

STUDENT OVERLOAD AT UNIVERSITY: LARGE CLASS TEACHING CHALLENGES

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ABSTRACT

The tireless efforts of lecturers to deal with the challenges of large classes at universities continue as they persevere to provide quality education to the masses of students. Many issues plague lecturers and students alike, which inadvertently impact on the teaching and learning experience. This article reports on a study that examined the challenges faced by lecturers with large classes at higher education institutions (HEIs) and the different approaches that are used to overcome these challenges. The contribution of this study is that it documents strategies that can be used within the current technological environment to enhance student participation in large classes. The study was conducted at two universities through the use of questionnaires and found that lecturers at both HEIs were faced with similar challenges in teaching/lecturing large classes. The current feasible solution to support the traditional form of lecturing is an integrative approach that incorporates the use of information communication technologies (ICTs) as well as various other teaching approaches, in reaching all students in large classes.

Keywords: large classes, lecturing, teaching and learning, student-centred, course content



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INTRODUCTION

The challenges that higher education institutions (HEIs) face to ensure a high-quality undergraduate education are exacerbated by very large class sizes. Leufer (2007, 323) highlights that class size is an integral element of an academic environment and its potential impact on students' perception cannot be overlooked. Mateo and Fernandez (1996, 771–778) offer a classification system based on categorisation in the international literature. They define classes with 3–9 students as very small; 10–29 students as small; 30–59 students as medium; 60–149 students as large; and more than 150 students as very large.

According to the International Consultants for Education and Fairs (ICEF 2013), the student-lecturer ratio in South Africa increased from 24:1 in 2005 to 28:1 in 2010. This is 40 per cent above the state's recommended ratio of 20:1. The reality of the challenges presented by large classes then has to be faced by overworked teaching staff who are compelled by the budgetary constraints of their institutions to strategise a way forward in coping with the excessively large numbers of undergraduate students.

The progressive increase of undergraduates admitted recently at South African HEIs has compounded challenges, such as venue capacity; lecture – student ratio; time tabling, non-functional equipment and inadequate staff, within these institutions. The *Green Paper for Post-School Education and Training* (DHET 2012, x) identifies universities as the strongest and most stable component of the post-school system. However, even some of these institutions are beset by serious problems and are unable to fulfil the Department of Higher Education and Training's (DHET) expectations. The paper acknowledges that within the university system as a whole, many problems remain with regard to access, staffing, curriculum, management, student funding, and other areas. The paper further calls for a total university enrolment to rise from 900 000 in 2011 to 1.5 million by 2030 (DHET 2012, x). The National Development Plan supports this with a target of 1.62 million enrolments for 2030. Further, the plan calls for 400 000 graduates a year by that date. Large classes at HEIs in South Africa will be commonplace as the South African government moves towards improving the throughput level at universities.

Large classes at higher education level are not a new phenomenon. In many countries, including France, Holland, Italy and the United States (US), classes of between 300 and 1 000 students can be found (Biggs 1999). However, in other countries, such as the United Kingdom (UK), classes have tended to be smaller until recently. In many countries there is pressure either to reduce class sizes or to maintain small class sizes at primary and secondary school level. Large classes of up to 500 students are not uncommon at undergraduate level in HEIs (Mulryan-Kyne 2010).

QUALITY EDUCATION VS CLASS SIZE

The key element of successful teaching lies in the lecturer's ability to respond to individual students' needs and perceptions efficiently yet individually (Wentling, Park and Peiper 2007, 36). This becomes a challenge particularly when the class size is large. Leufer (2007, 323) states that a link exists between class size and academic achievement. In research conducted by Blatchford et al. (2004), they found that students in large classes played a more passive role whereas in smaller classes, they were more likely to interact actively with the lecturer. Wentling et al. (2007) confirm that in such an environment where the class size is large, interaction is limited to a number of factors, such as: the format of teaching; students' reluctance to interrupt the lecturer by asking questions; and students' fear of asking questions that might be deemed as unnecessary by other students. Consequently there is reluctance for students to participate and they are instead content to be spectators in large classes.

Gibbs, Lucas and Simonite (1996) state that participation and levels of interaction have been shown to vary in quantity, quality and duration depending on class size. Mahler, Neumann and Tamir (1986) argue that the cognitive level of interactions among groups of students declines as group size increases, invariably impacting on the quality of learning that takes place. Leufer (2007) maintains that a lack of motivation results from the low value individuals attach to their individual contributions, a factor that is prevalent in a large class setting. Increasing class sizes makes it more difficult for lecturers to maintain the level of two-way communication with their students that is required to maximise student learning. Also the diverse needs of students require greater flexibility and faster responses from lecturers (Wentling et al. 2007).

