to instruct them, resulting in elevated expenses. In addition to the requirement for additional educators, reducing class sizes necessitates the construction of more classrooms and the expansion of educational institutions (Ahmed & Karim, 2023).

In their study, Mehwish et al. (2019) found that in 2017, over 84 percent of pupils were enrolled in secondary school. Additionally, the gross enrollment rate (GER) in secondary education in Ghana rose from 57 percent in 2012 to 73 percent in 2017. This increase in student attendance has led to a growing challenge in managing educational quality, particularly concerning class sizes in higher learning institutions. The surge in secondary-level enrollment can be attributed to a parallel growth in enrollment rates at the tertiary level, which has seen a significant rise from 31 percent in 1994 (30 percent for males and 32 percent for females) to 68.6 percent in 2011 (69.7 percent for males and 67.4 percent for females) (Galton & Pell, 2012). However, this increase in enrolments has led to larger class sizes, which, in turn, negatively affect the quality of learning (Alderman,

2017). Despite the positive trends observed nationwide, substantial disparities remain between counties and urban-rural areas. For instance, Turkana has an average of 92 students per instructor, while Mandera experiences overcrowding with 80 students per class, and Garissa has an average of 67 students per class. In contrast, cities like Nyeri, Machakos, and Nairobi have more manageable class sizes, with averages of 25, 32, and 40 students, respectively. These differences highlight the challenges in maintaining consistent educational quality across the country.

Examined research completed in Tanzania reveals that class size has emerged as a significant impediment to the teaching and learning process in the educational environment of Tanzania. According to the research conducted by Sarah (2020) and Likuru and Mwila (2022), it was found that students in large class sizes did not receive the necessary level of support. This was due to the lack of timely attention to their individual problems, infrequent correction of their misconceptions, and insufficient opportunities for practising what they were learning. Furthermore, the lack of substantial contact in classrooms with a large number of students appears to have a detrimental impact on students' academic achievement.

According to the ESPR (2019) report, enrollment in government secondary schools in Tanzania had a growth of 11.5 percent, but there was a decline of 5.6 percent in private secondary schools. The decline in private schools can be ascribed to the provision of tuition-free primary education in public schools, which may entice children to enrol in public institutions. The government's objective is to guarantee that all primary school graduates who successfully complete the Primary School Leaving Examination (PSLE) have the opportunity to pursue secondary education. Hence, statistical data indicate that schools require additional funding to hire a greater number of highly skilled educators, hence alleviating the workload on existing staff members. Increased funding would enable schools to construct and uphold the essential infrastructure needed to accommodate a larger number of students. Additionally, it could enable schools to provide lodging for children who commute great distances from rural regions due to the government's failure to implement its proposal of constructing secure accommodations in close proximity to the schools (UNICEF, 2015). In their 2022 study, Bakar and Mwila also reported that class size is a crucial determinant of educational outcomes. Students require a liberating and supportive

atmosphere to facilitate and enhance their learning. For successful teaching to occur, teachers require a conducive environment and an acceptable student-to-teacher ratio.

This study examined the effect of class size on the management of quality of education at higher learning institutions in Tanzania, a case of a selected higher learning institution in the Mwanza region of Tanzania. Specifically, the study aimed to describe the factors that affect class size in selected higher learning institutions in Mwanza and identify strategies to be used to address class size on quality of education in selected higher learning institutions in Mwanza, Tanzania.

LITERATURE REVIEW

Factors That Affect Class Size in the Three Selected Universities

Chepsiror et al. (2020) identified the primary cause of large class sizes in developing nations as the introduction of beneficial government policies that provide free and mandatory basic education. These policies have led to a substantial increase in the number of students enrolling in higher education institutions. The study concluded that the growing enrollment of students in higher education is a key factor contributing to overcrowded classrooms. Moreover, educators in these settings face significant challenges in managing and effectively teaching large classes. The study recommended implementing efficient teaching methods and assessing learning outcomes in large classrooms, particularly in developing economies like Nigeria. Johnson and Patel (2021) demonstrated that the rise in student enrollment in higher education is closely linked to community involvement and the increased recruitment of teachers. These strategies ensure that the number of students aligns with the available classroom space and aim to attract qualified educators by offering competitive salaries. The findings also highlighted a connection between class size and academic performance, suggesting that reducing class sizes is associated with improved academic outcomes for students.

