

Effects of Large Class Size on Effective Teaching and Learning at the Winneba Campus of the UEW (University of Education, Winneba), Ghana

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Large class size is one of the problems in the educational sector that developing nations have been grappling with. Ghana as a developing nation is no exception and has its own fair share of this problem at the pre-tertiary and tertiary levels of education. The sight of large class at the tertiary level is appalling and a headache to teachers at that level. The purpose of this study was to provide views of both lecturers and students on large class size and how it affects teaching and learning of the Winneba Campus of UEW (University of Education, Winneba). A cross-sectional sample survey was adopted in this study. Respondents of the study were made up of 42 lecturers and 342 students. The stratified random sampling method was used to select students while the purposive and random sampling techniques were used to select heads of departments and lecturers respectively. The research instruments used in data collection were questionnaire and direct observation. Some of the key findings of the study are that lecturers disagreed with the view that large class size affects the quality of their teaching. They also disagreed with the assertion that large class size makes assessment of students difficult. The students, on the other hand, agreed that large class size does not afford lecturers an opportunity to pay attention to weaker students and do remedial teachings. In line with the findings, the authors recommend that the university should appoint more lecturers to the general courses. Also, the university must make an extra effort to provide more resources and facilities, such as lecture halls and teaching and learning equipment to promote effective teaching and learning.

Keywords: large class size, teaching, learning, assessment, lecturers, students

The Background of the Study

The UEW (University of Education, Winneba) is one of the six public universities in Ghana. It is the fifth public university established in September 1992, as a university college. On May 14, 2004, the University of Education Act 2004 was enacted to upgrade the status of the UCEW (University College of Education of Winneba) to the status of a full university. UEW is a product of former seven diploma awarding colleges located in different towns under one umbrella institution which included the ATTC (Advanced Teacher Training College), the STC (Specialist Training College) and the NAM (National Academy of Music), all at Winneba. The others were: SGL (School of Ghana Languages), Ajumako; College of Special Education,

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The Winneba Campus of UEW is the seat of the vice-chancellor with satellite campuses at Kumasi, Mampong and Ajumako. The total staffing position is 1,595 and student population is 36,206 (UEW Vice-Chancellor, 2010). Since the establishment of the university, efforts have been made to expand its infrastructure to meet the increasing demand for university education. However, the realities on the ground are that the student population far outweighs the facilities, infrastructure and staff of the university. At present, efforts are being made by management through GETFund (Ghana Education Trust Fund) to expand infrastructure and facilities on campus, yet the truth is that the provisions of these facilities do not match the enrolment of the university. This situation has resulted into the use of large class size as a measure to mitigate the inadequacies in the teaching staff as well as infrastructure of the university.

With this background in mind and the fact that higher education is a pre-requisite for the development of high and middle-manpower in every nation, it is disheartening to see an institution of such stature run under distress conditions. This idea is emphasized by these words,

The achievement of equitable access, smooth transition, equity and justice in any nation requires its higher education to be powerhouse of knowledge production and dissemination, diffusion and formation of new generations of thinkers and actors. (Awoyemi, 2006, p. 7)

Education is identified as an effective tool that is capable of breaking the cycle of poverty and lays a strong foundation for socio-economic development of a nation. It is in this respect that governments all over the world are putting a lot of emphasis on educational development at all levels. It is in consonance with this notion that the "United Nations' formulation of Basic Human Rights" has been received as "one of the important outcomes" of Jomtein's (1990) "declaration" (Awoyemi, 2006, p. 7). These reasons provide the basis for the President's Committee on review of education reforms in Ghana to carve,

The philosophy underlying the educational system as the creation of well-balanced (intellectually, spiritually, emotionally and physically) individuals with the requisite knowledge, skills, values and aptitudes for self-actualization and for the socio-economic and political transformation of the nation. (The Republic of Ghana, 2002, p. 1)

This implies that universities as fountains of knowledge "are expected to be centers of excellence and sources of education provision" (Awoyemi, 2006, p. 8). In effect, universities are established and mandated "to seek for self-determination, empowerment and for the right capacity to identify solutions to community problems". These challenging responsibilities require the universities to be places of "excellence", and therefore, well equipped to deliver their mandate to the letter. However, this is not the case in the universities in Ghana today. Universities in Ghana are beset with a lot of challenges that affect the quality of the products and services they render to the state. These challenges that universities in Ghana confront range from inadequate funds, staffing, infrastructure and equipment. The President's Committee on review of education outlined the problems among others as follows: (1) funding; (2) access; (3) staffing; (4) quality and relevance; (5) postgraduate training and research; and (6) management and governance (The Republic of Ghana, 2002, p. 17).