Biggs (1999) points out that the effects of class size are varied and contextual. The nature of the programme or course being taught, the accommodation and facilities that are available and the available resources are all relevant. Biggs further explains that meeting the needs of a class of 50 in a science laboratory designed for 30 is likely to be more challenging than presenting a history lecture to 220 students in a lecture room designed for 200 students. Mulryan-Kyne (2010) states that although teaching large classes is not problematic in many cases, there is sufficient evidence available to suggest that as class sizes increase at tertiary level, lecturers often face new issues and problems.

Gibbs (1992) maintains that poor engagement of students with course content, less commitment to courses and low motivation appear as some of the significant effects of being taught in large groups. Gibbs further states that low participation levels, social isolation and lack of adequate resources also figure among the problems for students identified in the context of large classes.

Voelkl (1995) suggests that reduction in active student involvement in learning is linked to decreased course performance. In other words, active student participation appears to be an integral part of a quality education. Bryant (2005, 271) points out

that participation in class discussions is a strong predictor of keeping up with course reading assignments and tutorials. Lack of class preparedness has also been linked to negative views toward classmates who do contribute, which suggests there may be some social pressure on students to remain quiet when enough students fail to prepare for class discussion.

Ward and Jenkins (1992) comment on the unpreparedness of first year students to deal with the large class sizes that confront them at university. They highlight the importance of students forming relationships with other students in their class and with staff if they are to feel comfortable in the new setting and experience a good learning environment. However, as a result of the large classes, students often feel uncomfortable and confused spending their first weeks in a state of shock and feeling nameless in their classes. Consequently, they adopt a passive role in class and are reluctant to ask questions or make contributions (Mulryan-Kyne 2010). Carbone (1999) explains that these students respond to the anonymity and impersonal nature of large groups by engaging in behaviour that they would be unlikely to exhibit in small classes, including arriving late for class and/or leaving early.

CHALLENGES FACING LECTURERS

Mulryan-Kyne (2010) notes that some lecturers cope well with large class teaching. However, there is a range of problems that lecturers frequently encounter when they are faced with the negative effects of large classes on student learning and the stresses of trying to function effectively in the large class setting. Ward and Jenkins (1992) identify that lecturers often have to deal with controlling large numbers of students entering and exiting the lecture hall, which becomes disruptive; large volumes of marking; and timeously providing adequate feedback to students. Wulff, Nyquist and Abbot (1987) further explain that lessened individual accountability, noise and distraction are other problems reported by lecturers in the context of large class teaching.

Mulryan-Kyne (2010) points out that resources can also become a problem with few copies of prescribed books being available and the futility of assigning extra reading, which is not always readily available to students who belong to a large class. The added pressures are that lecturers are expected to publish and undertake consultancy as part of their duties. Combined, these responsibilities can become overwhelming. This results in lecturers resorting to traditional methods of teaching and assessment. The unreliability of audiovisual equipment utilised in some large class venues hampers effective delivery of the lesson. This was prevalent at both universities engaged in the study.

TEACHING STRATEGIES FOR LARGE UNIVERSITY CLASSES

With large classes it seems plausible that there would be limited interaction between students and lecturers in the classroom; a high level of student anonymity; and a course dominated by instructive teaching (Ward and Jenkins 1992). To ensure that quality teaching is maintained at all times, Ramsden (2003) proposes six principles, namely: a high level of interest in, and explanation of their discipline; concern and respect for students and student learning; using appropriate assessment and feedback; providing clear goals and intellectual challenge to the students; promoting independence, control and active engagement in the classroom; and a willingness to learn from students taking their course. The universality of these principles provides the lecturer with the impetus for strategising other ways to conduct large classes.

THE UBIQUITOUS LECTURE

Studies that have been carried out on teaching at university level have shown that lecturing is the most common teaching approach used (Thielens 1987). A study conducted by Thielens (1987) of over 800 faculty members in 80 institutions in the US found that 80 per cent of class time is spent lecturing. His study found that more lecturing takes place in the disciplines, such as science and mathematics, compared with the 61 per cent of class time spent on lecturing by faculty members from the humanities. He also noted that as class size increases, so too does the amount of time spent on lecturing. Teaching by lecture can be a very effective approach in the appropriate context. Gibbs (1992) points out that many university lecturers have developed a perspective in their area of expertise that cannot be obtained in textbooks.

The support for lectures within a large class comes from various proponents, such as McKeachie (1999) and Cuseo (1998), who suggest that lectures should be used in the following scenarios:

- to organise, integrate and update reading materials;
- to model problem solving and critical thinking;
- to demonstrate enthusiasm for the subject matter;
- to relate relevant course content to the student.

Further, Good and Brophy (2003) (based on the research of Gage and Berline (1992) and Henson (1988)) have proposed a range of contexts in which lecturing becomes necessary and is appropriate:

- to present information;
- when the material must be organised in a particular way;

- when there is a need to arouse interest in the subject matter;
- to provide instructions about a task after the introduction of that topic is done;
- when curriculum material needs updating;
- when the lecturer wants to present alternative points of view or clarify issues in preparation for discussion.

