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An evaluation of venue capacity constraints on teaching and learning in higher education

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The expansion of higher education has created issues with the structure and makeup of universities as well as an increase in student enrolment. As a result, most higher education institutions (HEIs) in South Africa, especially those that were historically underprivileged, are plagued with deteriorated or non-existent physical infrastructure that cannot keep up with the rise in student enrolment. Therefore, the purpose of this study is to assess the venue capacity constraints on teaching and learning in HEIs. The desktop analysis method was used to discover and assess relevant material in the context of venue capacity restrictions on teaching and learning in higher education. This was done by using Google Scholar, ISI, ProQuest and Scopus search engines to find these studies, using terms like overcrowding, venue constraints, students and lecturers and universities in general. The findings of the article reveal that when classrooms become crowded, it may be difficult for lecturers to give each student the individualised attention they need to truly understand the topic. This might result in frustration and mental tiredness, which may reduce student involvement even further. The article concludes that institutions should invest in building bigger lecture halls to help students engage with their lecturers and comprehend the subject matter more thoroughly.

Contribution: The study will contribute to theory, managerial and practice by analysing the impacts of overcrowding in HEIs and its effect on students' academic performance.

Keywords: overcrowding; teaching and learning; higher education; performance; infrastructure; South Africa.

Introduction

The merging of higher education institutions (HEIs) because of South Africa's policy on reforming HEIs did not address the issue of insufficient spaces for students but rather made it worse through overcrowding in HEIs (Mzangwa 2019:11). Historically, most public universities in Africa have accepted more students than they could reasonably accommodate, leading to massification and detrimental effects on the quality of education provided (Mohamedbhai 2011). Shah and Inamullah (2012) claim that overcrowding of lecture halls has a negative impact on both the performance of the students and the teachers. Because of a lack of space, fresh air and noisy environments, crowded lecture halls are thought to worsen learning conditions (Ahmad, Arshad & Qamar 2018; Khumalo & Mji 2014; Mustafa et al. 2014; Shah & Inamullah 2012). Many teachers have stated that managing overcrowded classrooms is difficult in general, especially managing discipline (Matsepe, Maluleke & Cross 2019). The issues with classroom indiscipline, such as bullying, inattention, throwing objects, teasing and the use of vulgar language, are further exacerbated by overcrowded classrooms (Matsepe et al. 2019). The term 'overcrowding' has traditionally been used to describe a scenario in which a single classroom has more students than the permitted number, with the presumption being that this is because of a lack of either teachers or classrooms (Onwu & Stoffels 2005). Therefore, this article assesses the effects of overcrowding on teaching and learning in South African higher institutions.

Studies in different fields provide evidence of the negative impact of overcrowding of lecture halls on the performance of the students and the teachers (Matsepe et al. 2019; West & Meier 2020). According to West and Meier (2020:2), overcrowding in schools is a contributing factor in low academic achievement and repeated grades. Moreover, lack of teachers, poor school infrastructure and many underfunded schools all contribute to overcrowded classrooms (West & Meier 2020:2). Another study conducted by Matsepe et al. (2019:92) argues that the enormous number of students in the classrooms presented several difficulties for the teachers during teaching and learning. This is in line with a study conducted by Finn, Pannozzo and Achilles (2003)

who opines that overcrowded classrooms have negative effects on teacher morale and enjoyment of their work. In light of Holloway (2008), the study recognises that overcrowded classrooms have effects on teachers' ability to manage time and manage tasks and behaviour. Likewise, many researchers had their points of view that, in overcrowded classes, the teachers are unable to employ quality teaching and learning environments for learners (Blatchford et al. 2002; Hattie 2005; Pedder 2006; Zhang 2002).

The purpose of this study is to assess the venue capacity constraints on teaching and learning in HEIs. The efforts to present a more complete picture of the venue capacity constraints on teaching and learning in higher education in South Africa have highlighted the critical importance of this study. There is currently an inadequate amount of scholarly research on the effects of overcrowding in South African higher learning institutions. As a result, this study expands current knowledge on the venue capacity constraints on teaching and learning in HEIs. Furthermore, the study provides possibilities for future cross-disciplinary studies that may pursue this fascinating field of study within the context of higher education. The study's focus and contribution are earmarked as a scholarly gateway towards cross-disciplinary studies in higher education in South Africa, which is currently littered with overcrowding as witnessed by other scholars such as Mlamla (2020) on the case of the University of Cape Town (UCT) that is outlined in this article. Teaching and learning that is both effective and efficient at HEIs require, among other things, the availability of appropriate infrastructural facilities, qualified human resources and structured timetabling.

