CICE Hiroshima University, *Journal of International Cooperation in Education*, Vol.11 No.3 (2008) pp.85 ～ 102

Large Class Teaching in Resource-Constrained Contexts: Lessons from Reflective Research in Ugandan Primary Schools*

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Abstract

Since May 2006, the authors have been engaged in a study of large classes (70+ learners) in Uganda. The study was undertaken in two phases. First was the baseline survey in 20 schools among 35 teachers. Second was the reflective action phase involving ten teachers in 5 schools in order to develop further the strategies they had identified as having greater potential to facilitate teaching and learning in their large classes. The findings of the study showed that teaching and learning were constrained by large classes. The paper argues, however, that the immediate solution may not be class size reduction. Such approaches as increasing the number of teachers to allow more than one teacher per class, providing schools with the necessary resources and enabling teachers to develop the confidence and skills to improve the learning environment in large classes should be explored as alternatives to class size reduction.

Introduction

When Universal Primary Education (UPE) was introduced in Uganda, school enrolments rose from 2.7 million pupils in 1996 to 5.3 in 1997, and to 7.2 million in 2007. Even though this was followed by a massive increase in the number of teachers and classrooms, the official average pupil to teacher ratio is 51:1 (Mbabazi 2008). In fact, the reality is that in many schools across the country, class sizes go up to seventy pupils and more per classroom, most especially in lower classes (Primary one to three, i.e. Year 6-8). These figures contrast starkly with large classes in other international contexts. The literature,

* We acknowledge the contribution of David Henry Ngobi, E.L. Gumisiriza, Robinah Mbaga, Christine Alupo, Julius Tukesiga, Ruth Ndawula and Deogratius Bbosa to the research process.

for example, shows large classes as ranging between 25-30 learners in the United Kingdom (Smith & Warburton 1997), more than 35 learners in the US (O'Sullivan 2006), more than 40 learners in Japan, and 60 or more learners in developing countries (Valérien 1991; Michaelowa 2001).

Over the years, UPE has led to an increase in the literacy levels in Uganda - the national average literacy level rose from 65% in 1999/2000 to 70% in 2002/03 (MoE&S 2005a). The increased enrolment of pupils in schools as a result of UPE has also meant that Uganda is on the path of achieving the Millennium Development Goal (MDG) related to achieving Education for All by 2015. The current net enrollment ratio (NER) is about 90% (MoE&S 2005a). However, a lot still needs to be done in as far as quality is concerned. The recent Education Sector Review (MoE&S 2005b) highlights major UPE quality issues to include large classes in lower primary, low completion rates, high repetition and dropout rates, low survival rates, poor teacher and headteacher attendance in school, large numbers of under and overage enrolees and low learning achievement.

This paper deals with issues emerging in the teaching of large classes in Uganda, the strategies that teachers have developed over time to deal with the situation, and the institutional responses to the challenges. It also explores the improvements that may result from engaging teachers in researching their own classroom practice and reflecting on it.

The Literature on Large Class Teaching

There is vast literature on issues related to the teaching and learning both in small and large classes. This review concentrates on the challenges to the teaching and learning in large classes; alternative approaches to handling large classes and gaps in previous studies that the current research seeks to fill.

Challenges to teaching and learning

Ives (2000) has argued that there is no single way to teach large classes, but, one has to consider three things: (1) ones' teaching style; (2) the characteristics of the students; and (3) the goals and the objectives of the course. However, "resource allocation and management is more critical in dealing effectively with large classes than smaller classes" (AUTC 2003, p.4), which poses additional challenge. Furthermore, some literature has indicated that there are challenges to teaching and learning in large classes both to the teachers and to students that includes limited class time. Some of the challenges relate to management, feeling of anonymity, lack of flexibility and student diversity that challenge the teachers. In addition, hesitation to ask questions, minimum teacher attention and access to materials, and the need for individual effort challenge the students (Ives 2000).

Furthermore, Ives (2000) makes several suggestions for teachers on how to promote attendance in large classes, to take roll-call, to minimize the sense of anonymity, to manage class climate in large classes. In addition, approaches to assess students, to improve lessons, to use technology, and to address learning activities in large classes are given.