Good and Brophy (2003) point out that the effectiveness of the lecture is very dependent on the effort and care that goes into the preparation of the lecture and the quality of the delivery. Bligh (2000) suggests that completely relying on one teaching approach is undesirable and that a combination of lecturing and other approaches is likely to be more effective. Cuseo (1998) states that lectures are least appropriate when the material is already available and comprehensible in print, which is readily processed by the student in text or hand-outs.

An important aspect raised by Johnson, Johnson and Smith (1998) is that there are additional problems with the lecture approach. They identify that the lecturer makes a series of assumptions about the students that may not be justified. These assumptions are that all students are intelligent, educated persons oriented toward auditory learning; need the same information presented orally at the same time and pace, without dialogue with the presenter; have high working memory capacities; possess the prerequisite knowledge to benefit from the lecturer; and have good note-taking skills. Cooper and Robinson (2000) point out that one reason for the disappointing results regarding the efficacy of the lecture method may relate to the low time spent on tasks associated with lecture techniques.

Bligh (2000), on the other hand, conducted a comprehensive review of studies of the effectiveness of lectures and other approaches. The results were mixed and were dependent on the learning objective. Bligh was able to conclude that lectures compared well with other approaches for teaching factual material, whereas, lectures were less effective for problem solving and higher-order thinking and for developing an interest in the subject. The reality is that just because someone teaches does not guarantee learning – for anyone. It is impossible to ‘make’ someone learn; they have to have a reason to learn – even if it is to pass an exam or in order to meet a professional standard (Westphalen 2013).

ACTIVE LEARNING AT UNIVERSITY LEVEL

There is a need for students to engage in active learning at university level in order to promote course involvement. To make teaching and learning more active in large classes, lecturers could include brainstorming, short writing activities followed by class discussion, quick surveys, think-pair-share, formative quizzes, debate, role playing and student presentations (Bonwell and Eison 1991; Chickering and Gamson 1987; Cooper and Mueck 1990; Kozma 1978; Lammers and Murphy 2002;

Michaelsen, Fink and Knight 1997; Millis and Cottell 1998; Mulryan-Kyne 2010; Penner 1984; Weimer 1992).

Active learning does not have to mean the demise of the lecture (Machemer and Crawford 2007). It suggests opportunities for students to engage in reflection, analysis, synthesis and communication in the context of their learning, need to be included in all teaching approaches, including the lecture (Fink 2003). Millis and Cottell (1998) propose that active teaching involves creating learning environments that are student centred; that acknowledge student diversity; and that involve a reduction of student dependence on the lecturer for knowledge acquisition.

Fedler (1997) suggests innovative ways of achieving quality closure to a teaching session, including asking students: to write down a brief statement of the main point of the lecture; to provide questions or test problems related to class content; and/or to make suggestions for course improvement. Mulryan-Kyne (2010) proposes that this form of feedback can be used as a type of formative assessment of course effectiveness and as a basis for future course planning.

ICTs AND LEARNING MANAGEMENT SYSTEMS

Mulryan-Kyne (2010) highlights the advancement in the use of technology to enhance teaching of large groups at university level. This has provided an alternate avenue for course materials, discussion opportunities and feedback to be made available to students. Information can be made accessible at the students' convenience. Strategies and other varied instructional means have been introduced to assist lecturers in managing large classes. Wentling et al. (2007) highlight learning technology and multimedia which have been recognised as effective tools in providing the greatest possible array of student input and interaction with the lecturer thereby facilitating a two-way communication with the student. Information communication technologies (ICTs) have created a new environment for learning. According to Wentling et al. (2007), computers have indeed become small and mobile in the manner of the cellular phone. This has inadvertently changed educational technology and the learning environment.

The use of learning management systems (LMSs) has been implemented by many institutes worldwide since the early 1990s. Internationally and within South Africa, LMSs have become nearly pervasive across the higher education sector as a core component of e-learning (also referred to as blended learning) (Pina 2010). A frequently used definition of an LMS describes it as

a broad term that is used for a wide range of systems that organise and provide access to online learning services for students, teachers, and administrators. These services usually include access control, provision of learning content, communication tools, and administration of user groups' (Paulsen 2002).

Summarising the extent to which the higher education sector has embraced the use of LMSs, Jones (2009 in Bennett 2011) comments: 'it is broadly accepted that the almost universal response to e-learning within universities has been a selection of an LMS'.

Hayward (2009 in Adams 2011) describes LMSs through a 5-level hierarchy of increasing capabilities:

- Classroom management – facilitate delivery of notes or other learning aids for a particular lecture (e.g., lecturer creates a website to distribute materials).
- Course management – support to span multiple class sessions across an entire course with common goals, adding tools for evaluation, feedback and discussion.
- Curriculum management – provides meta-tools (e.g., content tagging and objectives management) to handle relationships among a set of courses. These tools can be used to index a curriculum across a programme or identify common attributes across courses.
- Learning management – information is organised around the learner. This facilitates self-directed learning as students can choose from a variety of learning opportunities, and can progress at different rates over time depending on individual goals. Students may have a private area within the system to assemble selected resources (facilitating the use of an e-portfolio).
- Community management – enables borders to extend beyond the class, course, curriculum or the traditional campus learner, allowing for multiple learning contexts and organisations.

