



Enhancing a Quality Teaching and Learning Environment in Large Classes in South African Universities: a Theoretical Exposition



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Abstract

The perpetual increase in students' enrolment in higher education institutions, worldwide, has recently emerged as a key concern for both students, educators, parents, policy makers and educational policy analysts alike. This phenomenon has been borne out of a global trend of massification of higher education as many countries begin to consider the importance of education and skills development in economic growth and social development. On the other hand, it has been triggered by the perceived pattern of commodification of higher education services in which student intake and teaching outputs are intricately linked to the financial sustainability of higher education institutions. In this paper, a critical examination of literature pertaining to Large Class Pedagogy and Learning Theories is undertaken with a view to determine how one could teach and ensure quality learning in large classes within a South African higher education context. Anchored within a critical qualitative frame of analysis, the assessment draws from existing literature on Large Class Pedagogy (LCP), learning theories, teaching approaches and learning styles to provide a conceptual lens in which the challenges associated with large class environments can be mitigated to offer an educational experience of acceptable quality. The paper provides a synthesis of pertinent issues that have arose in the critical examination of LCP and appropriate Learning Theories in a developing country context as that of South Africa. It appears that government funding to higher education institutions should be increased through adoption of large class size reduction policies, equitable allocation of resources to faculties and academic departments by universities, rigorous assessment of staff-student ratios and infrastructure when new academic programs are introduced, monitoring of adherence to approved yearly student enrolment targets in academic programme, adoption of collaborative learning methods by academic staff in which self-directed learning styles in students are encouraged and supported, optimal use of educational technologies through systematic integration of digitization in the learning and teaching environment, enhanced administrative psycho-social support to students and lecturers are some of the macro, mesa and micro level strategies required to enhance quality teaching and learning with increasing class sizes.

Keywords: Large class; Teaching approach; Learning style; Quality Educational experience; Pedagogy

Introduction

Over the past 30 years most countries, particularly developing countries, have seen a large increase in the number of students seeking higher education. Large class environments are a reality for many who teach at higher education institutions around the world [1,2]. A consequence of growth in students' enrolment numbers is increasing pressure on teaching staff and institutions, usually resulting in, among other effects, increased class size [1]. Large classes are believed to pose a potential threat to the quality of the educational environment, as they affect both educators and students alike, and may have ramifications in developing countries where higher education constitutes a core dimension of the economic and social development process, and hence national

development [2]; OECD, (2008). The trend towards increased enrolment of higher education institutions is also reflected in the South African Department of Higher Education and Training (DHET) Green Paper on Post School Education and Training released in 2012 which envisages an increase in enrolments at the country's higher education institutions from 900 000 per year in 2011 to 1,5 million by 2030 and other tertiary institutions (private institutions and Technical and Vocational Colleges) from 359 000 per year to 4 million over the same period RSA DHET, [3]). In this paper, a critical examination of literature pertaining to Large Class Pedagogy and Learning Theories is undertaken with a view to determine how one could teach and ensure quality learning in large classes within a South African higher education context.

Methodology

Anchored within a critical qualitative frame of analysis, the assessment in this article draws from existing literature on Large Class Pedagogy (LCP), learning theories, teaching approaches and learning styles to provide a conceptual lens in which the challenges associated with large class environments can be mitigated to offer an educational experience of acceptable quality. Furthermore, the paper provides a synthesis of pertinent issues that have arose in the critical examination of LCP and appropriate Learning Theories in a developing country context as that of South Africa. Following key themes that emerge in the examination of teaching approaches and learning styles, a set of strategies to enhance a quality educational environment is proffered.

Conceptualizing Large Classes in a Learning Process

There is a long-standing belief that the number of students in a class affects the quality of the learning environment. The realities of large classes are when the student population far outweighs the facilities, infrastructure and staff of the university [2,4]. Class size refers to the number of students in each course or classroom relative to the individual teacher or an average number of students being taught by teachers in a school or education system, also referred as student-teacher ratio [5]. According to Ayeni & Olowe [5] the student-teacher ratios are a general way to measure teachers' workloads and resources as well as the amount of individual attention a student receives from the teacher.