The study will begin by discussing the study's theoretical framework, which is socio-constructivist learning theory. This will be followed by a discussion of methodology. The study then reviews the important concerns that will assist in achieving the purpose of the study. Finally, the study will present a conclusion and recommendations.

Theoretical framework

The article is guided by the socio-constructivist learning theory. The socio-constructivist learning theory proposed by the developmental psychologists and philosophers Jean Piaget (1896–1980) and Lev Vygotsky (1896–1934) served as the foundation for the theoretical framework used in this study (Marais 2016:3). Social constructivism is a pedagogical approach that places a premium on student participation, dialogue and exchange (Saleem, Kausar & Deeba 2021:407). According to social constructivism, effective teaching and learning depend greatly on interpersonal interaction and discussion, with the primary focus on the student's understanding of the discussion (Prawat 1992). The study is informed by the following aspects of the social constructivism learning theory, which Lev Vygotsky first mentioned in 1968: knowledge is constructed through human activity, reality is jointly created by members of a society, learning is an active

and social process and individuals create meaning through interactions with others and environments (Vygotsky 1968). Vygotsky believed social learning benefited mental performance and that interaction is essential as it contributes to the student's personal growth and development of their personalities. Furthermore, Vygotsky asserted that language and culture have an impact on how people think and perceive their environment (Saleem et al. 2021:406). According to the research's application of the socio-constructivist theory of learning, lecturers' interactions with their students and mentor educators play a crucial role in the development of their students' knowledge (Bruning et al. 2004:195). Taylor (2018) asserts that learning is most effective when carried out in a group setting with the help of adults in the form of parents, educators, lecturers, classmates and mentors. Learning as a social activity is not possible in this study because of venue capacity constraints and overcrowding (Saleem et al. 2021). However, the element of overcrowding can impede students' academic success (Fakude 2012; Omwirhire & Anderson 2016). According to Saleem et al. (2021:406), there will be poor social activity or interaction between lectures and students because of overcrowding. Consequently, social constructivism's view is that dialogue, collaboration and information use are crucial components of learning and strategies for achieving learning goals (Akpan et al. 2020). According to the social constructivist perspective, knowledge is something that children develop in collaboration with their classmates, teachers and other students (Saleem et al. 2021:406). This style of cognitive constructivism promotes collaborative learning, either with a facilitator or with other students (Mohammed & Kinyo 2020).

Research methods and design

This article expands on previous research by taking into account both lecturers and students, who are impacted by the venue capacity restrictions on teaching and learning at HEIs. As a result, the article uses a descriptive research methodology, and data were gathered using a desktop analysis. The desktop analysis approach is a research method that relies on already obtained data (Booth, Colomb & Williams 2008). The desktop analysis method has proven to be a useful approach for investigating the effects of venue capacity constraints on teaching and learning in higher education. The desktop analysis method was used to discover and assess relevant material in the context of venue capacity restrictions on teaching and learning in higher education. The first step in doing a desktop analysis was to determine the research question. In this case, the study seeks to answer the question: what are the effects of venue capacity constraints on teaching and learning in higher education? To accomplish this, it was necessary to find and choose relevant studies and compile summaries and reports using a bibliometric analysis (Ienca et al. 2018:3–5).

The next step was to perform a literature review to locate relevant literature on the topic. The study used Google Scholar, ISI, ProQuest and Scopus search engines to find

these studies, using terms like overcrowding, venue constraints, students and lecturers and universities in general. These keywords were then combined to include 'Africa' and 'South Africa', in particular. The literature review analysed major findings, trends and gaps in the current literature and identified applicable concepts and theories. Following the assessment of the literature, it was necessary to analyse the data gathered in order to determine the influence of venue capacity constraints on teaching and learning in higher education. This includes categorising the literature based on important themes and concepts, detecting patterns in the literature and assessing the evidence in connection to the research question (Booth et al. 2008). Finally, using the available evidence, the desktop analysis was utilised to draw conclusions and give recommendations for improving teaching and learning in the setting of venue capacity constraints.