Effah (2003) on his part noted the financial and accommodation challenges that students and management have to contend with. Besides these challenges, large class size in recent times has become a necessary evil for public universities in the country. The seriousness of the problem is directly linked to the quality of teaching

and assessment of students, and finally, the quality of graduates turned out onto the job market. This assertion is shared by other scholars, such as Anderson (2000), whose opinion of likely factors that are associated with class size and students' achievements includes aspects directly connected to teaching. The President's Committee on review of education reforms seems to share this assertion when it indicated that "quality of teaching and learning, and research is adversely affected by the high STR (student-teacher ratio)" (The Republic of Ghana, 2002, p. 19).

The issue of large class size has arisen because of increase in the population, the quest for higher education and better living conditions of life. This is highlighted in the President's Committee on review of education which reported that there has been tremendous "expansion in enrolment in tertiary education" in the last 10 years (The Republic of Ghana, 2002, p. 17). It is observed that, "The participation rate of the age-group 18-21 years in tertiary institutions in the country is as low as 2.5% compared to 30%-40% for corresponding age-group in developed countries". The committee opined that the main "factors" that account for the phenomenal increase in enrolment in tertiary institutions are two-fold. The first reason is "The existing tertiary institutions' inability to meet the high demand for tertiary education". The reason for this is "The rapid growth of population and expansion in pre-tertiary education following the introduction of educational reforms in 1987". The second reason is attributed to the "mismatch between existing academic facilities and physical infrastructure on the one hand" and the "continuous increase of students' quest for tertiary education on the other hand".

As if this is not enough, the staffing situation in the public universities has compelled management to resort to large class size, especially in general courses, so as to make do with the limited staff available. Indeed, large class size has become a big challenge to management of universities in Ghana, because they know that, "The quality of provision in the institutions is clearly inappropriate as staff-student ratios become more difficult to manage" (Awoyemi, 2006, p. 12). This state of affairs has called for an empirical study to come out with views of lecturers and students on the effects of large class size on effective teaching and learning at Winneba Campus of UEW.

Statement of the Problem

Generally, the phenomenon of large class size in education is not only a negative situation for developing nations, but also for developed nations. Studies, carried out on the impact of large class size in schools, revealed that in the USA, "There have been a number of class size reduction projects, following Achilles and Finn's (1999) proclamation that small classes should be a cornerstone of educational policy", as cited by Elkington and Lloyd-Staples (n.d., p. 7). This policy was adopted by China and the Netherlands. The UK government followed suit when "prompted" by concerns of "large classes", and as a result, "at great expense" introduced "a maximum of 30 to a class for the youngest children in schools (5-7 years)" (Elkington & Lloyd-Staples, n. d., p. 7). The ATL (Association of Teachers and Lecturers) (2009, p. 1) noted that, "Nearly 96% of education staffs feel that there should be a maximum number of pupils for primary and secondary classes". According to ATL (2009, p. 1), "a quarter of the respondents" were of the view that "the current pupil to teacher ratio in their classes" was "unacceptable even with their support staff".

The ATL further indicated that of the teachers who teach in "schools with more than 500 pupils, 83% feel that the size of their classes has an impact on pupils' concentration; 83% also believe that this has an impact on pupils' participation" (ATL, 2009, p. 1). They also pointed out that large class size does not only affect the

quality of teaching and learning, but also affect their “stress levels”. Besides that, they emphasized that large class size makes it hard “to deal with behavioral problems” and “give individual support to those students on the SEN register in large classes”.

In Ghana the President’s Committee on review of education reforms acknowledged that “a major challenge facing tertiary institutions is the attraction and retention of qualified staff”. They indicated that “out of the existing staff requirement in the universities and the polytechnics, about 40% of faculty positions in the universities and 60% of those in the polytechnics are vacant” (The Republic of Ghana, 2002, p. 18). This situation has resulted in one lecturer handling over 500 students in one lecture session. The large class size makes it impossible for the lecturer to manage and teach effectively, since some students neither pay attention to nor participate in class activities, but only add to the number.