To better comprehend Large Classes in the context of learning it is essential to first appreciate what learning for a quality educational outcome is, and how learning becomes inadequate because of class size, including how class size affects learning not just because of student numbers but other external factors within a learning environment. Ayeni & Olowe [5] contend that learning is a process by which one acquires and retains attitudes, knowledge, understanding, skills and capabilities that cannot be attributed to inherited behavioural patterns. Farlex [6] opines that learning is the act, process or experience of gaining knowledge and skills or modifying and re-inforcing existing knowledge, behaviours, skills and preferences. With the latter assertions a learner is viewed as focal point in the classroom, an what h/she is gaining form the educational experiences is of great importance towards the achievement of higher education goals which move beyond simple knowledge acquisition to promoting student engagement and higher order cognitive functions requiring critical thinking and problem solving skills which are crucial for an innovation and knowledge economy [7, 8]. It appears that large (also referred to as overcrowded) classes cannot be defined merely in terms of a numerical threshold (100, 200, 300 500 or 1000) but rather as an environment where the quality of student learning may be negatively impacted by the number of students in the class. The latter environment entails a multiplicity of contextual issues such as varying approaches to and styles of learning, unequal access to teaching and learning support mechanisms, and unique

disciplinary milieus. As such, a large class may be defined in different terms depending on the discipline and or pedagogical needs of the learning environment [2].

Key determinants of Large Class Learning Environments

Higher education institutions in South Africa, as is the case in Sub-Saharan Africa, Africa and the developing countries, are beset with a plethora of challenges that give rise to rise in large class learning and teaching environments.

The latter challenges are not limited to:

- i. Global drive towards universal education.
- ii. Government policy on setting enrolment targets to increase and widen access to higher education.
- iii. Higher education budget cuts and fiscal restraints.
- iv. Inadequate educational infrastructure.
- v. Reduction in the number of qualified teachers.
- vi. Poorly remunerated teachers leading to high academic staff turnover.

Implications of Large Class Size on Quality Learning

Biggs [8] observes that the practical problems faced by students and instructors increase and change in nature the class size increases. These problems include the following:

De-professionalization of teaching practice

Effective teaching is negatively impacted upon by the large classes. Lecture planning, organizing and controlling a large class and facilitating collaborative learning methods is compromised. Increased marking and assessment leads to stressed teaching workforce. Established pedagogical practices get discarded. The autonomy of lecturers gets eroded including the reduction in their ability to re-enforce appropriate pedagogical methods [1,4].

Reduction in the quality of teaching and de-accreditation of courses

As class sizes increase the overall quality of teaching is affected, as teachers deviate from the predetermined teaching methods and standards in the approved course curriculum. Where deviations in the delivery of a course have not priori secure explicit approval of accrediting bodies, leads to de-accreditation of some courses which affects the employability of graduates.

Higher order cognitive skills not fostered

Surface learning which is focused on transmission of course content and assessment of the extent to which content has been grasped leads to graduates who lack problem solving and critical thinking skills so much needed by a and innovation and knowledge economy as that South Africa yearns for [2]. Inability to solve problems by graduates impacts on their prospects of securing

employment opportunities as they fail recruitment activities that assess these skills. Should they succeed in some recruitment processes, their level of productivity is compromised when they start working, leading to a need for reskilling and or upskilling at the cost of the company. The reputational image of the university is compromised given the quality of its graduate attributes.

Reduction in student engagement

Bond [9] defines student engagement as the energy and effort that the students employ within their learning community, observable via any number of behavioural, cognitive or affective indicators. This definition is supported by Dixon [10] who views engagement as an effort that the learner makes to acquire knowledge and build his or her critical thinking skills through staying involved in the learning process. On the other hand, Martin & Bolliger [11] observe three types of engagement as: learner-to-learner engagement, learner-to-content engagement, and learner-to-instructor engagement. The inability to control large classes by the teacher leads to students who do not meaningfully participate in the learning process. Teachers are also unable to develop and execute appropriate teaching and learning methods in large classes that have diverse needs, leading to marginalization of vulnerable students while academically lazy students hide behind those that participate effectively in class. Large classes inhibit the opportunities for students to receive feedback and interaction with students and teachers [1].

Poor student performance and Higher drop-out and failure rates

Students who would have performed better should be involved in the learning process, with adequate individual attention and feedback from the lecturer fail in their studies. The drop in student performance depicted in formative assessments during the Semester leads to students' demotivation, class inactivity, rise in failure rate and ultimately drop-out from the higher education studies.