There are more than 90 different types of LMSs available (Pina 2010). However, for the purpose of the article, only two will be given priority as they are popular within the universities of South Africa.

BLACKBOARD AND MOODLE

Blackboard was established in 1997 and Blackboard Learn Version 9 was introduced in 2009, which incorporated functionality from earlier versions of Blackboard and WebCT. Walsh and Coleman (2010) note that the latest version, Blackboard Learn 9.1, also incorporates Blackboard Connect (at an additional cost), which alerts students to deadline due dates and academic priorities within a course. In her review on LMSs, Bennett (2011) explains that Blackboard 9.1 also allows educators to more easily incorporate videos and photos directly into text for a more complete learning experience.

Westphalen (2013) describes Moodle as a software package for producing internet-based courses and websites. It is an on-going development project designed to support a social constructionist framework of education. Moodle is provided freely as Open Source software (under the GNU Public License). This means that Moodle

is copyrighted, but that users have additional freedoms, that is, they are allowed to copy, use and modify Moodle provided that they agree to: provide the source to others; not modify or remove the original licence and copyrights; and apply this same licence to any derivative work. Moodle is a learning platform like Blackboard, but with general access. Many institutions have chosen Moodle over Blackboard. A possible consideration might be that users explore which learning platform is most suitable in their discipline area and/or profession and then use that with their students. In contrast to Moodle, Blackboard positions itself as pedagogically neutral (Adams 2011). Moodle has been freely available for download and implementation since 2002, and is developed and supported by an active community of developers, users and administrators who keep the software evolving at a steady pace (Pina 2010).

Moodle 2.0 is the latest version. New features focus on increased usability that includes: easier navigation, improved user profiles, community hub publishing and downloading, a new interface for messaging, and a feature that allows teachers to check students' work for plagiarism (Walsh and Coleman 2010). Moodle also allows teachers to search all public community hubs and download courses to use as templates for building their own courses. Teachers can further see when a student completes a certain activity or task and can also see reports on a student's progress in a course (Walsh and Coleman 2010).

THEORETICAL FRAMEWORK

From the perspective of the challenges faced with lecturing large classes, the communication theory devised by Shannon and Weaver (Chandler 1994) provided an all-encompassing view for the study. The Shannon and Weaver model for communication is primarily intended to model communication from an engineering perspective, but it can be applied to human communication as well (Chandler 1994). The key tenet of this model is that it highlights *noise* in the communication encounter which distorts the message from reaching the receiver. The linearity of the model that the one-way communication encounter that takes place between the lecturer within a large class and the student where class participation is minimal.

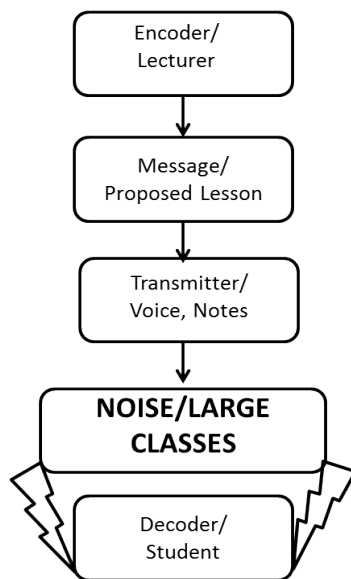


Figure 1: Shannon and Weaver's Communication Model (adapted Steinberg 2011)

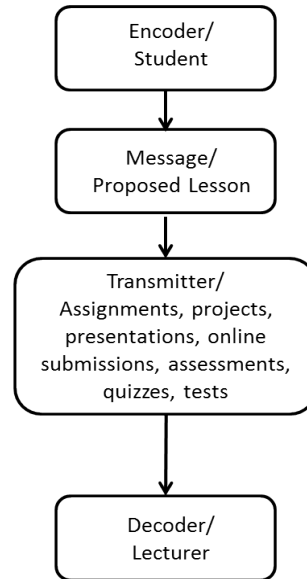


Figure 2: Proposed model of Student Centred Teaching

Figure 1 is an adaptation of Shannon and Weaver's Communication Model where *noise* is identified as the challenges encountered by lecturers who teach large classes. The following components outline its relevance to the study:

- Source or encoder: Steinberg (2011) describes the source as the initiator of the communication which puts the model into action. Within the framework of the study, the source can be seen as the lecturer.
- Message: Steinberg (2011) defines the message as the information, idea or concept that is being communicated from one end of the model to the other. Frequently in human communication, the message contains a distinct meaning. In the study the message implies the lesson or the lecture.
- Transmitter: according to Steinberg (2011), the transmitter carries the signal or message. In the case of this communication encounter it becomes the voice of the lecturer or the notes which are prepared by the lecturer.
- Noise: Chandler (1995) sees noise as a dysfunctional factor, in other words, interference with the message. This element or component of the communication process cannot be excluded as it carries with it intrinsic effects in a communication encounter. Steinberg (2011) explains that it is inevitable that noise may enter the communication process at any time. Noise can be seen as an interference or a distortion that affects or changes the initial message. She describes noise

as being either physical or semantic. The focus of this study hinges on the challenges lecturers face in teaching large classes, which is highlighted in this model as *noise*.