Alternative approaches to handling of large classes

The Schreyer Institute for Teaching Excellence (1992) reported the craft of teaching large classes as practiced by teachers at Pennsylvania (Penn) State in the USA. It was pointed out that a lesson presented to 20 students is probably not much different from a lesson presented to 100 students. However, the teachers at Penn State suggest three broad areas of attention in the teaching of large classes that include: (a) creating a small class atmosphere in a large-class setting; (b) encouraging class participation; and (c) promoting active learning, with associated activities, as outlined in Table 1.

Table 1. Teaching-Stance and Suggested Activities

	Target Teaching-Stance	Suggested Activities
1.	Creating a small-class atmosphere in a large-class setting	- learn student names - move around the classroom - elicit students' feedback - freely interact with the students
2.	Encouraging class Participation	- divide class into small groups - plan participation - students contribute materials for the lesson - award participation points
3.	Promoting Active Learning	- write the lesson outline and objectives on the board or transparency - give a "think break" - show your own enthusiasm for the subject - design a lesson around a problem-solving model

Strengths and gaps in prior research on large class teaching

Most of the prior studies have mainly focused on measuring the impact of large classes on teaching and learning, or on student achievement (Bennett 1996; Billington 1997; Gibbs et al. 1997; Race 1998; Davies 2000). Most notable is the 1985 big experimental study in the US, the project STAR (Student Teacher Achievement Ratio), which experimented the effects of class size on 7000 pupils in 79 schools (Nye et al. 2001). Though the methodology and interpretation of findings of the project have often been contested (Blatchford & Mortimore 1994, p.417; Finn et al. 2003, p.334), its major finding that small classes of around 15 can lead to increased gains in performance in the first years of school has been upheld (Robinson 1990). For most developing countries, however, the reduction in class necessary to bring about these changes is economically unviable. The sustaining of such small classes would require the continuous expansion of facilities as well as the employment of more teachers, at an enormous cost. With the economic constraints facing most of the developing world, therefore, it appears that the problem of large classes will prevail.

Consolation can, however, be found in studies that have refuted the notion that large classes necessarily equal bad teaching and learning (Lockheed & Verspoor 1991; Maged 1997; Johnson 1998; Nakabugo 2003; O'Sullivan 2006). Such studies contend that it is not class size that has the greatest influence on teaching and learning. What matters most is the quality of the teacher and his/her approach to teaching, specifically the capacity to create a

culture for organising large classes in such a manner that learning can be successfully mediated (Maged 1997). For example a study by Bain (1989) quoted in Maged (1997), which was conducted in United States revealed that some teachers of large classes were as effective as their counterparts teaching smaller classes. In the study, fifty effective US teachers and the materials they used were studied to determine what effective teachers did to promote learning in reading and mathematics. Of the 50 teachers, 43 had small classes or large classes with an aide (co-teacher). Any class with over 40 pupils was regarded large. Seven teachers had large classes without an aide. Admittedly the majority of effective teachers were effective in smaller classes. But the study also showed that effective teaching was possible in large classes as well, as evidenced by the seven teachers who had no aide. Effective teachers reflected the following traits:

a) high expectations for student learning;
b) provided clear and focused instruction;
c) closely monitored student learning process;
d) re-taught using alternative strategies when children did not learn;
e) used incentives and rewards to promote learning;
f) were highly efficient in their classroom routine;
g) set and enforced high standards for classroom behaviour;
h) maintained excellent personal interaction with students;
i) reflected enthusiasm in the form of acting, demonstration and role playing.

Scholars such as Blatchford & Mortimore (1994), Blatchford (2003) and O'Sullivan (2006) have in fact suggested shifting focus from concerns on class size to investigating what kind of teaching in small and large classes actually makes a difference. This position is even more relevant in developing contexts such as Uganda where evidence that links class size and pupils' progress only with classes less than 20 (Robinson 1990; Nye et al. 2001) would be difficult to use. In Uganda, for example, the presence of large classes is likely to prevail for some time due to the massive resources that need to be invested into the system to bring the pupil-teacher ratio to 35:1 and below.