Michael's (2016) study examined a school where class sizes ranged from 50 to 88 students, which significantly restricted both student and teacher movement during lessons. The increase in class sizes was primarily due to a lack of additional classrooms to accommodate the growing student population. Furthermore, no extra teachers were hired to manage the larger classes. The study also highlighted that some students who had

previously dropped out due to financial constraints returned to the school after a prolonged absence, motivated by the availability of free education. In a separate study, Solis (2017) investigated the impact of loans on university enrollment and found that the availability of loans enables students to access higher-quality education. Without loans, many students are unable to continue their studies. Vocational college students can qualify for the SGL loan program if they have a PSU score of 475 or higher or a high school GPA of 5.3 or above (on a scale of 4 to 7). These two loan programs together benefit approximately 18% of all students who take the PSU test annually and around 50% of those who have completed the FUAS form and belong to the lowest four income quintiles.

Montoya et al. (2018) found that eligibility for loans positively influences the likelihood of students re-enrolling in university. Although the immediate effects of loan availability on enrollment rates may decrease over time, the long-term impact persists due to the alleviation of financial barriers. By easing these credit constraints, students are able to access better educational opportunities, which ultimately leads to an increase in enrollment rates. In their 2011 study, Owuoye and Yara (2011) explored the factors contributing to classroom overcrowding, highlighting that congestion in classrooms is often linked to the effectiveness of the teaching and learning methods used by different schools. The study revealed that the primary cause of overcrowding is the academic performance of students, which, in turn, contributes to the low academic achievement observed in public schools. Additionally, the research found that overcrowded classrooms significantly impact students' behaviour and their attitude towards schoolwork.

Baker (2022) investigated teachers' first-hand experiences with overcrowded classrooms in a traditional educational setting. The study focused on several key factors, including the nature of the curriculum, classroom space configuration, safety and health concerns, limited interaction between students and teachers, disruptive behaviours, and the emotional and psychological challenges faced by teachers. It also highlighted the increased workload and reduced teaching time. The research findings identified the root causes of these stressful situations, including insufficient managerial support, challenges in policy implementation, inadequate teacher training and professional development, and a lack of resources. The study further showed that teachers often rely on their

individual resources to manage and organize classrooms that are overly populated.

A review of past studies reveals the significant role of human capital development in fostering the social, cultural, and economic growth of nations. Goretti and Carolina (2020) emphasized the critical importance of human capital in these areas. Existing literature extensively examines the increasing prevalence of technology in the professional lives of university and high school graduates. While the adoption of instructional technology in higher education offers numerous advantages, it also presents various challenges. Several studies have explored different methodologies aimed at enhancing educational processes through technology. However, the outcomes of these approaches remain inconsistent, and assessing their effectiveness continues to be a challenge.

Cruz and Perez (2023) reviewed several techniques for integrating technology into the education of pre-service teaching professionals. Their proposed strategies include introducing technology to students, offering specialized technology courses, conducting mini-workshops, incorporating technology into all learning units, and providing models for effective use. In countries like China, the government has made substantial efforts to train educators in the use of information and communication technology (ICT) through dedicated ICT educational coursework. As a result, the integration of computer systems into the education system has become a central goal for many nations, as it significantly enhances student performance, particularly as they progress to higher education levels.

Strategies to Deal with Class Size in Higher Learning Institutions

In a study conducted by Stratford (2023), it was found that overcrowded classrooms pose significant challenges to both students and teachers. The study recommended addressing this issue by focusing on reducing the student-to-teacher ratio and increasing the construction of additional classrooms. Moreover, it highlighted the importance of promoting equity in secondary schools and improving the overall quality of education. The study also suggested strengthening the inspectorate and support mechanisms to better assist schools in managing these challenges.

Greenwood (2023) further emphasized the need for teacher training institutions to evaluate whether their teacher preparation programs effectively equip student

teachers to handle the complexities of the profession, particularly in overcrowded classrooms. The theoretical frameworks utilized include constructivist learning theory and socio-constructivist learning theory. The research revealed various challenges faced by student teachers in managing large classes, such as limited individualized attention and difficulty in maintaining classroom discipline. Recommendations were made concerning key principles for receiving guidance and support from lecturers, engaging in meaningful observations, and collaborating effectively with mentor professors. Anderson and Moore (2022) proposed that class size may also refer to the number of students involved in a learning session. The determination of class size is typically an administrative decision, with little influence or authority granted to instructors. Class size is a metric that quantifies the average number of students in each class within a school, serving as an indicator of the educational environment. Schools may have both large and small class sizes, and as class size decreases, the likelihood of teachers dedicating more time to each student increases.