This does not augur well for the training of high class manpower for the development of the country, and therefore, should be a source of worry to all well-meaning educators of the universities in Ghana. The reason is that,

Higher education is to produce and make more available the needed critical social knowledge, attitude and skills towards a just society. Here higher education acts as the critic and conscience of society and must therefore maintain a quality control. (Awoyemi, 2006, p. 12)

This study, therefore, sought to examine the effects of large class size on quality of teaching, assessment and implications for classroom management and pedagogy.

The Purpose of the Study

The purpose of this study was to provide views of lecturers and students on large class size and its effects on teaching and learning at the Winneba Campus of UEW. The study specifically sought to investigate the following objectives:

- (1) To identify the problems and challenges faced by lecturers and students in large classes;
- (2) To assess the effects of large class size on the quality of teaching, learning and assessment;
- (3) To provide possible suggestions to overcome the problems and challenges of large class size at the Winneba Campus of UEW and possibly all public universities in Ghana.

Research Questions

The following questions provided a guide in the process of data collection to help find answers to the problems:

- (1) What problems and challenges do lecturers and students face in large classes in UEW?
- (2) To what extent does large class size affect the quality of teaching, learning and assessment of students’ learning?
- (3) How can the problem of large class size be managed in UEW?

The Significance of the Study

The study may provide important information for the university authorities, policy-makers, researchers and other stakeholders of education in Ghana. The findings from this study would also add to the existing literature on university education in and beyond Ghana.

Literature Review

Overcrowded or large classes are now common places in most educational institutions, especially those in the developing world of which Ghana is no exception. There are many challenges that university teachers face when teaching large class size particularly in developing countries. According to Benbow, Mizrachi, Oliver, and Said-Moshiro (2007), the growth of large classes in the developing world is as a result of global initiatives for universal education and rapid population growth. Naturally, in order to mitigate the effects of rapid population growth, there is the need to expand access of higher education through increasing funding. Ogbondah (2010, p. 318) noted that, "One of the major critical issues facing public universities in Nigeria is underfunding". He opined that, "Adequate funding of public universities is sine qua non for sustainable development as such the much needed development will be fast-tracked and sustained". It must be stressed that even though "money cannot correct all ills of public universities", the lack of "adequate funding leads to inadequate school buildings, inadequate educational facilities, poorly qualified and poorly remunerated teachers, inadequate learning conditions and lack of instructional materials" (Ogbondah, 2010, p. 321).

A study carried out in Ghana by Amua-Sekyi (2010, p. 144) observed that "lack of funding was perceived to impinge well beyond the classroom to the workplace and ultimately to the state of the economy" as expressed by some respondents. Her respondents indicated that, "If we have teaching and learning resources such as slides, flow chart of life cycle on screen, students can make contributions, even as the topic is discussed". She further found that the lack of large classroom space was another problem that her respondents complained about. This is borne out of the fact that lecturers observed that, "At level 100 and 200 where class sizes are usually large, students are not really involved in teaching and learning". She argued that, "Even at level 300 and 400 when the class size gets smaller as they choose areas of specialization, students' contributions seem to improve". She, however, observed that, "Even then one can see they have a lot of defects since they have not developed the attitudes to contribute at lectures and do independent critical thinking". She opined that, "Even though we try to mould them, I do not think we are actually able to impact their lives through the training as expected".

Amua-Sekyi (2010, p. 144) in her discussion further observed that,

Those who are good developed with the little guidance/exposure and pick up and develop their talents and express themselves—do independent work—come to see me and ask how to relate what they have found on the Internet with what have been taught.

The question one may ask is that how many of them are able to do this? The greater majority is unable to explore on their own, so that when they are unable to benefit from a large class they tend to suffer and become average students and those who are "extremely weak" may suffer several referrals and may drop out or go home without degrees or certificates.

Yet, another respondent expressed his frustration about inadequate resources in the universities in Ghana by saying,

You have only got to go around science laboratories to see that there is no intention anywhere of investing in the teaching infrastructure. The situation is bad with practicals. For instance, when students are working with microscopes, we may have groups of four students to a microscope. How can they focus on observing the specimen to draw? ... Even though we may draw, it does not appeal as when students mount these things under the microscope and then view more or less actual specimen. The same students who pass through with these difficulties are the same students who end up teaching in the secondary school ...