- Receiver: Steinberg (2011) explains that before the message reaches the intended recipient or communicator it must be decoded or interpreted from the original form into one that the receiver understands. The receiver in this case is the students within large classes. Owing to the *noise* or challenges the lecturers face, the student is disadvantaged in that minimal contact and feedback is provided by the lecturer. Also the student becomes a passive listener or learner with very little class participation.

Figure 2 presents a model similarly constructed based on Shannon and Weaver's Communication Model, only here the roles of the encoder and decoder are reversed. This model aims to promote the student as being more active within a large class through an integration of different teaching methods. The onus of learning is placed on the student in Figure 2 where the student is seen as the encoder. This enables the student to prepare for the lesson in a variety of ways initiated by the lecturer who is now the decoder. This presents the students with a chance to optimise their potential in the given subject matter. It also makes other students aware that passive spectating is not an option in such a scenario. This will inadvertently build a culture of active learning amongst students.

The article highlights the challenges lecturers face in teaching large classes and accordingly proposes remedies to deal with these challenges. The proposed remedies are aimed at eliminating *noise or challenges* thereby ensuring effective teaching and learning. As a supplement to the lectures and to overcome the teaching and learning barriers that can exist as a result of large classes, it is proposed that lecturers extend their methods of teaching through the incorporation of formats such as ICT platforms and other applications.

METHODOLOGY

The research reported on in the article was exploratory in nature. The focus was on identifying existing strategies that can be used to overcome the challenges of teaching large classes at HEIs. For this reason data was gathered through the use of questionnaires which were applied at two universities, namely, the University of Zululand and the University of Limpopo. The selection of these universities was based on the large classes that are prevalent at these HEIs. The rural setting of both universities provided the study with a unique perspective on large classes at rural based HEIs.

A non-probability sampling technique was employed in the form of purposive sampling to engage the respondents for the study. A sample of 30 lecturers participated in the study from across various disciplines. The objective of the study was not to

compare institutions but to develop a strategy for dealing with large classes. A self-administered questionnaire was distributed electronically to respondents targeted for the study. The questionnaire comprised open-ended and closed-ended questions. The major constructs addressed in the questionnaire were the quality of education in large classes; challenges experienced by the lecturers in teaching large classes; and teaching strategies employed by lecturers.

FINDINGS OF THE STUDY

The respondents were made up of lecturers, senior lecturers, associate professors and professors who had accumulated more than five years of teaching experience. All of the respondents had experienced large classes during the past five years of teaching. The respondents came from various faculties and disciplines providing the research with a broad overview of how large classes are handled overall. The following findings were gathered from the data collected:

- Large classes are more prevalent in first-year courses across most disciplines. The study revealed that 97 per cent (n=29) of the lecturers had first year classes of 301–450 students. In the second year, class numbers ranged between 151 and 450 students overall; whilst the University of Limpopo presented high third-year class enrolments of between 201 and 450 students in some disciplines.
- On average the total number of students per department ranged between 1 000 and 1 300 with a teaching staff complement of six lecturers.
- All of the respondents agreed that they did not prefer teaching large classes as this presented many challenges.
- All of the respondents acknowledged the use of the traditional lecture in their classes.
- The multiple-choice questioning format was utilised across all disciplines that participated in the study. This alleviated the large volumes of marking using electronic marking. Group assignments were also a popular form of assessment with 85 per cent of the respondents utilising this method in the humanities. However, this was not a suitable method of student evaluation across all disciplines.
- Some departments in both universities evenly distributed the marking workload between lecturers. However, at least 43 per cent (n=13) of the lecturers were solely responsible for marking a module assigned to them.
- All of the respondents confirmed that they engage in the use of new media to facilitate their lectures. Aside from Moodle and Blackboard, Facebook and WhatsApp were applications that lecturers used to communicate with their students. Moodle is used by 15 per cent of the lecturers at the University of Zululand whilst the others engage in virtual classrooms which offer similar

benefits to the students. Blackboard is predominantly used by lecturers from the University of Limpopo to engage with their students where lecture slides/notes, assignments, and more are posted.