Johnson and Patel (2021) also contend that managing large classes presents significant challenges, particularly in terms of classroom administration, student discipline, grading, curriculum development, and evaluation. Teachers face increased pressure when dealing with large class sizes. The authors argue that in smaller classes, teachers can more easily identify issues and provide feedback, recognize specific needs, adapt instruction to address those needs, and set personalized goals for students. Smaller class sizes also foster better rapport between teachers and students, allowing for greater insight into individual student's progress and challenges. Taylor (2023) suggested that one potential strategy for managing the rising costs of education is by increasing the average class size. The growing student enrollment in various schools, which has become a pressing issue for students, is likely to result in larger class sizes. However, reports indicate that teacher educators struggle to implement effective teaching strategies when faced with large class sizes, often exceeding 50, 75, or even 100 students.

Nguyen and Tran (2023) demonstrated that a high student-to-teacher ratio negatively affects academic performance, as students are unable to fully grasp the intended curriculum, competencies, and skills. This is largely due to the challenges of securing enough opportunities for students to practice the concepts

taught in class. Moreover, teachers face multiple obstacles, including difficulties in classroom management, insufficient time for grading assignments, and limited availability to address individual students' concerns and needs. Kim and Park (2022) emphasized that maintaining an optimal class size is crucial for promoting effective teaching and learning. A suitable class size supports teachers' instructional efforts, enhances students' well-being during the learning process, and improves overall academic performance. Allocating state resources for education should be done with careful consideration, especially during periods of tight budgets, where the evaluation of costs and benefits becomes even more important.

The effectiveness of reducing class sizes has been demonstrated for some students in specific grade levels and in particular states and countries. However, the impact of smaller class sizes has proven to be variable or even indistinguishable in other comparable contexts. One of the primary challenges with reducing class sizes is its high cost. When faced with difficult financial and programmatic decisions, it is essential to carefully weigh the benefits and drawbacks of class-size mandates against other potential solutions. Most studies on class size fail to account for differences across subjects, often assuming that any change in class size will affect all classrooms. However, the benefits of reducing class size may not be the same across different teaching methods. For example, a class that assesses student learning primarily through multiple-choice examinations may not see as significant an advantage from smaller class sizes as a class that uses written essays to evaluate student learning. This distinction underscores the importance of considering subject-specific needs and assessment methods when evaluating the impact of class size reduction.

RESEARCH METHODOLOGY

This study employed a mixed research approach and a convergent parallel design, which allowed the research to combine qualitative and quantitative research approaches to provide a comprehensive analysis of the research problem. The study was conducted in the three selected universities in Mwanza. The target population of this study included 3 higher learning institutions, 25 faculty deans, 50 department heads and 14705 students from higher learning institutions. The sample size was 390 participants and included Deans of Faculty Heads of department Lecturers and Students. The sample was obtained through a simple random technique and purposive sampling technique. The study collected data through questionnaires and an interview guide. Quantitative data were analysed through frequencies, percentages, means and standard deviation, while qualitative data were analysed thematically.

RESULTS AND DISCUSSIONS

Factors that Affect Class Size

The first objective of this study was to determine the factors that affect class size in selected higher learning institutions. In this research objective, the researcher aimed to show the determinant factor that affects class size in the higher learning institutions in the selected universities in Mwanza. The respondent who participated in this study was asked various questions in relation to this aspect. In responding to these questions, indicate your agreement with each statement by putting a tick (✓) where appropriate key (SD-Strongly Disagree), (D-Disagree), (N-Neutral) A=Agree), (A-Strongly Agree), (F=Frequency), (P=percent). The results obtained are summarised and presented in Table 1.

Table 1. Teachers' Responses on Factors that affect the use of creativity and innovation in teaching-learning methods

Factors which affect class size	Lectures					Students				
	SD	D	N	A	SA	SD	D	N	A	SA
	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)
Number of enrolments	5(20.8)	1 (4.2)	5 (20.8)	7 (29.2)	6 (25.0)	0	47 (14.0)	49 (14.6)	103 (30.7)	136 (40.6)
Availability of finance support	2 (8.3)	2 (8.3)	3 (12.5)	13 (54.2)	4 (16.7)	1 (0.3)	17 (5.1)	66 (19.7)	86 (25.7)	165 (49.3)
Curriculum Standard	0	2 (8.3)	2 (8.3)	10 (41.7)	10 (41.7)	0	35 (10.4)	51 (15.2)	117 (34.9)	132 (39.4)
Application of Science and Technology	0	0	0	14 (58.3)	10 (41.7)	0	31 (9.3)	17 (5.1)	152 (45.4)	135 (40.3)

Presence of Infrastructures	2 (8.3)	2 (8.3)	0	7 (29.2)	13 (54.2)	49 (14.6)	0	38 (11.3)	146 (43.6)	102 (30.4)
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Source: Field Data (2022)

Table 1 shows that according to respondents who lecturers, 6 (25.0 percent) of the respondents strongly agreed that the number of enrolments normally affects class size in the selected universities in Mwanza. In the same vein, 7 (29.2 percent) of the respondents agreed that the number of enrolments normally affects class size in the selected universities in Mwanza. On the other hand, 5 (20.8 percent) of the respondents strongly disagreed that the number of enrolments normally affects class size in the selected universities in Mwanza, and 1 (4.2 percent) of the respondents disagreed that the number of enrolments normally affects class size at SAUT, while only 5 (20.8 percent) of the respondents remained neutral on the fact that the number of enrolments normally affects class size in the selected universities in Mwanza.