Key issues

It is crucial at this point to briefly conceptualise overcrowding to set the context for the review. Overcrowding is described as the presence of more people or things than is desired, in simple term congestion (Collins 2023). Overcrowding in educational settings or school systems is defined as a scenario in which the number of students enrolled in a school system exceeds the resources allocated to that school (Bala 2018). Additionally, a lack of instructors and a lack of infrastructure contribute to packed lecture halls (West & Meier 2020). Meador (2019) stated that even for the most competent lecturers, a crowded lecture hall may be irritating, stressful and frustrating as it poses difficulties that seem nearly impossible to overcome. As such, overcrowding is the condition in which the student population exceeds the capacity of the resources or facilities available (Bala 2018).

Overcrowding in higher institutions in South Africa

The expansion of higher education has created issues with the structure and makeup of universities as well as an increase in student enrolment (Mlambo, Mlambo & Adetiba 2021). Despite the government's acknowledgment of higher education expansion, South Africa's HEIs have always admitted more students than they can handle, lowering educational quality (Machika, Troskie-De Bruin & Albertyn 2014; Scott & Ivala 2019). Most HEIs in South Africa, especially those that were historically underprivileged, are plagued with deteriorated or non-existent physical infrastructure that cannot keep up with the rise in student enrolment (Shirley 2017).

For instance, in South Africa, most government schools and colleges have crowded classrooms where teachers struggle to give students effective instruction. Furthermore, it was mentioned that the resources and class sizes are failing the students (Buso 2019). There are several factors that contribute to overcrowding in higher institutions. Among the factors

associated with overcrowded classrooms are the lack of school infrastructure and the inequality that persists in the education system (Nabila & Boudemagh 2022:153). The lack of infrastructure is attributed to two reasons: the politicisation of education through the union leaders who play politicians when they engage in departments and the total lack of accountability in the overall education system (Masemola 2010). Overcrowding in schools has been linked to a lack of facilities, according to the findings of some researchers (Nabila & Boudemagh 2022:153). Mlamla's (2022) study on the UCT overcrowding reveals the following:

> UCT students have been forced to sit on stairs and to stand at the back of overcrowded lecture halls. After the Mathematics 1 (MAM1000W) lecture, students complained to their lecturer about the overcrowding. Moholola said the issue had only affected two or three courses and said it was not unusual for the university to have a few lecture halls being too full during the first week or two of lectures. UCT Student Representative Council (SRC) chairperson Akha Tutu said the matter of lecture hall overcrowding was not new to the university. Tutu also acknowledged that there was a lack of venues at the university and that the SRC would take it up with the university. (p. 1)

Furthermore, a study conducted by Fatima, Mushatq and Fatima (2019) concurs that overcrowded lecture halls are a major issue in higher education systems, affecting both lecturers and administrators as well as students. The contributing influences of overcrowding in lecture halls includes among other things shortage of lecturers as well as inadequate infrastructure (West & Meier 2020). Lecturers face issues with time management because in some instances a lecturer wastes more time trying to manage the behaviour of students before the start of the lecture (Imtiaz 2014). To ease the suffering of lecturers, adequate infrastructure such as well-ventilated lecture halls, educational materials and teaching aids should be made available (Matsepe et al. 2019). Strong evidence supports the notion that high-quality infrastructure enhances learning, enhances student outcomes and lowers dropout rates, among other positive effects (Teixeira, Amaroso & Gresham 2017).

The merges of higher education institutions in South Africa

In higher education, a merger is the combining of two or more institutions into a single organisation with a single governing body and chief executive body that takes on all assets, liabilities and duties of the former institutions (Goedegebuure 1992:16). For instance, the University of KwaZulu-Natal (UKZN) was created on 01 January 2004 from a merger between the historically white University of Natal and the nearby University of Durban-Westville, which was set up to serve South Africa's Indian population (Makgoba 2005). Higher education has undergone change to accommodate rising student enrolment and this change has resulted in the consolidation of formerly separate institutions, reducing the number of colleges and universities from 36 to 26, while simultaneously building massive universities.