- Only 30 per cent of the respondents confirmed the usage of forums to engage in discussions with students. The divide that results from the large classes can be bridged through the use of discussion boards and forums.
- The pass rates of students from large classes varied with the humanities/arts posting a pass rate of between 75 per cent and 89 per cent. Disciplines such as mathematics and statistics posted very low pass rates (30%–50%).
- Of the respondents, 40 per cent called for more lecture periods to accommodate the large numbers of students. Less work was covered over the allotted time frames in large classes which placed additional pressure on the students' learning ability.

DISCUSSION OF FINDINGS

The study focussed on challenges faced by lecturers with large classes at HEIs. The results of the study show that in some disciplines lecturers are able to adjust instruction to meet the needs of students. Hence, the high pass rates within the Faculty of Humanities/Arts. The rapid expansion in undergraduate enrolment in recent years has led lecturers to think about 'efficient teaching' (Barkham and Elender 1995, 179). In order to engage effectively with students, both universities (the University of Limpopo – Turfloop Campus and the University of Zululand) utilised ICTs in the form of Moodle, Blackboard and virtual classrooms. This provided students with the much needed open channel of communication to engage with their lecturers. In this context, large classes at rural based HEIs compound the challenges further as there are many other issues at play, such as: non-availability of ICT facilities and lack of ICT knowledge-competence of students to fully maximise on the availability of and access to new media technology.

The lecture mode of delivery in large classes provides a way forward in engaging with the class as a whole; however, students have individual needs based on challenges they too might experience. The lecture based form of teaching in large classes minus the lecturer-student interaction places a greater responsibility for learning onto students (Bonwell and Eison 1991). To avoid compromising on the standard of education in large classes, it is imperative for lecturers to find alternate means to enhance instruction.

The implementation of additional lectures places more demand on staff time, which is not the ideal situation; however, given that much lesser work is covered in the allotted time frames and to ensure quality teaching takes places makes it a viable option to be considered in the future.

The use of the multiple choice question (MCQ) format in the absence of essay based questions was one of the forms of assessment employed by lecturers as a strategy in teaching and assessing large classes at first year level to cope with high workloads. This alleviated some of the marking workload as the answer sheets were marked electronically. However, not all assessments are based on the MCQ format. Group assignments and individual assignments provide students with an opportunity to showcase their aptitude in the given discipline. It is vital, then, that the marking workload is evenly distributed to provide lecturers with sufficient time to engage in research activities.

Ultimately, the burden borne by lecturers to effectively manage and teach large classes at HEIs will continually be experienced as long as no cognisance is given to the lecturer-student ratio, staff shortages, lack of adequate venues and outdated technological equipment.

RECOMMENDATIONS

It can be gauged from the study that different disciplines require different approaches to teach large classes. Universities should embrace the new learning and communication patterns that continue to develop in order to facilitate and enhance the teaching and learning experience shared between lecturers and students. For this reason, the recommendations made here will not be applicable to every discipline but can be used and adapted accordingly:

- Integration of pedagogical approaches: Large classes at universities are not a new phenomenon; however, what has changed are the methods used to reach and teach large classes especially with the introduction of new media. The current study has revealed many approaches that have been implemented over the years to overcome the challenges of large classes; however, each of these approaches did not make the others obsolete. A combination or integration of various teaching methods can be applied in large classes to increase student participation thereby reducing the effect of passive spectating. It is important, therefore, for the lecturer to adapt and integrate the teaching and instruction methods of large classes to the current technological means available so as to maintain a quality education.
- A convergence of LMSs and social networking technologies (SNTs): The combination of current online LMSs, such as Moodle, Blackboard and Fronter, together with SNTs, such as Facebook, LinkedIn, Skype, Google Talk, Dropbox, Google Docs, Whatsapp and MxIT, can create the possibility of an Integrated Learning System where knowledge sharing is encouraged thereby motivating students to be more active in the teaching and learning process. These platforms reduce the distance between lecturers and students through the sharing of social

spaces (Hustad and Arntzen 2013). Students will be stimulated to participate actively through the Integrated Learning System thereby increasing their potential to learn. The SNTs are types of approaches that could be explored to facilitate teaching and learning. Through the implementation of this, the following can be structured and incorporated to enhance active student participation:

- The idea of a study unit based on a scenario or a theme, will engage the student in being able to correctly apply principles and theories to a given situation. This can be set up electronically as a class exercise, for example, on Moodle or Blackboard. The emphasis here lies on student centred teaching which increases engagement.
- The use of applications available on mobile phones increases opportunities for students to engage with one another. Various groups can be set up which students can join. This will enhance relationships between students and provide a more conducive teaching and learning environment.
- The use of forums should be considered to address problems and challenges students might experience with the course content. One lecture per study unit can be set aside to address these problems. The prerogative is to create a channel for students to communicate freely with the lecturer.
- The proposed model of student centred teaching is recommended to increase student participation in large classes. The responsibility of learning is placed in the hands of the student who is required to provide evidence of advance preparation of course outcomes.