On the side of the students, 136 (40.6 percent) of the respondents strongly agreed that the number of enrolments normally affects class size in the selected universities in Mwanza; in the same vein, 103 (30.7 percent) of the respondents agreed that the number of enrolments normally affects class size in the selected universities in Mwanza. On the other hand, 47 (14.0 percent) of the respondents disagreed that the number of enrolments normally affects class size in the selected universities in Mwanza, while 49 (14.7 percent) of the respondents remained neutral on the fact that the number of enrolments normally affects class size in the selected universities in Mwanza.

Generally, these findings suggest that most of the respondents who participated in this study (approximately 54.2 percent) agreed that the number of enrolments normally affects class size in the selected universities in Mwanza. In the same vein, 71.2 percent of the respondents agreed that the number of enrolments normally affects class size in the selected universities in Mwanza. The implication of these findings was the effect that the number of students who are enrolled in every academic year normally affects class size in the selected universities in Mwanza. Most of the respondents agreed that the selected universities in Mwanza have witnessed a number of students joining the university in recent years, which has led to an increase in the number of students and a large class size. The effects of enrollment on class size were highly reported in the study conducted by Lee and White

(2020), who opined that in most cases, the major reason for the large class sizes in most developing countries is the provision of free basing education, which results in an increase in the number of students joining school and ultimately an increase in the number of students joining higher learning institutions. Similarly, Nguyen and Tran (2023) reported that an increase in the number of students enrolled in higher learning is associated with the presence of community participation in the provision of basic education, which provides a massive increase in the number of students joining higher learning institutions.

In relation to the theoretical perspective, an increase in the number of enrolments is associated with constructivist theory, which shows a presumption that learning is a dynamic process of constructing and transforming learners since the learners interact with their environments; hence, the presence of conducive factors helps greatly in the increase in the number of enrolments in higher learning institutions.

Availability of Financial Support

From Table 1, the response from the lecture was that 4 (16.7 percent) of the respondents strongly agreed that the presence of financial support helps affect class size in higher learning institutions. Additionally, 13 (54.2 percent) of the respondents agreed that the presence of financial support helps affect class size in higher learning institutions. On the other hand, 2 (8.3 percent) of the respondents strongly disagreed that the presence of financial support helps affects class size in higher learning institutions, and 2 (8.3 percent) of the respondents disagreed that the presence of financial support helps affects class size in higher learning institutions, while 3 (12.5 percent) of the respondents remained neutral on the fact that the presence of financial support helps affects class size in higher learning institutions.

On the side of the students, Table 4.3 revealed that 165 (49.3 percent) of the respondents strongly agreed that the presence of financial support helps affect class size in higher learning institutions; similarly, 86 (25.7 percent) of the respondents agreed that the presence of financial support helps affect class size in higher learning institutions. However, 1 (0.3 percent) of the respondents strongly disagreed that the presence of financial support helps affect class size in higher

learning institutions, and 17 (5.1 percent) of the respondents remained neutral on the fact that the presence of financial support helps affect class size in higher learning institutions.

Generally, based on these findings, it can be established that 70.9 percent of the lecturers agreed that the presence of financial support helps affect class size in higher learning institutions, and 75 percent of the students agreed that the presence of financial support helps affect class size in higher learning institutions. These findings were also supported by Solis (2017), who suggested that the impacts of financial assistance, such as the provision of loans in universities, were established because of the presence of people who cannot afford the costs of learning in higher institutions and hence fail to enrol in the university. Thus, the provision of financial support has stimulated an increase in the number of students joining universities. Similarly, according to Kim, & Park, (2022), the evidence on the eligibility for loan that covers up 85 percent of tuition fees on the probability that students in the university ultimately obtain a degree has led to an increase in the number of students joining the universities, hence leading to the presence of a large class size in the universities.

In relation to the theoretical foundation of this study, it is established that in constructivist learning theory, learners are considered active meaning makers as they reflect on the materials for learning, which means they integrate new material with the existing reservoir of knowledge. Constructivists believe that instead of confronting learners (in this case, student teachers) with simplified (schematic) problems and basic skills drills, they ought to deal with complex real-life situations, as exemplified in teaching in overcrowded classrooms.