While it is crucial to reduce class size where viable, it is equally important to explore alternative teaching approaches that may be suitable for mediating learning in large classes in constrained contexts. Prior studies in this direction such as O'Sullivan (2006) have observed teachers' lessons and identified some good practice. However, there is need to extend such studies to involve teachers as active participants in the research process. Further research should seek to bring teachers together in action and reflection and in participation with others, in the pursuit of practical solutions to issues of pressing need such as large classes (Reason & Bradbury 2001).

Methodology

The research was undertaken in two phases. The first phase, the baseline, adopted a

descriptive survey design whereby using the Education Management Information System (EMIS) data, a cross-section of twenty schools and thirty five teachers were surveyed from Kampala and Wakiso Districts. The districts were selected because they offered a variety of schools with different characteristics such as rural and urban and varying class size.

The study sample

The focus was on lower primary (specifically Primary 3) teachers of mathematics and English, teaching classes of seventy pupils and above. English and mathematics were preferred because the main purpose of basic education is the achievement of numeracy and literacy. The argument for focusing on lower classes was that they are the foundation of primary schooling. They are also free from the Primary Leaving Examination (PLE) pressure. Most schools start preparing children for the PLE right from primary five, and engaging them in any other kind of activity at this level could be regarded as time wastage. Also because of the rampant drop-out rates in upper classes, the phenomenon of large classes is common at the lower levels.

Of the thirty five teachers studied, thirty one were females and 4 males. This is not surprising because Uganda's primary education sector is dominated by female teachers, especially in the lower classes. All participating teachers were professionally trained: 2 bachelors' degree holders, seventeen diploma holders and sixteen Grade III certificate holders. The Grade III Certificate of Education is currently the lowest qualification in Teacher Education in Uganda, being awarded to students who begin teacher training after Ordinary Level (Senior Four). Apart from two teachers in one school who had a class of 61 learners (their class of 122 children was eventually streamed during the course of the study), the rest of the teachers taught classes ranging between 70-80 learners (one teacher); 81-90 learners (5 teachers); 91-100 learners (7 teachers); 101-110 learners (9 teachers); 111-120 (6 teachers) and 121-130 learners (5 teachers).

The majority of the teachers taught in schools that were either located in the urban (twelve teachers) or peri-urban areas (sixteen teachers). Only seven teachers taught in schools located in rural areas. Due to rural-urban migration, urban and semi-urban schools in Uganda have tended to have an influx of children compared to their rural counterparts.

Data collection

Data for the baseline was generated from interviews with the thirty five teachers, twenty school administrators and one hundred lesson observations. Both categories of interviews were conducted using structured schedules. The teachers' interview schedule focused on probing their practices and experiences of teaching large classes. The specific issues probed included:

- Official time allocation versus actual time per lesson and reasons for exceeding the official time allocation where applicable
- Challenges they faced in teaching large classes
- How the large classes affected their planning, classroom organization, assessment,

and use of instructional materials
- The strategies they used to teach large classes
- The suggestions they held for improving teaching and learning in large classes

Interviews with school administrators probed their views on class size in their schools, the challenges their schools faced with teaching large classes, the institutional responses to large classes, and their suggestions for improving teaching and learning in large classes.

The teachers' lessons were observed and analysed using a structured lesson observation template that enabled the capturing of information on the teacher's type of teaching, how s/he managed the classroom, what type of resources were used in the teaching and how, the prevailing classroom atmosphere, learner participation and engagement in the lesson, and instructional time usage.

The second phase of the study, the action strategy, utilised the lesson study methodology in which the teachers reflected upon their taught lessons together with the research team, shared with one another, and tried out new strategies with a view to enhancing their teaching and learning in large classrooms. The lesson study was utilised with ten teachers in five schools located in varying socio-economic environments, and representing different resource endowments. The teachers, together with the research team, participated in several activities including workshops and a professional development activity on reflective practice, facilitated by a team of academics from Naruto University of Education (NUE), Japan.