CONCLUSION

Providing a high quality teaching and learning experience should be a priority shared between lecturers and students alike. Whilst class size does not affect the teaching and learning in some disciplines, other disciplines require smaller classes with more teaching periods to facilitate the learning process. Although lectures will remain at the helm of the teaching and learning experience, the use of ICTs is integral to engaging students to maintain contact with the lecturer and other students through the use of forums and discussion boards. Lecturers are required to develop their lectures continually in order to be more interactive and student-centred. This can be achieved through an integration of various teaching approaches.

The study has provided evidence that some lecturers have found ways of coping with large classes albeit with the many challenges that threaten their teaching experience. The university is not a place to churn out large numbers of unprepared graduates who will be unable to contribute towards the socio-economic welfare of any country. However, creating an environment that is conducive both to teaching and learning will generate many quality students and lecturers who will be able to

live up to the student's expectations. The strategies outlined in the article should be useful based on the context of the subject matter.

REFERENCES

- Adams, C. 2011. Learning management systems as sites of surveillance, control and corporatization: A review of the critical literature. In *Proceedings of the Society for Information Technology and Teacher Education International Conference*, Vol. 1: 252–257.
- Barkham, J. and F. Elender. 1995. Applying person-centred principles to teaching large classes. *British Journal of Guidance and Counselling* 23(2): 179–197.
- Bennett, S. n.d. *Learning management systems: A review*. <https://akoaooteaoroa.ac.nz/download/ng/file/group-5274/review-of-lms-literature-for-aut-lms-review-committee.pdf> (accessed 24 February 2011).
- Biggs, J. 1999. *Teaching for quality learning at university: What the student does*. Buckingham: Society for Research into Higher Education, Open University Press.
- Bligh, D. A. 2000. *What's the use of lectures?* San Francisco, CA: Jossey-Bass.
- Blackburn, R. T., G. R. Pellino, A. Boberg and C. O'Connell. 1980. Are instructional improvement programs off target? *Current Issues in Higher Education* 2(1): 32–48.
- Blatchford, P., P. Bassett, P. Brown, C. Martin and A. Russell. 2004. *The effects of class size on attainment and classroom processes in English primary schools (Years 4 to 6) (2000–2003)*. Research Brief No: RBX13-04. London: Department for Education and Skills.
- Bonwell, C. C. and J. A. Eison. 1991. *Active learning: Creating excitement in the classroom*. ASHE-ERIC Higher Education Report No. 1. Washington, DC: School of Education and Human Development, George Washington University.
- Bryant, B. K. 2004. Electronic discussion sections: A useful tool in teaching large university classes. *Computers in Teaching* 32(4): 271–275.
- Carbone, E. 1999. Students behaving badly in large classes. 1999. *New Directions in Teaching and Learning* 77: 35–43.
- Chandler, D. 1994. *The transmission model of communication*. <http://www.aber.ac.uk/media/Documents/short/trans.html> (accessed 25 February 2014).
- Chickering, A. W. and Z. F. Gamson. 1987. Seven principles for good practice in undergraduate education. *American Association for Higher Education Bulletin* 39(7): 3–7.
- Cooper, J. L. and R. Mueck. 1990. Student involvement in learning: Cooperative learning and college instruction. *Journal of Excellence in College Teaching* 1: 68–76.
- Cooper, J. L. and P. Robinson. 2000. The argument for making large classes seems small. *New Directions for Teaching and Learning* 81: 5–16.
- Cuseo, J. 1998. Lectures: Their plan and purpose. *Cooperative Learning and College Teaching* 9: 2.
- Department of Higher Education and Training. 2012. *Green Paper for Post-School Education and Training*. <http://www.dhet.gov.za/portals/0/Documents/GreenPaper.pdf> (accessed 5 February 2014).
- DHET see Department of Higher Education and Training.