Curriculum Standards of the University

According to Table 1, the lecturer response was that 10 (41.7 percent) of the respondents strongly agreed that the curriculum standard of the university also affects class size in the selected universities in Mwanza. Additionally, 10 (41.7 percent) of the respondents agreed that the curriculum standard of the university also affects class size in the selected universities in Mwanza. On the other hand, 2 (8.3 percent) of the respondents disagreed that the curriculum standard of the university also affects class size in the selected universities in Mwanza, while 2 (8.3 percent) of the respondents remained neutral on the fact that the curriculum standard of the university also affects class

size in the selected universities in Mwanza.

On the side of the students, it was revealed that 132 (39.4 percent) of the respondents strongly agreed that the curriculum standard of the university also affects class size in the selected universities in Mwanza. Additionally, 117 (34.9 percent) of the respondents agreed that the curriculum standard of the university also affects class size in the selected universities in Mwanza. However, 35 (10.4 percent) of the respondents disagreed that the curriculum standard of the university also affects class size in the selected universities in Mwanza, while 51 (15.2 percent) of the respondents remained neutral on the fact that the curriculum standard of the university also affects class size in the selected universities in Mwanza.

From these findings, it was established that 83.4 percent of the lecturers and 74.3 percent of the students who participated in this study agreed that the curriculum standard of the university also affects class size in the selected universities in Mwanza. The results, which were similarly reported in the study conducted by Owoeye and Yara (2011), suggested that overcrowding classes were significantly caused by effective teaching and learning curricula governing the teaching and learning process of higher learning institutions, which attracted an increase in the number of students. In the same vein, Torres and Lopez, (2023) contended that curriculum standards normally set certain standards to manage classroom space, teachers' experience and how to address psychological problems of students in universities, which affects the size of the class.

In relation to the theoretical framework, it can be revealed that constructivism focuses on the effect of collaboration in learning, explaining that collaboration in learning brings about creativity, and effective collaboration is often described as creative. Learners learn from experts and from their peers through collaboration. However, this approach is conducive to small classrooms where a teacher can use student-centered teaching and learning.

Application of Science and Technology

According to Table 1 from lecturers, 10 (41.7 percent) of the respondents strongly agreed that the application of science and technology also has effects on class size in higher learning institutions. In the same vein, 14 (58.3 percent) of the respondents agreed that the application of science and technology also has effects on class size in higher learning institutions. On the side of the students, it was established that 135 (40.3 percent) of the respondents strongly agreed that the application of

science and technology also has effects on the class size in the higher learning institutions. Additionally, 152 (45.4 percent) of the respondents agree that the application of science and technology also has effects on class size in higher learning institutions. On the other hand, 31 (9.3 percent) of the respondents disagree that the application of science and technology also has effects on the class size in the higher learning institutions.

From these findings, it is established that 100 percent of lecturers and 85.8 percent of the respondents agree that the application of science and technology also has effects on class size in higher learning institutions. These implications of these findings are to the effects that the presence of science technology in higher learning institutions contribute positively to the provision of effective learning and teaching processes in these institutions. Hence, students are highly attracted to join these institutions with the perception that they have an opportunity to integrate the application of technology from learning to real-life applications, which leads to an increase in the number of students; hence, this provides the class size.

This study relates to the constructivists' theory that learners learn from experts and from their peers through collaboration; however, it has been pointed out that this approach is conducive to small classrooms where a teacher can use student-centred teaching and learning. In this research, teachers are expected to assist learners in constructing knowledge through collaboration with peers in the classroom. However, it becomes more difficult to do this in large and congested classrooms.

Presence of Infrastructures

According to Table 1, 13 (54.2 percent) of the respondents strongly agreed that the presence of infrastructure has impacts on class size in higher learning institutions. Additionally, it was revealed that 7 (29.2 percent) of the respondents agreed that the presence of infrastructure has impacts on class size in higher learning institutions. On the other hand, 2 (8.3 percent) of the respondents strongly disagreed that the presence of infrastructure has impacts on class size in higher learning institutions, while 2 (8.3 percent) of the respondents disagreed that the presence of infrastructure has impacts on class size in higher learning institutions.

On the side of the students, 102 (30.4 percent) of the respondents strongly agreed that the presence of infrastructure has impacts on the class size in the higher

learning institutions; in the same vein, 146 (43.6 percent) of the respondents agreed that the presence of infrastructure has impacts on the class size in the higher learning institutions; however, 49 (14.6) of the respondents strongly disagreed that the presence of infrastructure has impacts on the class size in the higher learning institutions, while only 38 (11.3 percent) of the respondents remained neutral on the fact that the presence of infrastructure has impacts on the class size in the higher learning institutions.