The implications are that if students are poorly prepared in the universities where they were supposed to have obtained the best of training, then it means when they are to teach in the secondary school or basic school level we should not expect magic. The quality of teaching they can provide would be suspicious and cannot provide the results we expect in our schools.

Amua-Sekyi (2010, p. 145) stressed that the “perceived lack of appropriate value associated with teaching was aggravated by government policy to increase and widen access to higher education”. On this issue, respondents indicated that “The repercussions of this policy are that teaching associated activities”, such as “increasing marking load, organizing large classes for effective teaching, diversity of student needs both academic and non-academic, etc.”, make teaching for the lecturer stressful. In addition, “finding time for marking, planning and assessment”, as observed by Elkington and Llyod-Staples (n.d., p. 8), is more of a problem in large classes. They further contend that “teachers see this as a direct threat to the quality of teaching”. Some of the respondents frankly said that,

You cannot set essay questions. It is not practicable. Tutorials are impossible. It is counterproductive. You have to face the whole class. That is the problem. We are not challenging students. The interaction is not close enough ... (Amua-Sekyi, 2010, p. 145)

The whole problem of large class teaching is summed up in the quotation. Quality teaching and assessment actually suffer in large classes and this is an indictment on the quality of higher education in Ghana and the other developing countries. This is supported by the fact that lecturers “reported that developing appropriate teaching and learning styles in large classes with diverse needs is challenging in itself” (Amua-Sekyi, 2010, p. 145).

In a survey carried out by ATL (2009, p. 1), it was noted that many of the “respondents echoed the difficulties that come with having a large class”. ATL (2009, p. 2) indicated that, Helen Terry, a secondary school teacher from Rothertham, said, “I am unable to give all students the time and attention they often need”. They further found that 83% of the respondents felt that the size of their classes had an impact on pupils’ concentration and participation. Yelkperli (2009, p. 113) expressed that,

It is a sad spectacle to see lecture halls crowded with students peeping through the louvers and windows to listen and write lecture notes. As a result of inadequate seating and writing places, students have to wake up as early as 4:00 a.m. to look for seats in the lecture halls.

These imply that large class size really impacts negatively on students’ academic achievements and their quality. The researchers often observed that most students who sit at the back and outside the lecture halls neither participate nor pay attention to whatever goes on, but engage themselves in arguments and gossips.

Research Design

The cross-sectional design was adopted for this study to enable the researchers to cover a large section of the target population. Bryman (2008, p. 44) defined a cross-sectional design as,

The collection of data on more than one case (usually a lot more than one) and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables (usually many more than two), which are then examined to detect patterns of associations.

He further noted that a cross-sectional design has a number of advantages that make it a good design for research. The design affords researchers who are “interested in variations” to adopt it for that purpose. This was

one of the reasons why a cross-sectional design was chosen for the present study. The design was the best in this particular study, because it sought to investigate the effects of large class size on quality of teaching, learning and assessment in UEW.

Population, Sample and Sampling Procedure(s)

The accessible population of the study was made up of all lecturers and students of level from 100 to 400 at Winneba campus of UEW. The target population was made up of 9,018 students and 284 lecturers at the Winneba Campus (UEW Vice-Chancellor's Annual Report and Basic Statistics, 2010). The sample size for the study was 400. However, 384 respondents actually participated. This was made up of 42 lecturers (29 males and 13 females) and 342 students. Levels from 100 to 300 were chosen, because at these levels, students take general courses which usually involve large numbers of students. In the case of level 400 (post-diploma) students, they were not many to be described as a large class. However, they answered the questions based on their previous experiences. The details of the sample are presented in Table 1.

Table 1

Distribution of Students According to Sex and Levels

Level	Male	Percentage (%)	Female	Percentage (%)	Total	Percentage (%)
Level 100	55	16.1	42	12.3	97	28.4
Level 200	42	12.5	45	13.1	87	25.4
Level 300	45	13.2	33	9.6	78	22.8
Level 400	46	13.5	34	9.9	80	23.4
Total	188	55.1	154	44.9	342	100

Note. Sources: Field data (2011).