All teachers who participated in lesson study were female teachers, apart from one. All taught large classes ranging from 70 to 120 learners. Four taught in urban schools, 4 in semi-urban schools and 2 in a rural context.

The variation in school location had implications on the resource endowment. While teachers in all contexts had to grapple with the large classes, those in the rural and semi-urban schools had an added constraint of acute resource scarcity. Their classrooms were very small in terms of physical space, few desks (some times 8 children sharing one desk), and very few textbooks. In some cases ten children had to share one textbook, and teachers had improvised by writing everything on the chalkboard, instead of children scrambling for one textbook.

Data analysis

Data was analysed using the constant comparative method (Glaser & Strauss1967) that involves a continual process of comparing pieces of data and identifying similarities and differences between them for generating patterns or categories from the data. Comparisons were made across the teachers being studied and across the different types of data collection instruments. For example, data from lesson observations was used to establish congruence and/or contradiction in what the teachers said they did while they taught large classes.

Findings

The findings of the study are presented in regard to the challenges that the teachers experienced in the teaching of large classes, what strategies had been developed at individual and institutional levels to improve teaching and learning under the circumstances, and the implications of teachers reflecting on their lessons to large class teaching.

Challenges of large classes

Two hundred and seventy nine (279) responses were generated from interviews with the teachers regarding the constraints they experienced with their large classes. Table 2 summarises the consolidated constraints in order of priority.

Table 2. Challenges of Teaching Large Classes in Uganda

S/N	Challenges	No.	%
1	Strain on resources such as textbooks, furniture and physical space	68	24.37
2	Tiresome and take more time	68	24.37
3	Difficulty to cater for individual learners' needs and interests	41	14.70
4	Assessment difficulties such as the burden of marking and giving feedback to learners	35	12.54
5	Class management and control difficulties	25	8.96
6	Strain teacher-learner relationship due to limited interaction	20	7.20
7	Lead to learners' lack of interest in learning due to anonymity resulting into absenteeism	7	2.50
8	Difficulty to have all learners participate in the lesson	7	2.50
9	Difficulty to make learning real and practical	6	2.15
10	Can be a health hazard and lead to spread of infectious diseases	2	0.71
Total		**279**	**100**

Resource constraint came up as a major issue. The teachers felt the available resources did not match the large numbers of learners. Constraints included limited physical space for movement and interaction, few desks and limited number of instructional materials such as textbooks. This was more so in rural and peri-urban schools where up to 8 learners sat squashed on small benches and one textbook was being shared by up to 6-10 learners. In such instances children could not write with ease and there were also mentioned dangers of easy spread of infectious diseases such as flu and cough. The large classes were also felt to be cumbersome in terms of time needed for preparation and implementation of lessons where resources were scarce. For example, the teachers spent more time writing material on the chalkboard. There were also difficulties of attending to individual learners and ensuring that all of them participated in the lessons. It was also a stretch on the teachers to administer substantial exercises, to mark them and give useful feedback to the learners. Some teachers had resorted to giving less exercises and practice for purposes of reducing marking burden. Classroom control and management difficulties were also pointed out resulting into indiscipline such as excessive noise and children dodging exercises. The teachers also

mentioned the difficulties of trying to make learning interesting by including hands-on activities. In some cases it was difficult to motivate learners in the large classes. Some learners lost interest resulting into absenteeism.

Strategies improvised by the teachers and schools to improve learning in large classes

In response to the challenges highlighted above, teachers had developed some strategies to cope with the large classes. Some strategies were institutional while others were particular to individual teachers.

Although the official duration of lessons for lower classes is 30 minutes, the teachers often spent longer time than allocated (Table 3).

Table 3. Duration of Observed Lessons

Lesson Duration (Minutes)	No. of lessons	%
30	16	16
31－35	07	7
36－40	13	13
41－45	16	16
46－50	21	21
51－55	10	10
56－60	08	8
61－65	03	3
66－70	02	2
71－75	--	--
76－80	--	--
81－85	--	--
86－90++	04	4
Total	**100**	**100**

Justification for prolonged lessons (summarised in Table 4) included allowing slow learners to participate in the lesson, covering more content, allowing for group work and distribution of textbooks.