Strategies For Enhancing Quality Teaching and Learning in Large Classes

The preceding exposition of the factors that give rise to and consequences of Large Classes to a quality learning environment presents an opportunity to explore creative ways to address the cited challenges and still make the educational experience a worthwhile for students who enroll in higher education institutions. Large classes will remain a reality in various universities in developing countries for some time. Strategies that are presented below are oriented to both the teachers, students, the faculties or academic departments, the universities and governments, as all have a fair share on factors that give rise to large classes and how their consequences can be mitigated in a sustainable manner. Accepting that a student is a focal point of the learning environment, Othman & Amiruddin [12] note that it has

always been an accepted practice, supported by various learning theories, that teachers should be creative in diversifying education techniques in class by being sensitive to students' learning needs. The latter assertion places the responsibility to attract and retain the student interest in a learning process squarely at the doorstep of a teacher. According to Drago & Wagner [13] and Becker et al. (2007) a teacher should be creating an environment to fulfil the demands of students' distinctive learning styles, as well as knowing the importance of teaching by using various learning styles and combining different pedagogical strategies. Students learn using various methods, whether by perceptively, by hearing, by behaviour, by reaction, and by various other ways. Whereas for the teacher different teaching styles are used, whether through demonstration, discussion, lecture presentation and others [14].

Researchers have over time yielded different learning style models, with the previous VAK model having been modified by Fleming [15] into the VARK learning style model. Employing the VARK model Ismail [16] classifies students according to different or preferred modes of learning: Visual, Aural, Read or Write, and Kinaesthetic. Visual students are said to be more inclined to demonstrated learning through descriptions in which figures, pictures and symbolic tools such as graphs, flowcharts, models, hierarchies and arrows are used. Aural students give more attention to what is being said by the teacher in his or her own words Drago & Wagner [13]. These are students who rely heavily on recordings than writing notes in class. Reading students are note takers as they prefer printed words and text as a way of gaining information. Kinaesthetic students prefer to go through some experience to learn something. These students prefer to apply, touch, to move and interact with the environment, are inclined to dislike listening and rely on visual skills to assimilate an imagined environment and would come across as passive in class [12]. It needs to be mentioned at this point that while it is fair and acceptable that teachers should at all material times seek to align their teaching methods and pedagogical approaches with the diverse learning styles of students for effective learning to take place and educational outcomes to be attained, Large Classes present enormous and complex demands to lecturers. A multi-faced and integrated response to challenges that come with large class administrative (not of teacher making) decisions in universities is required from all role-players. While the list is not exhaustive, the following strategies would be employed to enhance the quality of teaching and learning in large classes in South Africa and other comparable contexts:

Increased funding allocations by government to higher education sector

Government must expand resourcing the existing universities to ensure quality delivery of the government approved academic programs instead of seeking to create new universities offering the same programs, and thereby compounding the existing

programme in stretching meagre resources at its disposal. An innovative higher education funding model that is geared at reducing government spending on programs that do not trigger economic development outcomes. A typical example of the latter fiscal policy considerations would be to redirect R96 887 for building an RDP/BNG house for a young person within the age group of 18 to 25, and re-invest such housing subsidy to his or her higher education costs so that she or he is empowered with knowledge and skills that id him or her to gain entry in the labour market or venture into entrepreneurship and thereby providing for her or his basic needs while contributing to increased municipal and national government tax revenue while triggering higher consumption levels (demand) which is crucial for high productivity in the economy.

Government adopting class size reduction policy for universities

Yelkpiieri et al. [4] observes that generally the phenomenon of large class size in education is not only a negative situation for developing countries, but also for developed nations. There have been several class size reduction projects in countries such as USA, China, Netherlands, United Kingdom wherein a small class has been made a cornerstone of education policy. The South African government should follow suit in not only requiring universities to provide aggregate statistics on lecturer-student ratios, but to disaggregate the data per Faculty, academic department, course and individual lecturer. With respect to class size determination at lecturer level Faculties shall require adopting equitable workload models for their academic workforce in which remuneration shall not be standardized per academic position but relate to the volumes of work per lecturer within an academic department and across Faculties. The latter proposition shall be in keeping with the labour law principle which promotes equal pay for work of equal value.

Qualification accrediting authorities undertake a rigorous assessment of institutional resources for endorsement of new academic programs

It is also an open secret that higher education institutions increase their revenue base by attracting government subsidies through delivering academic programs to high student populations. These subsidies come in the form of teaching and research output subsidies. In some instances, the universities may opt to enroll fewer postgraduate students and more undergraduate students for pure financial sustainability reasons. On the other hand, some universities may find it fashionable to introduce new academic programs, which may already be offered in other universities, but for the purposes of increasing student numbers and hence subsidy inflow. In the process of introducing new academic programs, whether justifiably so, little attention is given to infrastructure and teaching resources that will be required at the commencement of the new academic programs before the university enjoys the

government subsidies based on various educational outputs.