The stratified random sampling technique was used in selecting student respondents, because they were at various levels (from 100 to 400). In using stratified sampling technique, it is "advisable to subdivide the population into smaller homogeneous groups" in order to "get more accurate representation" (Best & Kahn, 1995). Based on this, each level was taken as a stratum from which a number of student respondents were selected based on proportional representation. At each level and department, students were given codes which were written on pieces of papers and put in a box. The box was turned over and over again to ensure that the pieces of papers were well mixed to guarantee that each student had an equal opportunity of being selected. An independent person was asked to pick a piece of paper at random from the box and the students whose numbers were picked were identified and made to participate in the study. Purposive sampling procedure was also employed to select heads of departments for the study. Heads of departments were purposively selected to participate in the study, because as heads they were in a better position to know what the situation actually was. In addition, at least, two lecturers from each department were randomly selected to respond to a questionnaire.

Research Instrument(s)

The study employed questionnaires and direct observations to collect information about the phenomenon of large class size. The questionnaires were made up of checklists, close-ended and open-ended questions. The content and face validity of the instruments were assessed by colleague research fellows at the Centre for Educational Policy Studies in the UEW, and their comments and suggestions were used to improve the questionnaires for data collection. As lecturers we experienced and observed some of the effects of large class size in the lecture halls. In addition to these methods, the researchers also found it expedient to do a follow-up

interview of some lecturers, when it was realized that there were conflicting results on the issue of the effects of large class size on the quality of teaching and assessment. The interview enabled the researchers to clarify that conflicting findings.

Findings and Discussions

The data are presented by using descriptive statistics, such as percentages, cross tabulations, means and standard deviations. The presentation of the findings was done in the order in which the research questions were presented.

Research Question One: What Problems and Challenges Do Lecturers and Students Face in Large Classes in UEW?

In an attempt to answer this question, the researchers tried to investigate if lecturers had any difficulty in handling large classes. The responses revealed that all 42 lecturers affirmed that they actually had difficulties in dealing with large class sizes. They outlined the following challenges and problems as their reasons:

- (1) Contributions in class were done by few students while other students tended to disturb;
- (2) Students found it difficult to hear from the lecturers;
- (3) Interactions with students in order to know their problems and offer assistance become difficult;
- (4) Use of TLMs (teaching and learning materials) becomes a problem, since lecturers cannot have many TLMs for individual students;
- (5) Inadequate public address system and power fluctuations;
- (6) Inability to organize quizzes and class tests regularly;
- (7) Difficulty in marking students' scripts and providing feedback on time;
- (8) Difficulty in identifying truant students at lecture;
- (9) Difficulty in conducting hitch-free class test;
- (10) Difficulty in giving more than two assignments;
- (12) Problem of class control because of large class size;
- (13) Low contribution from students due to lack of communication gadgets;
- (14) Inadequate seating and writing places;
- (15) Inability of most students to read from the board¹.

The students' perspectives of the problem may not be different from that of the lecturers'. This is presented as follows:

- (1) Inability to concentrate in large classes;
- (2) Inability to get individual attention;
- (3) Inability to read from the board;
- (4) Inability of the lecturer to effectively monitor the lesson;
- (5) Inadequate seating and writing places in the lecture halls;
- (6) Inadequate time for questioning;
- (7) Poor and inadequate public address systems;
- (8) Low participation of students in class;
- (9) Students not getting feedback on their assignments and quizzes as lecturers are unable to mark the

¹ Source: Responses of lecturers obtained from open-ended questions.

papers in time;

- (10) Difficulty in hearing the lecturer and vice-versa;
- (11) Ineffective supervision and invigilation leading to cheating in quizzes and class tests by students;
- (12) Shy students unable to ask questions;
- (13) Individual differences not taken care of;
- (14) More theoretical work than practical work².

A close look at the answers provided by both sides shows that challenges faced by lecturers were not different from those encountered by students. For example, inadequate seating and writing places, problem of public address systems, and individual differences in learning are not addressed, ineffective monitoring of lesson, difficulty in providing feedback on time and many others mentioned in the data. This is a serious problem that universities in Ghana face. As noted by Amua-Sekyi (2010, p. 146), “All participants bemoaned the increase in student numbers and the implications that this had for them as teachers”.

Research Question Two: To What Extent Does Large Class Size Affect the Quality of Teaching, Learning and Assessment of Students’ Learning?

The problem of large class size is one of the big challenges that confront public universities in Ghana and perhaps other developing nations. This question sought to examine how this problem affects the quality of teaching, learning and assessment of students’ learning at Winneba Campus of UEW. Views solicited from lecturers are presented in Table 2.