From these findings, it can be established that 83.4 lecturers agreed that the presence of infrastructure has impacts on class size in higher learning institutions. It can be revealed that from these findings, it can be established that 74 percent of the respondents agreed that the presence of infrastructure has impacts on class size in higher learning institutions. The implication of these findings is that the presence of enough and adequate infrastructures allows students to have effective learning, which also attracts more students to join these universities so that they can have an opportunity to receive better education, which causes a massive increase in the number of students in the class. These results strongly support the results obtained by Chowdhury and Rahman (2023), who suggested that higher learning institutions had the strategies of developing more infrastructures to allow effective teaching and learning, but the results developing these infrastructures have been the increase in the number of students, which in turn affects the class size. In the same vein, Goldin and Katz (2018) opined that one of the factors affects class size in the setting of infrastructure in universities. Additionally, infrastructure learners are empowered to study nicely in higher learning institutions, and learners believe that attending universities with sufficient infrastructure will accommodate them with high-quality education. However, the result of this is an increase in the number of students in higher learning institutions.

In relation to constructivist theory, it can be established that teachers are expected to assist learners in constructing knowledge through collaboration with peers in the classroom. However, it becomes more difficult to do this in large and congested classrooms. The study will be used to understand teachers' experiences in managing overcrowded classrooms and the efficacy of the strategies that they use to manage overcrowded classrooms.

Generally, the results obtained through the questionnaire affirm that class size is associated with a

number of factors, such as the presence of enough infrastructure, the availability of financial support to students, and an increased number of enrolments. Another factor is the application of science and technology in the learning process as well as curriculum standards.

During an interview with the Deans of Faculty and HoD, it was noted that class size is associated with factors such as infrastructure and the presence of quality in the teaching and learning process due to the standardized curriculum, as noted by one participant:

“... Recently, we have been receiving an increase in the number of students joining our university; we always try to give the best education through the learning process and as well as setting reliable infrastructures, and this led to an increase in the number of students. Also in some situations class size is affected by presence of nice programs which attracts more and more number of students to join this university..... [In-depth Interview with HOD 1].

On the side of the Deans of faculty, their view related to factors affecting class size, it can be opined that

“...we normally ensure that there is effective supervision of our curriculum in order to meet the needed standards, and this is one of the factors that encourages learners from other universities and even outside the country, hence causing the increase in the number of enrolments and affecting the class size. Additionally, depending on the nature of the causes that we provide in this university, it

encourages the presence of a congested classroom because a student follows the quality of causes that are provided. [Dean of Faculty....].

The quotations above imply that some of the higher learning programs have a large number of students per course due to the quality of course that the university offers and the impact that some of the courses have on the market value and need.

Therefore, from the findings obtained through questionnaires and interviews, it can be established that class size is affected by different factors, and these factors affect class size in a positive or negative way. It can be established that when the number of students increases during their enrollment, it has positive effects on class size. Additionally, the application of technology in the learning and teaching process also causes the presence of overcrowded classrooms.

Strategies to be used to Deal with Class to Manage Quality of Education

In this objective, the respondents were needed to show measures that can be adopted by higher learning institutions to deal with class and maintain the quality of education. Thus, in responding to these questions, indicate your agreement with each statement by putting a tick (✓) where appropriate key (SD-Strongly Disagree), (D-Disagree), (N-Neutral) A=Agree), (A-Strongly Agree), (F=Frequency), (percent= percent). The results obtained are summarized and presented in Table 2 as follows:

Table 2. Strategies to be used to deal with class to manage quality of education at SAUT.

Strategies to be used to deal with class size	Lectures					Students				
	SD	D	N	A	SA	SD	D	N	A	SA
	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)
Development of more infrastructures	1 (4.2)	0	5 (20.8)	9 (37.5)	9 (37.5)	0	7 (2.1)	44 (13.1)	137 (40.9)	147 (43.9)
Enrolment of manageable number of students	0	0	0	13 (54.2)	11 (45.8)	7 (2.1)	16 (4.8)	42 (12.5)	153 (45.7)	117 (34.9)
Addition of other alternative courses	1 (4.2)	0	0	11 (45.8)	12 (50.0)	0	23 (6.9)	33 (9.9)	125 (37.3)	154 (46.0)
Provision of teacher professional development programs	0	0	2 (8.3)	9 (37.5)	13 (54.2)	0	3 (0.9)	39 (11.6)	157 (46.9)	136 (40.6)

Source: Field Data (2022)

Development of More Infectious Systems

Table 2 shows that from the lecture responses, 9 (37.5) of the respondents strongly agreed that the development of more infrastructure in higher learning institutions can help them maintain class sizes; in the same vein, 9 (37.5) of the respondents agreed that the development of more infrastructure in higher learning institutions can help them maintain class sizes, 1 (4.2) of the respondents disagreed that the development of more infrastructure in higher learning institutions can help them maintain class sizes, and 5 (20.8) of the respondents remained neutral on the fact that the development of more infrastructure in higher learning institutions can help them maintain class sizes.