Table 4. Justification for Lessons Exceeding the Official Time Allocation

S/N	Justification	No. of responses	%
1	To make slow learners participate	17	33
2	Large number of pupils	14	27
3	Too much content to cover	6	12
4	Distribution of textbooks	4	8
5	To allow more pupils respond to questions	4	8
6	Allocated time is not enough	4	8
7	To permit group work	2	4
	Total	**51**	**100**

While stretching the lessons beyond the official time allocation favoured the teachers

in as far as content coverage was concerned, it may not have been conducive for the young learners whose concentration span may not exceed thirty minutes. Nevertheless, it was clear that the 30 minutes duration was insufficient in large classes and needed revisiting.

Despite the various constraints posed by large classes the teachers and schools had made an effort to improve the quality of teaching and learning using various strategies. Table 5 and 6 summarise the emerging strategies from the teachers' and school administrator' interviews respectively.

Table 5. Individual Teachers' Strategies for Large Classes

S/N	Strategy	No. of responses	%
1	Group work	20	52
2	Homework	8	21
3	Team teaching	4	10
4	Whole-class discussion, explanation and question and answer	3	8
5	Giving less written exercises	1	3
6	Repeating lessons not understood by learners	1	3
7	Telling stories to attract learners' attention	1	3
	Total	**38**	**100**

Table 6. Institutional Strategies for Large Classes as per the School Administrators

S/N	Strategy	No. of responses	%
1	Staff development for the teachers through seminars and workshops	13	32
2	Involving parents	12	29
3	Encouraging teachers to use Group work	12	29
4	Teaching from outside the classroom	4	10
	Total	**41**	**100**

The teachers reported employing group work to enhance learning in their large classes as the major strategy, consistent with the schools' administrators who ranked it as the third most institutional strategy. In fact some kind of group work was observed in thirty one (31%) of the studied lessons. Much of the group work was employed to ease work management, for example, sharing the limited resources such as textbooks and other instructional materials. In some classrooms where the desks had been pre-arranged to aid a group work atmosphere, the strategy helped teacher movement and classroom control because of the corridors that had been left in-between the various groups. In such a situation, it was possible for the teacher to monitor and supervise children in the different groups. However, little, if any, discussion went on among the group members. In most cases children attempted the work individually within the group without any sharing or discussion. In some cases, even if the children had been required to discuss and produce a group product, the more able child within the group ended up doing the work alone while the rest of the children watched. It was apparent from the lessons observed that such a strategy needed to be developed further

if the teachers were to tap its great potential to promote learning.

Some teachers administered daily homework for purposes of giving children practice, and also to enable them get individual assistance from their parents/guardians. Giving children practice is a pedagogically acceptable practice, but children too, especially those in lower primary, need time to rest and play. This practice also presupposes presence of literate parents/guardians with time to attend to their children's homework.

Some teachers engaged in team teaching and/or co-teaching to manage their large classes. In seventeen of the observed lessons (17%), presence of a co-teacher was noticed. The co-teachers in some instances assisted with keeping order and discipline in the class. They also helped in the distribution of materials and marking classroom exercises. In many other instances, the co-teacher just stood or sat quietly at the back of the class till the end of the lesson. Team teaching was another strategy that needed strengthening to tap its potential in enriching teaching and learning.

It was mentioned by some teachers that they managed to promote learning in their large classes by being enthusiastic and attracting children's attention through story telling, singing and question and answer. Lesson observations also revealed that several teachers possessed generic teaching skills, and managed to keep their classes warm and alive .

One of the institutional strategies reported by administrators in 13 of the 20 schools (65%) was staff development through seminars and workshops. Teachers were trained in several teaching strategies at least twice a term, the most prominent strategies being group work and instructional materials development. The training built the capacity of the teachers in dealing with large classes. One reported major strength was in the area of instructional materials where teachers had minimized dependency on materials provided by the school, to the development and utilization of low-cost materials. In 37 of the lessons observed (37%), teachers were seen utilizing varied instructional materials including beads, toilet paper, fruits, cut-outs, charts, and so on as illustrations.