Table 2

Views of Lecturers on the Extent to Which Large Class Size Affects Teaching

View: Large class size...	Response							
	<i>SA</i>	<i>A</i>	<i>N</i>	<i>D</i>	<i>SD</i>	<i>WM</i>	<i>St. D.</i>	<i>I</i>
Affects the quality of my teaching	0	6	3	28	5	2.24	0.85	<i>D</i>
Makes assessment of students difficult	0	0	0	19	23	1.45	0.50	<i>SD</i>
Affects the time for marking students’ work	0	3	6	21	12	2.00	0.86	<i>D</i>
Impacts on useful monitoring/evaluation of lessons	0	9	3	24	6	2.36	0.98	<i>D</i>
Does not afford me time for remedial teaching	0	0	3	24	15	1.71	0.60	<i>SD</i>
Limits the number of exercises I give to students	0	0	0	26	16	1.62	0.49	<i>SD</i>

Notes. Mean of means = 1.9; Standard deviation = 0.71; *SA* = Strongly agree; *A* = Agree; *N* = Neutral; *D* = Disagree; *SD* = Strongly disagree; *WM* = Weighted mean; *St. D.* = Standard deviation; *I* = Interpretations; 5 = Strongly agree; 4.0-4.9 = Agree; 3.0-3.9 = Neutral; 2.0-2.9 = Disagree; 1.0-1.9 = Strongly disagree. Source: Field data (2011).

Views gathered from lecturers to assess the extent to which large class size affects the quality of teaching and assessment of students’ learning are presented in Table 2. The data reveal a weighted mean of 2.36 and a standard deviation of 0.98 which means that lecturers disagreed with the opinion that large class size affects the quality of their teaching. This finding is in contrast with the earlier answer provided by lecturers on the question (under research question one), which respondents overwhelmingly affirmed that they had difficulties in handling large classes.

The researchers in an attempt to resolve this difference embarked on a follow-up interview. In this interview, lecturers indicated “large class size in no small way affects quality teaching and assessment, since lectures are unable to give individual attention to weaker students”. Others were of the opinion that “it makes

² Source: Responses of student respondents obtained from open-ended questions.

class organization and control difficult for lecturers”. In addition, they also revealed that, “They are unable to give adequate assignments and class tests and provide feedback to students”. With regard to how large class size affects the quality and effectiveness of teaching, Amua-Sekyi (2010, p. 145) put it this way:

You cannot set essay questions. It is not practicable. Tutorials are impossible. It is counterproductive. You have to face the whole class... We are not challenging students. The interaction is not close enough.

In another instance, the respondents expressed the view that they strongly disagreed with the assertion that large class size made assessment of students difficult. This is expressed in the weighted mean = 1.45 and standard deviation = 0.50. The standard deviations (0.50 and 0.98) show that responses were homogenous and close to the mean. Meanwhile, Elkington and Lloyd-Staples (n.d., p. 8) in their study on “the impact of large class size in schools” seem to agree with the present study when they pointed out that “planning and assessment is more of a problem in large classes”.

The contradictions presented in these responses imply that the respondents were not sincere to themselves in answering the questions. Overall, the mean of means of 1.9 and standard deviation of 0.71 indicate that respondents strongly disagreed with the assertion that large class size affects quality of teaching and assessment of students.

Hypothesis. The hypotheses tested were that:

H₀: There is no significant difference in the opinions of male and female lecturers on large class size and quality teaching;

H₁: There is significant difference in the opinions of male and female lecturers on large class size and quality teaching.

It was hypothesized (H₀) that there is no significant difference in the opinions of male and female lecturers on large class size and quality teaching. Therefore, without regard to the clear disagreement among lecturer respondents on the assertion that large class size affects quality of teaching and assessment of students, a Chi-square test was used to assess the set of scores for the Likert scale items in Table 2. The Chi-square test was done to identify whether the experiential responses between male and female lecturer respondents were significantly different or not. The summary of observed frequency of responses which was used in calculating the overall Chi-square of the items in Table 2 is presented in Table 3.