Resource allocation by university management to Faculties be based on student numbers and class sizes

It is possible that a fair and equitable resource allocation model to higher education institutions from the side of government is uncontested, but a skewed allocation formula is applied at university level to Faculties and academic departments. The allocation of teaching posts, learning material resources, infrastructure and facilities should be proportionate to student numbers in each programme as such administrative decisions determine class sizes. Faculty Organograms and post establishments should take due cognizance of historical and present data pertaining to module-student-teacher ratios.

Student admission processes are sensitive to available academic staff, lecture facilities and technological infrastructure maturity levels

All academic programs have enrolment targets that were determined against available staff, infrastructure and facilities at the time the programs were approved by accrediting authorities. Due to the government drive for increasing and expanding access to higher education universities create flexibility in student admissions, including surpassing the predetermined and scientifically arrived at student enrolment figures. The latter, for all its good intentions, distorts the picture of the balance between infrastructure requirements and student enrolments in a university, leading to large classes and a subsequent decline in the quality of the academic project.

Leveraging on technological advances and digitization

One of the positive spin-offs of a seemingly undesirable situation like the Covid-19 pandemic is that it propelled higher education institutions to embrace and diffuse technologies in the practice of teaching and learning at a very high pace. With digital technologies such as smart phones and software e-Learning platforms such as Moodle the need for large lecture halls with massive infrastructure got eliminated. Moodle as Learning Management System with its multiple functionalities of distributing learning resources, administering quizzes and grades in a way ameliorates the need for physical resources and facilities to undertake the same functions and arrive at the same outcome. E-Communication Platforms such as Ms Teams are used to deliver lectures and allow for student engagement activities through online breakaway rooms that are host controlled. Digital literacy and fluency for both lecturers and students is essential for optimizing technological advances for the benefit of Large Class Pedagogy.

Pedagogical trade-offs by lecturers in promotion of collaborative learning

In their form and nature large classes would not promise a quality educational experience in a situation where the lecturer

plans to deliver a large scope of content to student through the transmission mode of teaching. While effective teaching means mastery of the subject or content by the student, yet still, it must be planned and executed from the learner's point of view for effective learning to be attained. In large classes a fine balance is required in lecture planning, between the volume of content to be transferred to the student and the set of activities the students will engage in to assimilate the content. Focus on the transfer of knowledge should not only be on breadth but also on depth of through meaningful student engagement. Group discussions allow students to engage and critically examine learning material thereby fostering the so-much needed problem solving and critical thinking capabilities. It should rather be the amount of content coverage that gets reduced in Large Classes and not the quality and depth of learning which will have serious ramifications on the attributes of the graduate the university releases to the highly competitive labour market.

Students taking charge of their learning process with Lecturer support

Large classes require students to take responsibility for their learning project. The latter bodes on Self-Directed Learning which implies that the student takes proactive steps in the learning process with the support of the lecturer whose role in teaching shifts to be a mentor and coach Meriam [17]. The student must make maximum use of and share available resources with other students. He or she is expected to seek advice and guidance from the lecturer.

Administrative and psycho-social support services for lecturers and students

Teachers and students alike are negatively impacted by the learning environment presented by large class sizes. While students get demotivated due to inability to get attention of the teacher, including anxiety of being left behind and possible course failure, on the other hand the teacher endures psychological strain due to volumes of lecture planning, marking and class management challenges. Teachers should be relieved of module administration activities in large classes, and these be assigned to administrative staff in an academic department [18]. On the other hand, Student Success Coaches outside large classes should be made available with both physical and online help-desks, that students may consult when experiencing difficulties in the learning process. Student Success Coaches may assist a student on how to prepare an individual catch up plan and how to execute it while participating in the large class environment. It would be unfair if not unrealistic to expect a single lecturer to guide and monitor students' individual catch-up plans while managing the learning process for the bigger class.

Conclusion

In this paper the author set out to examine the Large Class Pedagogy and its implications for a quality learning environment

with a view to proffer practical strategies to mitigate the effects of large classes in effective teaching and learning. Drawing on learning theories and teaching styles, a review of literature pertaining to Large Class Pedagogy was undertaken. Factors that give rise to large classes in higher education institutions, implications of large class environment to effective learning and strategies to enhance quality teaching and learning in large classes have been uncovered.

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