The purpose of these mergers was to support social transformation and reparation by increasing historically underserved groups' access to education and employment possibilities (University World News 2010). The objective of increasing enrolment has been accomplished, but the steadily rising enrolment of students in higher education has raised urgent issues, such as a shortage of resources to accommodate the students, leading to overcrowding. In almost all the HEIs in South Africa, there are visibly negative concerns owing to increased access, including educational quality, staffing, physical infrastructure and student mobility (Mohamedbhai 2014). The physical infrastructure at the universities has not expanded in conjunction with the rising number of students enrolled there (Mlambo et al. 2021). There is a severe shortage of adequate classrooms, laboratories, academic and administrative offices and even restrooms to accommodate the growing student body and workforce (Mohamedbhai 2014). Students do not obtain an education of sufficient quality because of such difficulties because there is a shortage of staff who are overworked to meet the needs of the students and because there is a lack of suitable venues to accommodate the students, which leads to overcrowding.

Barriers to overcrowding in higher education institutions

Overcrowded classrooms are noticeable in many South African higher institutions. These have been linked to different factors such as managing discipline (Imtiaz 2014; Mustafa et al. 2014). Overcrowded classrooms tended to be chaotic and unmanageable in that disruptive behaviour reduced the efficiency of lesson delivery as the teachers' activities did not connect learning to learners' background knowledge, which according to progressivism theory is the prerequisite to the learning process (Matsepe & Maluleke 2019). This is in line with Imtiaz (2014) and Mustafa et al. (2014) who observed disciplinary problems in classrooms as a serious challenge for teachers. Furthermore, Khan and Iqbal (2012) concurred that effective teaching is not possible in overcrowded classrooms as it causes physical, discipline, instructional and evaluation problems.

Overcrowded classrooms undermine learner performance, effective teaching and discipline (Matshipi, Mulaudzi & Mashau 2017). Consequently, learners in larger classes display negative learning behaviours, such as not responding to the teacher's questions and expecting the teacher to provide the answers (Epri 2016). Furthermore, larger classes are noisier and more difficult to control, requiring teachers to devote more time to disciplining students rather than teaching (Marais 2016). The burden of excessive student assignments weighs heavily on both lecturers and students. Reviewing and grading mountains of work proves challenging for educators, despite assessment being a crucial aspect of learning (Muthusamy 2015). This issue compounds within crowded lecture halls, where discomfort reigns for both lecturers delivering material and students struggling to absorb it. For lecturers, increasing student engagement in class activities may not be an easy undertaking.

If lecturers are unable to do this, they become anxious, which disrupts the learning process (Muthusamy 2015). Because of the large class size and limited amount of time, nobody in the class is paying attention. According to the study conducted by Parks-Stamm, Zafonte and Palenque (2016), lecturer participation and class size both had a huge impact on student engagement.

However, in South Africa, the efficiency facets of university infrastructure provision have not gotten much attention. This would be partially because of how complicated the analysis was. Infrastructure for universities refers to the actual setting for teaching and learning. The supply of 'water, sanitation, appropriate lecture halls, and important specialised areas, such as libraries and laboratories' is included in the South African setting (Republic of South Africa Department of Education 2007; Saga 2014; World Bank 2017). However, Matsepe and Maluleke (2019) point out that many lecturers failed to implement activities that embraced students' critical thinking and problem-solving skills as the prerequisite of the progressivism learning theory because they believed there were infrastructure backlogs caused by crowded lecture halls. According to Cuesta, Glewwe and Krause (2015), adequate infrastructure, such as chairs, tables, desks, lighting systems, sanitary services and Internet services, enables students to reside and study in universities comfortably while lecturers and other staff members within the institution successfully carry out their duties related to the school.

Overcrowding constraints on students and lecturers' performance

There are several disruptive effects of overcrowding on student behaviour (Marais 2016:3). According to Mustafa et al. (2014), large student populations in one lecture hall are a hindrance to lecture hall management in general and discipline. Because of the crowding, facilitators or lecturers spend most of the time allotted for learning trying to establish order (Imtiaz 2014:251). This is in line with other scholars (Imtiaz 2014; Mustafa et al. 2014) who concurred that facilitators or lecturers who teach in crowded classrooms spend less time on instruction and integrated reading and writing tasks because administrative tasks like checking attendance lists and managing behaviour frequently take up instructional time, leaving less time for actual instruction. Furthermore, scholars such as Bayat, Louw & Rena 2014:49; Mustafa et al. 2014:78; Qasim & Arif 2014:145 coincided that academic achievement suffers when students find it difficult to focus or participate fully because of their boisterous and unruly peers. Overcrowding of lecture halls significantly affects effective teaching and learning; therefore, lecturer and student ratio and institution structures should be renovated, and new ones constructed to enhance academic performance (Olaleye et al. 2017).