Table 3

Chi-square Analysis of Views of Lecturers on the Extent to Which Large Class Size Affects Teaching

Description	Actual frequency				Expected frequency		Total	χ^2 value
	Male	Percentage (%)	Female	Percentage (%)	Male	Female		
Agree	12	7	6	8	12.43	5.57	18	9.14
Neither	7	4	8	10	10.36	4.64	15	
Disagree	108	62	34	44	98.05	43.95	142	
Strongly disagree	47	27	30	38	53.17	23.83	77	
Total	174		78				252	

Notes. 1 = Interpretations; 5 = Strongly agree; 4.0-4.9 = Agree; 3.0-3.9 = Neutral; 2.0-2.9 = Disagree; 1.0-1.9 = Strongly disagree.

A Chi-square test was conducted to assess whether there is no significant difference in the opinions of male and female lecturers on large class size and quality teaching. The results of the test were significant at the level of 0.05, $\chi^2(3, N = 42) = 7.81$. The calculated $\chi^2 = 9.14$ was greater than $\chi^2_{0.05} = 7.81$, therefore, the H₀

was rejected. The conclusion was that there is significant difference in the opinions of male and female lecturers on large class size and quality teaching.

The sum of the disagreement rows of observed frequencies (see Table 3) for each of the two categories of respondents pointed out that both respondents had the self-confidence that class size did not in any way affect their teaching. In general, 89% and 82% of male and female respondents (lecturers) respectively disagreed or strongly disagreed to all items in Table 2. The difference in insights may stem from the fact that lecturers had conceptualized large class size in more positive but varied perspectives and that influences their output as professional teachers. To the lecturers, increased class size may not always be a disadvantage.

When the issue is examined from the students' point of view, the findings are not in agreement with the findings from the lecturers' viewpoint. This is presented in Table 4.

Table 4

Views of Students on the Extent to Which Large Class Size Affects Students' Learning

Views: Large class size ...	Response							
	<i>SA</i>	<i>A</i>	<i>N</i>	<i>D</i>	<i>SD</i>	<i>WM</i>	<i>St. D.</i>	<i>I</i>
Affects the quality of my learning	150	121	7	47	15	4.01	1.71	<i>A</i>
Makes assessment of students difficult	221	90	7	19	4	4.57	2.13	<i>A</i>
Delays feedback on students' assignments	187	111	13	24	7	4.30	2.07	<i>A</i>
Impacts on useful monitoring/evaluation of lessons	193	118	9	15	5	4.38	2.09	<i>A</i>
Does not afford me time for remedial teaching	251	77	3	7	4	4.64	2.15	<i>A</i>
Limits the number of exercises given to students	184	105	8	33	11	4.21	2.05	<i>A</i>

Notes. Mean of means = 4.18; Standard deviation = 2.04; *SA* = Strongly agree; *A* = Agree; *N* = Neutral; *D* = Disagree; *SD* = Strongly disagree; *WM* = Weighted mean; *St. D.* = Standard deviation; *I* = Interpretations; Source: Field data (2011).

The data (weighted mean = 4.64 and a standard deviation of 2.15) show that student respondents agreed with the view that large class size does not afford teachers an opportunity to pay attention to weaker students and do remedial teaching. Student respondents also disagreed with the assertion that large class size affects the quality of their learning. This is indicated by a weighted mean of 2.95 and a standard deviation of 1.71. The standard deviations of 2.15 and 1.71 indicate that responses were more homogenous and scattered from the mean. This suggests that these views were held by most of the respondents. The finding seems to disagree with Michaelowa (2001) who observed that students' learning decreased as class sizes increased. It has been observed that students who sit at the back usually have difficulties in hearing from lecturers in the lecture halls, and therefore, some end up writing down wrong information without cross checking with colleagues.

Generally, a mean of means of 4.18 and a standard deviation of 2.04 signify that respondents agreed with the assertion that, to some extent, large class size affects students' learning. This is in agreement with the view that organizing large classes for effective teaching, diversity of student needs both academic and non-academic, etc., make teaching work difficult (Amua-Sekyi, 2010, p. 145).

Research Question Three: How Can the Problem of Large Class Size Be Managed or Minimized in UEW?

This question sought to find solutions to the problem of large class size and thereby minimize its effects on teaching and learning at Winneba campus of UEW and possibly other universities in the country. Therefore, the views of lecturers who participated in the study were solicited and these are presented as follows:

- (1) To provide quality public address system to enhance lecture delivery;

- (2) To employ teaching assistants to organize tutorials in small groups for students;
- (3) To build more lecture halls to enable departments to break large classes into smaller ones;
- (4) To appoint more lecturers to reduce student-lecturer ratio;
- (5) To place emphasis on internet and radio lecture;
- (6) To encourage and strengthen distance education;

(7) To give group work and select students at random from the group to do the presentation and also answer questions³.