On the side of students, 147 (43.9) of the respondents strongly agreed that the development of more infrastructure in higher learning institutions can help them maintain class sizes, and 137 (40.9) of the respondents agreed that the development of more infrastructure in higher learning institutions can help them maintain class sizes, while 7 (2.1) of the respondents disagreed that the development of more infrastructure in higher learning institutions can help them maintain class sizes; however, 44 (13.1) of the respondents remained neutral on the fact that the development of more infrastructure in higher learning institutions can help them maintain class sizes.

From these findings, it was established that lecturer respondents (61 percent) and student respondents (84.8 percent) agreed that the development of more infrastructure in higher learning institutions can help them maintain class sizes. The findings imply that the development of more infrastructure in higher learning institutions can ensure that the population of students is evenly distributed in relation to the available infrastructures of the university; hence, the development of the infrastructure will positively help to facilitate the management of the number of students joining the institutions and hence help in the management of the quality of education. These findings were also reported by Garcia and Ramos (2023), who recommended the student teachers' ratio and construction of enough classes, equity in secondary schools and quality improvement in secondary schools as well as strengthening the inspectorate and support mechanism in secondary schools. Similarly, Torres and Lopez (2023) agreed that tertiary education institutions ought to ascertain whether they offer appropriate teacher training programmes that will enable student teachers to deal with the numerous demands

associated with the teaching profession, among others, teaching in overcrowded classrooms. The theoretical frameworks used constructivist learning theory and socio-constructivist learning theory.

Enrollment of Manageable Number of Students

According to Table 4.6, it is shown that Lecturers respondents 11 (45.8) of the respondents agreed that to deal with the challenges facing class sizes, it is important for the higher learning institutions to enrol a manageable number of students, and 13 (54.2) of the respondents agreed that to deal with the challenges facing class sizes, it is important for the higher learning institutions to enrol a manageable number of students. On the side of the students, it was also noted that 117 (34.9) of the respondents strongly agreed that to deal with the challenges facing class sizes, it is important for the higher learning institutions to enrol a manageable number of students, and 153 (45.7) of the respondents agreed that to deal with the challenges facing class sizes, it is important for the higher learning institutions to enrol a manageable number of students. On the other hand, 7 (2.1) of the respondents strongly disagreed that to deal with the challenges facing class sizes, it is important for the higher learning institutions to enrol a manageable number of students, and 16 (4.8) of the respondents agreed that to deal with the challenges facing class sizes, it is important for the higher learning institutions to enrol a manageable number of students; however, only 42 (12.5) of the respondents remained neutral because to deal with the challenges facing class sizes, it is important for the higher learning institutions to enrol a manageable number of students.

These findings depict that 100 percent of the respondents who are lecturers agree that to deal with the challenges facing class sizes, it is important for higher learning institutions to enrol a manageable number of students, while 80.6 percent of the respondents who are students also agree that to deal with the challenges facing class sizes, it is important for higher learning institutions to enrol a manageable number of students. The implication of these findings was that it is important for higher learning institutions to enrol a manageable number of students to be able to match the available resources such as infrastructure and the existing and new enrolment of students. The BCTF (2024) also suggests that governments should make strict rules and policies regarding optimum students in classrooms and provide sufficient budgets to the education department to provide better facilities

in schools. Taylor (2023) suggested that the term may also be the number of students participating in learning experience. Class size is almost an administrative decision over which teachers have little or no control. Lee and White (2020) posited that an increase in enrolment in many institutions, which has become a major concern of students, could definitely lead to an increase in class size.

Addition of Other Alternative Courses

From the response of the lecturers, it was established that 12 (50.0) of the respondents strongly agreed that the addition of other courses would also provide alternative options to the students joining higher learning institutions and hence would help to manage class size, hence attaining the quality of education. In the same vein, 11 (45.8) of the respondents strongly agreed that an additional course would also provide alternative options for the students joining higher learning institutions and hence would help to manage class size and attain quality of education. On the other hand, 1 (4.2) of the respondents remained neutral on the fact that an additional course will also provide alternative options for the students joining higher learning institutions and hence will help to manage class size and hence attain quality of education.