Many researchers have studied the impact of overcrowding on lecturers' ability to provide individual attention to students (Fakude 2012; Marais 2016; Omwirhire & Anderson

2016). The academic achievement of students is significantly impacted by crowded classrooms as lecturers are unable to give each student their entire attention (Fakude 2012; Omwirhire & Anderson 2016). This is consistent with Marais (2016), who found that lecturers in overcrowded classes are unable to give each student their undivided attention, causing some students to lag. Lack of space directly affects lecturers' ability to give each student their undivided attention (Mustafa et al. 2014; Qasim & Arif 2014).

Studies carried out in various settings claim that overcrowding contributes to the stress and burnout of lecturers (Mapfumo, Mukwidzwa & Chireshe 2014; Opoku-Asare, Agbenatoe & DeGraft-Johnson 2014). This is supported by Shah and Inamullah (2012), who argue that overcrowded lecture halls have a direct impact on teaching and learning and place a tremendous amount of stress on lecturers. Consequently, Fin (2003) concurs that overcrowded lecture halls have a negative impact on lecturers' motivation and job satisfaction. Furthermore, Shah and Inamullah (2012) discovered that overcrowding in lecture halls increases student drop-out rates and stresses lecturers out by forcing them to deal with a variety of issues such as discipline, behavioural issues, poor health and poor student performance. This is in line with Oliver's (2006) assertion that crowded lecture halls put lecturers under stress and make it challenging for them to meet the needs of the student's learning. It is difficult for them to meet the requirements for the student's learning when they are under stress. Additionally, Imtiaz (2014) and Mustafa et al. (2014) noted that lecturers carry a heavy burden because of disruptions in the classroom.

Finally, packed lecture halls have a significant impact on student academic performance because a lecturer cannot give each student their full attention (Fakude 2012; Omwirirhire & Anderson 2016). This is consistent with Imitiaz's (2014) finding that students' academic performance is hindered by crowded lecture halls. The size of the lecture hall has a big effect on how well students do in school. Academics like Matsepe and Maluleke (2019); Mohammad and Wazim (2020) have researched the effects of overcrowding on students. Matsepe and Maluleke (2019) discovered that some students appear bored, uninterested and inattentive throughout class in their study. Furthermore, according to Mohammad and Wazim (2020), student underachievement is primarily caused by overcrowding. Large classes can be extremely disruptive, causing congestion, ineffective teaching and learning and poor class management. The educational system or learning environment ensures that students are encouraged and supported to engage in educational activities.

Conclusion and recommendations

In South Africa, overcrowding in HEIs is a complicated, multidimensional problem that negatively affects both students and lecturers. The studies reviewed summarily showed that overcrowding and its impact on teaching and learning in higher education cannot be over-emphasised. The main causes of overcrowding have been discussed in this study, including a lack of infrastructure, and inadequate budget. Additionally, the detrimental effects of overcrowding have been examined, including poor academic performance, lower student engagement, higher stress levels for lecturers and logistical difficulties in handling big class sizes. Furthermore, overcrowding can have a negative impact on student learning and academic performance, as well as student engagement. When classrooms become crowded, it may be difficult for lecturers to give each student the individualised attention they need to truly understand the topic. This might result in frustration and mental tiredness, which may reduce student involvement even further. Overcrowding in South African higher institutions poses a significant issue for both lecturers and students. Therefore, this study recommends that the problem of overcrowding at HEIs can be successfully addressed by putting in place a combination of institutional strategies, government interventions and partnerships and collaborations. Higher institutions in South Africa may establish a higher education system that offers all students quality education by making investments in the development of its infrastructure, developing innovative teaching methods and technologies suitable for large classes such as online learning and blended learning models and establishment of student support services, such as tutoring programmes and counselling services, to help students cope with the challenges of large classes. Addressing overcrowding requires significant resources. As a result, future studies should evaluate the cost-effectiveness of different interventions to inform resource allocation decisions and ensure efficient use of funding.

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