- Felder, R. M. 1997. Beating the numbers game: Effective teaching in large classes. Paper presented at the ASEE Annual Conference, Milwaukee, WI, 15–18 June.
- Gage, N. and D. Berliner. 1992. *Educational psychology*. 5th ed. Boston, MA: Houghton Mifflin.
- Gibbs, G. 1992. Control and independence. In *Teaching large classes in higher education: How to maintain quality with reduced resources*, ed. G. Gibbs and A. Jenkins, 37–59. London: Kogan Page.
- Gibbs, G. and A. Jenkins. 1992. *Teaching large classes in higher education*. London: Kogan Page.
- Gibbs, G., L. Lucas and V. Simonite. 1996. Class size and student performance: 1984–1994. *Studies in Higher Education* 21(3): 261–273.
- Good, T. and J. Brophy. 2003. *Looking in classrooms*. 9th ed. New York: Macmillan.
- Henson, K. 1988. *Methods and strategies for teaching in secondary and middle schools*. New York: Longman.
- Hustad, E. and A. A. B. Arntzen. 2013. Facilitating teaching and learning capabilities in social learning management systems: Challenges, issues and implications for design. *Journal of the Integrated Design and Process Science* 17(1): 17–35.
- ICEF see International Consultants for Education and Fairs.
- International Consultants for Education and Fairs. 2013. *South Africa: An important regional hub for international students*. <http://monitor.icef.com/2013/11/south-africa-an-important-regional-hub-for-international-students> (accessed 26 February 2014).
- Johnson, D. W., R. T. Johnson and K. A. Smith. 1998. *Active learning: Cooperation in the college classroom*. 2nd ed. Edina, MN: Interaction Books.
- Jones, D. 2009. *One ring to rule them all*. Limitations and implications of the LMS/VLE product model. The weblog of (a) David Jones.
- Kozma, R. B. 1978. Faculty development and the adoption and diffusion of classroom innovations. *Journal of Higher Education* 49(5): 438–449.
- Lammers, W. J. and J. J. Murphy. 2002. A profile of teaching techniques used in the university classroom: A descriptive profile of a US public university. *Active Learning in Higher Education* 3(1): 54–67. <http://alh.sagepub.com/cgi/content/short/3/1/54> (accessed 31 January 2014).
- Leufer, T. 2006. Students' perceptions of the learning experience in a large class environment. *Nursing Education Perspectives* 28(6): 323.
- Machemer, P. L. and P. Crawford. 2007. Student perceptions of active learning in a large cross disciplinary classroom. *Active Learning in Higher Education* 8(1): 9–30.
- Mahler, S., L. Neumann and P. Tamir. 1986. The class size effect upon activity and cognitive dimensions of lessons in higher education. *Assessment and Evaluation in Higher Education* 11(1): 43–49.
- Mateo, M. A. and J. Fernandez. 1996. Incidence of class size on the evaluation of university teaching quality. *Education and Psychological Measurement* 56(5): 771–778.
- McKeachie, W. J. 1999. *Teaching tips: Strategies, research and theory for college and university teachers*. 10th ed. Boston, MA: Houghton Mifflin.
- Michaelsen, L. K., L. D. Fink and A. Knight. 1997. Designing effective group activities: Lessons for classroom teaching and faculty development. In *To improve the academy*, ed. D. Dezure,

- 16: 373–398. Stillwater, OK: New Forums Press and the Professional and Organizational Development Network in Higher Education.
- Millis, B. J. and P. G. Cottell, Jr. 1998. *Cooperative learning for higher education faculty*. Phoenix, AZ: Oryx Press.
- Mulryan-Kyne, C. 2010. Teaching large classes at college and university level: Challenges and opportunities. *Teaching in Higher Education* 15(2): 175–185.
- Paulsen, M. 2002. Online education systems: Discussion and definition of terms. <http://www.nettskolen.com/forskning/Definition%20of%20terms.pdf> (accessed 31 January 2014).
- Penner, J. 1984. *Why many college teachers cannot lecture*. Springfield, IL: Thomas.
- Pina, A. 2010. An overview of learning management systems. In *Learning management system technologies and software solutions for on-line teaching: Tools and applications*, ed Y. Kats, 1–19. Hershey, PA: IGI Global.
- Steinberg, S. 2011. *An introduction to communication studies*. Cape Town: Juta.
- Thielens, Jr., W. 1987. The disciplines and undergraduate lecturing. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC, 20–24 April.
- Voelkl, K. E. 1995. School warmth, student participation, and achievement. *Journal of Experimental Education* 63(2): 127–38.
- Walsh, K. and O. Coleman. 2010. Moodle 2.0 versus Blackboard 9.1 – a brief comparison. <http://www.emergingedtech.com/2010/11/moodle-2-versus-blackboard-briefcomparison/> (accessed 14 January 2014).
- Ward, A. and A. Jenkins. 1992. The problems of learning and teaching in large classes. In *Teaching large classes in higher education*, ed. G. Gibbs and A. Jenkins. London: Kogan Page.
- Weimer, M. G. 1992. Improving higher education: Issues and perspectives on teaching and learning. In *To improve the academy: Resources for faculty, instructional and organizational development*, ed. D. H. Wulff and J. D. Nyquist, 13–23. Stillwater, OK: New Forum Press, the Professional and Organizational Development Network in Higher Education.
- Wentling, T. L., J. Park and C. Peiper. 2007. Learning gains associated with annotation and communication software designed for large undergraduate classes. *Journal of Computer Assisted Learning* 23: 36–46.
- Westphalen, L. 2013. Teaching large classes: The magnificent seven. https://www.adelaide.edu.au/professions/pedagogical-possibilities/downloads/Teaching_Large_Classes.pdf (accessed 14 January 2014).
- Wulff, D. H., J. D. Nyquist and R. D. Abbott. 1987. Students' perception of large classes. In *Teaching large classes well: New directions for teaching and learning* No. 32, ed. M. Weimer. San Francisco, CA: Jossey-Bass.