Effects of Class Size on Academic Performance in the South Africa Institutions of Higher Learning

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Abstract

The central aim of this article is to determine the effects of Class Size (CS) on academic performance in Higher Education Institutions (HEIs). This article argues that the quality of education is not merely reliant on lecturers, as revealed in the duties or responsibilities performance, but also on other associates like the number of students being lectured in a class and the quantity of work as measured in lessons taught by one lecturer per day, week, month, and year both of which stimulate effectiveness and improvements of learning outcomes. The article acknowledges that lecturers are significant in the quality or excellence of higher education. It is further acknowledging that they are key players in improving student learning and increasing performance. Despite this, the development of higher education enrolment in several countries, including South Africa, Swaziland, Kenya, has steered to various continuing shortages such as classroom due to high volume, inadequate technological and laboratory facilities. To realise the outcome of this article, author(s) formulated the following research question to guide the study: How does class size affect learners' performance and achievement. The article also adopted one of the motivational theory called Maslow's Hierarchy of Needs by Abraham Maslow (1943) to argue that learners' academic performance is influenced by many needs such as physiological, safety needs, loving and belonging, esteem and self-actualization Needs. Finally, this is a quantitative study and supplement by secondary data. The results of the study general indicate that classroom size with high capacity negatively affect interaction and participation between student-lecturer. The study concludes by providing recommendation that universities should build new infrastructures to cover the growing needs.

Keywords: Classroom sizes, academic performance, humanism perspective.

1. Introduction

The more learners matriculate, there is greater capacity in classrooms of higher education institutions. Classroom size has been extensively researched in the lower phases of learning. It is one of the contextual factors which affect the success of learning, yet under investigated in higher phases of learning. CS is a crucial attribute that determines the success of teaching and learning. It is also a challenging aspect to many educational practitioners as they have little or no control over it (Adimonyemma, Akachukwu & Igboabuchi, 2018). CS is further considered as an influential factor which affect students' affective factors such as motivation and sense of belonging, in

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which, higher level of motivation and sense of belonging are associated with smaller size of classroom (Maloney, 2020). This is similar to Kasumi (2015) who stresses that smaller size of classroom is characterised with success in teaching and learning. On the contrary, looking at the CSs in HEIs especially in first entering level where the capacity is at maximum, thus, the study intends to determine how CS affect students' academic performance.

2. Theoretical perspective on classroom size and academic performance

This study is guided by humanism theory of education. Humanism theory considers learning as a whole being which support the idea of seeing a student as human being before he/she can be considered as a learner. The theory believes that the needs of the students as humans have to be met before considering their academic needs. These needs include psychological, safety, loving, belonginess, and self-actualisation needs. Psychological need refers to the individual's survival need, safety need which is the need to be protected either by the law or the surrounding environment, belonging need involves the feeling of worthiness or to be loved, and self-actualisation include the need for personal development and potentials exercises through learning (Jingna, 2012). Saeednia and Mariani (2013), the first four needs of this theory, psychological, safety, loving and belonging, have to be met beforehand for one to reach the level of self-actualisation, which is the student's ability to show his/her aptitudes through education.

According to Khatib and Hamidi (2013), the fundamental goal of this theory is to offer meaningful learning by offering supportive learning context, considering students' basic needs, and develop their learning motivation. The theory serves as a guiding principle to determine the effect of CS towards students' humanistic needs which influence their academic progress. It is out of the context of this study that CS serves as an independent variable which affect students' progress through their humanistic needs, looking at the following questions:

- To what extent does the classroom size impact the students' psychological, safety, loving, and belonging needs in the process of learning?

The above question aids the study to fulfil the main objective which is to determine how classroom size affect students' academic performance through the lenses of humanism theory of needs.