Student respondents also offered some suggestions as to how the problem of large class size could be managed and the following are some of the suggestions:

- (1) To appoint more lecturers;
- (2) To reduce large class sizes into smaller groups;
- (3) To provide more lecture halls;

(4) To give lecturers more teaching assistants to help them in areas of assessment, effective monitoring and discussion of feedbacks in small groups;

- (5) To give objective tests for easy assessment and marking;
- (6) To enhance teacher-student ratio;

(7) To equip lecture theatres with modern equipment like wireless public address systems and projectors to facilitate effective teaching and learning⁴.

A careful look at the suggestions provided by both lecturers and students reveals that both groups of respondents have similar views with respect to the types of solutions that could be used to manage this problem. For example, both groups of respondents suggested that provision of public address system was one sure way of enhancing delivery of lectures. They also were of the view that the use of teaching assistants will go a long way to improve the situation. In order to address the quality of teaching in large classes, Amua-Sekyi (2010, p. 147) recommended that a number of measures, such as “compulsory orientation programmes for new staff in methods of teaching large classes’ must be initiated to” strengthen teaching in higher education. In addition, Benbow et al. (2007) recommended increasing the number of qualified teachers, increasing or improving facilities, and adding additional resources are some of the ways of addressing the issues of large class size in universities.

Conclusions and Implications

The following conclusions and implications could be made based on some of the key findings of the study.

One of the striking revelations was that weaker students were not attended to in large classes. This implies that individual attention is not given to students who may need it. Therefore, students who may have difficulty in understanding lessons have to see lecturers and colleagues in their spare time or have to make extra effort on their own to understand it. This does not promote quality teaching and learning in any learning situation irrespective of the level of education. It was pointed out by lecturers that large class size makes it difficult to organize quizzes and class tests regularly. If this is the case then, it means that lecturers were not able to assess their teaching effectively, because to ensure effective teaching throughout a course period, lecturers must necessarily assess all the topics treated in the semester to establish the success level of the instruction. In the

³ Source: Suggestions of lecturers obtained from open-ended questions.

⁴ Source: Suggestions of student respondents obtained from open-ended questions.

absence of this, the lecturer would not know whether effective teaching and learning have taken place. In relation to this, lecturers also mentioned the difficulty they encountered in marking large class assignments and providing feedbacks in time. The implication is that students would not be aware of their academic performance in respect of their continuous assessment. In the opinion of Elkington and Lloyd-Staples (n.d., p. 8), "Finding time for marking, planning and assessment is more of a problem in large classes". Provision of feedbacks helps students in their learning, because it informs them whether they are right or wrong, and therefore, helps take the necessary re-enforcement measures to help the situation.

Some respondents were of the opinion that more teaching assistants should be employed to help in organizing tutorials in small groups of students. This will provide a better opportunity for students to ask questions they could not ask during the lecture period. This implies that small class size is good for effective teaching and learning, because it enables students to fully participate in the activities of the class and also makes it possible for the teacher to easily evaluate the lesson taught. It is on this ground that some respondents suggested the breaking down of large class sizes into smaller groups.

In addition, lecturers should give more group work and presentations to students and encourage student participation by calling on any of the group members at any given time to answer a question or do the presentation. If students know that they could be called upon at any given time to present the group work, they will participate fully in the work to get them ready for the presentation and subsequent questions that may be raised.

Recommendations

The following recommendations were made based on the findings of the study:

(1) The university should take steps to appoint more lecturers in the general courses to minimize the use of large classes. In furtherance of this point, a conscious plan of staff development should be embarked upon to ensure as many of the young people who are desirous of pursuing higher education are given the necessary assistance to do so;

(2) The university must set its priority right to ensure resources are channeled to areas that are more important, such as provision of lecture halls, seating places, teaching and learning equipment and other infrastructural facilities to ensure easy teaching and learning;

(3) Government must expand and resource the existing universities to ensure quality delivery of their mandate instead of establishing more universities which amounts to adding to the problem;

(4) Lecturers should be given refresher courses on managing large classes from time to time.

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