On the side of the students, 154 (46.0) of the respondents strongly agreed that an additional course would also provide alternative options for the students joining higher learning institutions and hence would help to manage class size and hence attain quality of education. Additionally, 125 (37.3) of the respondents agreed that an additional course will also provide alternative options to the students joining higher learning institutions, hence helping to manage class size and attain quality of education. Additionally, 23 (6.9) of the respondents disagreed that an additional course would also provide alternative options for the students joining higher learning institutions and hence would help to manage class size and attain quality of education. Finally, 33 (9.9) of the respondents remained neutral on the fact that an additional course would also provide alternative options for the students joining higher learning institutions and hence would help to manage class size, hence attaining quality of education. From these findings, it can be established that 95.8 percent of the lecturers and 83.3 percent of the respondents agreed that additional courses will also give alternative options to the students joining higher learning institutions and hence will help to manage class size, hence attaining quality of education. This

result affirms the results revealed by Garcia and Ramos (2023). The appropriate class size conducive for effective teaching and learning should have adhered to teachers' teaching endeavours and students' wellbeing during learning and performance in general. However, a class that assesses student learning with multiple choice tests may not receive as much benefit from a reduction in class size as a class that assesses student learning with written essays (Bakar & Mwila, 2022).

Provision of Teacher Professional Development Programs

From the Lecturers respondents, it was revealed that 13 (54.2) of the respondents strongly agreed that the provision of Teacher professional development programs can help lectures with knowledge on how to manage class size. Additionally, 9 (37.5) of the respondents agreed that teacher professional development programs can help lectures with knowledge on how to manage class size. Additionally, 2 (8.3) of the respondents remained neutral on the fact that teacher professional development programs can help lectures with knowledge on how to manage class size.

On the other hand, 136 (40.6) of the respondents strongly agreed that professional development programmes can help lecturers with knowledge on how to manage class size, and 157 (46.9) of the respondents agreed that professional development programmes can help lecturers with knowledge on how to manage class size. Additionally, it was revealed that 3 (0.9) of the respondents disagreed that teacher professional development programs can help lecturers with knowledge on how to manage class size, and 39 (11.6) of the respondents remained neutral on the fact that teacher professional development programs can help lectures with knowledge on how to manage class size.

Based on these findings, it can be established that 91.7 percent of the lecturers' respondents and 87.5 percent of the students' respondents agree that teacher professional development programs can help lecturers with knowledge on how to manage class size. These results were supported by the result presented by Nguyen and Tran (2023) that teachers' professional development programmes have different contributions to the improvement of quality education by improving teachers' knowledge, teachers' attitudes towards teaching and classroom management. Additionally, it shapes beliefs, teaching practices, school-level practices and enhancement of student achievement,

hence facilitating the quality of education. A similar finding was upheld by Chepsiror et al. (2020) who view teachers' professional development as contributing factor to teaching skills and mastery of new knowledge and the development of new proficiency. Hence, professional development practices facilitate the improvement of the quality of education through these practices. Nguyen and Tran (2023) adds that training increases job satisfaction, employee morality and employee motivation and improves efficiency. In the views of Ahmed and Karim (2023). Teachers' professional development has the strongest impacts on changes in teachers' learning followed by changes in actual teachers' behaviour and has a positive association with teachers' self-reported increase in knowledge and skills, changes in classroom practices as well as collaboration and active learning, continuity across time and activities as well as differentiation.

CONCLUSIONS AND RECOMMENDATIONS

The size of a class is a determining factor in the quality of education. The university's inability to establish efficient class management resulted in a majority of students failing in higher learning institutions. Furthermore, there is a correlation between class size and teacher performance, as well as between learning performance and the surrounding environment. The presence of a suitable environment ensures the availability of quality education, which in turn leads to improved performance for both students and lecturers during the teaching and learning process.

The research findings indicated that the majority of higher education institutions had a significant influx of students that they must admit each academic year. However, despite the rise in student enrollment, there has been a lack of progress in improving learning environments. This is evident in insufficient physical facilities, such as textbooks and learning resource centres, which contribute to overcrowded classrooms and ultimately result in a decline in the quality of education. Consequently, this study holds significance for several parties involved.

The government, through the Ministry of education, conducts regular assessments of higher learning institutions to ensure that the number of enrolled students is in line with the available infrastructure. This is done to prevent overcrowding in classrooms. Additionally, the government should guarantee the allocation of a sufficient number of students to maintain the preservation of infrastructures and the quality of

education provided in these higher learning institutions. The school administration should ensure that the instructors and other staff members are content with the overall atmosphere of the school to boost their morale and enable them to focus on academic matters. Furthermore, fostering a positive rapport between students and professors is crucial to cultivate an environment where students feel comfortable and empowered to articulate their views, therefore enhancing their academic pursuits. Furthermore, it is imperative for students and teachers to cooperate in effectively overseeing the school's existing physical infrastructure to prolong its lifespan.

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