3. The role of classroom size towards students' learning process.

CS is one of the influential factors that can either enhance or hinder students' learning motivation. For instance, large classrooms hinder teachers or lecturers to meet the demands of all students in the process of teaching and learning. According to Maheen and Zahid (2017), non-supportive learning context negatively influence students' learning motivation. This is similar to Schulze and Van Heerden (2015) as argue that the learning environment that fails stimulate students' learning interests result in learning demotivation. In this regard, CS has to be considered for better contributions towards students' learning progress.

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Moleke and Montle (2020) assert that crowded classroom context affects the students' sense of belonging as it is difficult for the facilitator to interact with all of the students within the classroom. The authors continue that lack of interaction between the facilitator and the students results in low sense of belonging which leads to learning demotivation. The two further acknowledge that classroom setting is one of the fundamental aspects for the success in teaching and learning. This accords with Brooms (2019) who avers that a learning context that meets the needs of the students such as sense of belonging serves as an instrument that stimulates learning motivation that leads to academic success.

Maloney (2020) indicates that parents, students, and teachers mainly prefer small size classroom as it is associated with higher academic success. The author posits that the smaller the classroom size, the better focus, and less distractions among the students in the process of learning. In essence, smaller classroom size is characterised with higher learning motivation and positive academic performance. In other words, the students who attend in a smaller classroom are more likely to have motivation to learn and perform well academically.

In contrast, Maloney (2020) argues that the more the students in the classroom, larger size classroom, the more added disadvantages such as more distractions and lesser learning motivation. Additionally, larger classrooms influence teaching approaches and styles in a way that they impact most of the students' learning ability negatively. Further, larger CS is not only affecting the students but the teachers and the lecturers as well as they are also feeling overwhelmed by the over crowdedness.

Adimonyemma, Akachukwu and Igboabuchi (2018) discover some of the disadvantages of larger classroom size. The authors argue that larger CS in most cases compromises the quality in education, for instances, students develop a tendency of cheating during class exercises, tests, and examinations due to crowdedness. Besides, larger CS affects participation rate because most students are shy to speak in large classrooms and this result in limited class participation. Less participation in class affects one's attention during lesson which may results in missing opportunities in learning. For example, students who seat at the back in large classes, especially in higher institutions were large classes comprise plus or minus seven-hundred students, are more likely to miss the lesson due to noises and distractions of crowdedness. This is supported by Kasumi (2015) who argues that smaller classes are characterised with more academic success as compared to the larger ones.

Zyngier (2014) states that smaller classroom sizes are more manageable unlike the larger ones. The students become more attentive and they are more likely to receive quality education in smaller classes. Smaller class sizes not only beneficial to the students but to the teachers or facilitators as well since they allow them to manage and conduct the lessons smoothly. In smaller classes, it becomes easier for the students to receive individual attention such as scaffolding, motivation, and monitoring as well as receiving assistance without delays. In other words, students who have low self-efficacy or less motivated are more likely to be scaffolded to reach their level of self-actualisation, cf. theoretical framework. In essence, classroom size including the setting on students' needs such as a need for belonging which later mediate them to the level of self-actualisation. Thus, it is crucial for this study to

determine how classroom size affect students' academic performance through the lenses of humanism theory of needs.

4. Research design and methodology

The study applied a quantitative research methodology, whereby questionnaires designed within the Likert rating scales were utilized to collect primary data in order to understand the effect of CS of academic performance. The methodological rationale was derived from Leedy and Ormod (2005:179), wherein a quantitative method is defined as a situation where the researcher uses survey research design in order to gather information, which is not limited to opinions, attitude and experiences of the participants (Leedy and Ormod, 2005: 183).

4.1 Data collection tools
Generally, quantitative method uses instruments or tools such as closed ended questionnaires with Likert rating scale to obtain numerical indices that are in line with the characteristics of the quantitative research. The numerical values are then summarized and interpreted as findings of the study (McMilan and Schumacher, 2006:178). Thus, the questionnaire used the 5 points Likert scale ranging from 1 = "strongly disagree" and 5 = "strongly agree". In addition, secondary data was also collected as a supplement. The author(s) consulted published materials such as accredited and peer-reviewed journals, books, dissertation, thesis and online information. Where the data was collected online a hyperlink has been provided in the list of reference.

4.2   Population
MacMillan and Schumacher (2001) distinct population as a group of elements or cases, whether individuals, objects or events, that conform to specific criteria and to which we intend to generalised the results of the research. In this study, population included students from the class of Personnel Management module at the University of X.

4.3   Sampling
MacMillan and Schumacher (2001), the smaller group or the subset is the sample. On the other words, Morake et al. (2011) sees a sampling as a group which is selected from the population and is thus less than the population, while remaining as representative as possible. Due to the nature and scope of the study, a purposive sampling strategy was used to select the target population from the student population. Purposive sampling is a technique "whereby the researcher relies on his expert judgement to select units that are representative of the population" (Burger and Silima, 2006:663). The sample selection favours certain students and is purposive in that the researcher chooses the participants for the study assuming that participants have information that is related to the topic under investigation. Lastly, the sample size comprised of Two-hundred (200) students that were attending Personnel Management module at the University of X.

4.4 Data analysis
An analysis of data in this study was done according to the research questions. The study analysed quantitative data collected using Microsoft Excel software. A Microsoft Excel software was used for data capturing and statistical analysis. The data are presented in percentages and numbers using tables, pie charts and graphs where applicable. Below is the data presentation of the collected.

5 Data presentation and analysis of findings

Having adopted a purposive sampling technique to select participants, the sample comprised of 62% of female and 38% of male participants. The gender profile suggests that females dominated the study in terms of representation. Sampled population ranged from youth group, students from 18-35 years were sampled. However, age did not really matter in this study. The participants consisted of Personnel Management students who were attending on the day of sampling. The sampling in this study begin before COVID-19 pandemic students while students were attending classes instead of virtual classes.

1.   Does the classroom size impact the students' psychological, safety, loving, and belonging needs in the process of learning?
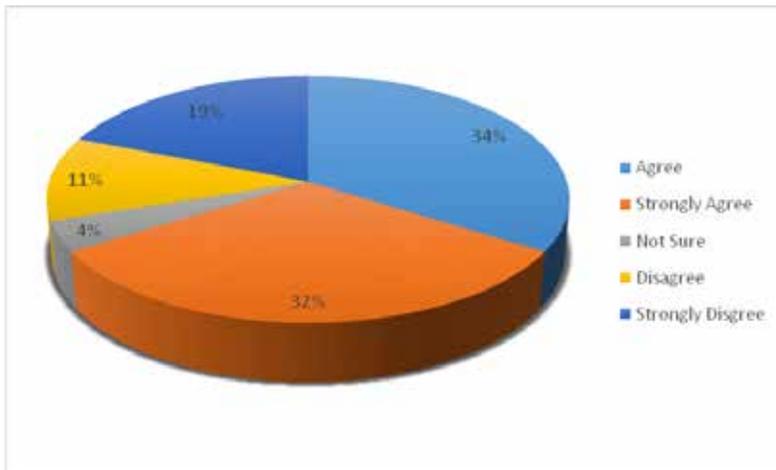

Figure 1: Classroom size impact on learning process
The pie chart above presents a statistical analysis from respondents with regards to the question asked on top. The question asked intends to understand the impact of classroom volume on learning process. Based on Figure 1 classroom size has learning effects. The majority of the respondents with 34% agree and 32% strongly agree, while 4% are not sure and 11% disagree and 19% strongly disagree. Thus, from the data presentation it can be affirmed that classroom size either full or lower capacity has an influence on the students' learning process.

2.   Does the classroom size with high capacity enhance the students'

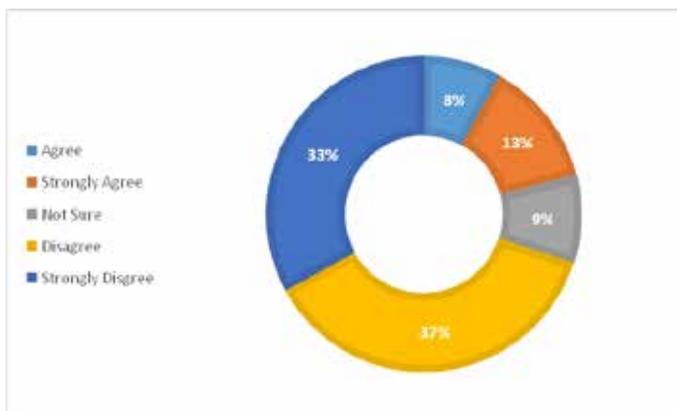psychological, safety, loving, and belonging needs in the process of learning?

Figure 2: Classroom size enhancement

The question above intends to understand the effects of classroom size on academic performance improvement. However, Figure 2 indicate that the majority of respondents disagree with 37% and 33% strongly disagree with regards to the question. They do not agree that the high capacity classroom enhance their learning performance. On the other hand, 9% of respondent indicated not sure, while 13% strong agree and 8% agree that the class size doesn't matter on learning process. It can be affirmed from the results that classroom size with high capacity doesn't enhance learning process. Instead it limits academic interaction and participation.

6 Discussion

The main objective of this study is to investigate the impact of classroom size on students' psychological, safety, loving, and belonging needs in the process of learning. The results show that the majority, 66% of the respondents concur that the classroom size does have influence on the learning progress. The 66% includes the 34% who agree and the 32% who strongly agree. This percent surpasses the one in which the responses disagree which is 20% overall, 11% disagree and 19% strongly disagree. The findings are in line with authors such as Maloney (2020); Adimonyemma, Akachukwu and Igboabuchi (2018); Kasumi (2015) who advocate for how classroom size influence the learning progress in which both small and larger sizes effects are identified. The smaller classroom size is characterised with productivity in teaching and learning whereas larger classroom size is associated with impediment in the process of learning. As Maloney (2020) asserts that Classroom size is an influential factor which can affect students' affective factors such as motivation and sense of belonging negatively or positively depending on the volume of the class.

Equally significant, this study further indicates that most of the students' responses identified larger classroom size as an obstruction to their basic needs such as needs for   psychological, safety, loving, and belonging whereby 70% of the respondents

disagreed with the fact that larger classroom size enhances basic needs in the process of learning. The findings illustrate in figures that 37% disagreed and 33% strongly disagreed which exceeds the 21% overall responses that agreed. This is supported by Moleke and Montle (2020) who affirm that crowded classroom context impact students' basic needs, for example, it is difficult for a facilitator to interact with all students in crowded classes and for this reason, students get demotivated and develop lower sense of belonging. In essence, classroom size and setting are key instruments for meaningful teaching and learning.

7. Ethical consideration

During data collection process in the field, the participants were assured of their anonymity and confidentiality. Even the questionnaire cover page also assured respondents anonymity and confidentiality. The researchers informed the participants about the significance of conducting the research and also made it clear to the participants that no individual is forced to participate during the course of the completion of the questionnaires. Therefore, participants were free to withdraw from participating if ever they felt unsafe to complete the questionnaire. The researchers ensure students and sampled institution that no name of the students will be disclosed, including the name of the university. The researchers refer to the university sampled in this study as "University of X".

Conclusions and recommendations

This study draws a conclusion that class size plays a fundamental role in the process of teaching and learning. The findings indicate that the capacity of the class, small or large, has an influence towards students' basic needs which later influence their academic performance and motivation to learn. In that, the majority of the students stated that larger classes do not enhance rather impede their basic needs in the process of learning. Thus, this study recommends that the University of X as well as other institutions of higher learning should examine their class sizes and strategies on how to maintain meaningful education with maximum capacity of students, for instance, splitting in smaller groups or establishing multiple classes per session to encourage positive participation and academic achievement. Further make regular emphasis that teaching and learning should be open for discussion and interaction even after class to encourage shy students to ask for clarity.

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