Improving teaching and learning in large classes through reflection

The research built on what the teachers were already doing to try and move them a step further in thinking about improvements in the teaching of large classes. Although many of the teachers had tried to implement several strategies including group work and team teaching, some of the strategies could be refined further through reflection. We embraced the reflective practice approach (in some contexts also referred to as action research or lesson study) to facilitate this process. Schon (1983) describes reflective practice as the need for professionals including teachers to reflect when faced with new problems or difficulties for which they have not been specifically trained. Elliott (1991) and Kember and Kelly (1993) have equated reflective practice to action research and/or action learning respectively. The "learning" or "action" refers to the use of reflection to become a better teacher. In other words, reflective practice requires the practitioner to contemplate on his/her current practice with a view to making it better.

The ten participating teachers in the reflective strategy were engaged in looking back

at what they were doing in their classrooms to evaluate the effectiveness of the strategies they had previously used. This process enabled them to notice that the strategies they had been using could be improved further.. For example, at one of the reflective meetings one of the teachers noted: “What is team-teaching? We need to reflect on these strategies to ensure that what we are doing is actually exactly that.”

The teachers also noted institutional obstacles that needed to be addressed in order to reduce the tension in large class teaching. The major expressed obstacles were the scarcity of physical and human resources and the time factor. A few teachers felt that the 30 minutes available per lesson was very little, particularly if active learning was to be promoted.

The teachers expressed frustration in regard to shortage of resources and instructional materials. Most of them felt that if the issue of resources was addressed by the schools and the Ministry of Education and Sports, they would cope with teaching large classes. For example, when asked what their suggestions were for improving teaching and learning in large classes, availing sufficient instructional resources came out as the top response (Table 7).

Table 7. Teachers’ Suggestions for Improving Teaching and Learning in Large Classes

S/N	Suggestion	No.	%
1	Avail more instructional materials such as reference books, desks, teaching materials...	20	37
2	Increase number of teachers	10	18
3	Applying group work	8	15
4	Construct more buildings and provide bigger classrooms	6	11
5	Cooperation among teachers	3	5
6	Giving remedial classes	2	4
7	Increasing lesson duration	2	4
8	Staff development e.g. organise workshops and seminars to train teachers in large class teaching	2	4
9	Increase teachers’ salary to keep them motivated	1	2
	Total	**54**	**100**

Reflecting on specific lessons through the use of “Lesson Study”

Amidst institutional constraints, and the continued commitment of the teachers to improve their practice, further plans were made to work together, and continue reflecting on aspects that could possibly be addressed at classroom level. This, we felt, could benefit from implementing a lesson study strategy, in which we could plan, teach and reflect on specific lessons.

Classroom researchers including Fernandez (2002) have found lesson study as a teacher empowering strategy. It enables teachers to engage in an examination of their own practice through reflecting on the lessons that they have jointly planned, taught and then observed as they unfold in actual classrooms. Other scholars such as Fernandez, Cannon & Chokshi (2003) and Lewis (2000) believe lesson study to be an exemplary systematic and well articulated process for examining practice. It is these key characteristics of lesson study that

prompted us to embrace the strategy in the context of large class teaching in Uganda. At least three lessons were planned, taught, and reflected upon in each of the five schools participating in the reflective-action strategy during a four-month period (July – October 2007).

For each taught lesson, a three-phase process was followed including planning, conducting the lesson and post-lesson conference.

An insight is given of one mathematics lesson implemented in one of the schools, as an example of how lesson study was implemented and how it may have impacted positively on teachers' mediation of learning in the large classes.

Mathematics Lesson

Preparation Date (16.10.2007)
Date taught: 18.10.07
Preparing team: (two teachers and two researchers)
Class/Age: Primary 3, average age: 8 years
No. of learners prepared for: 90

Preparing the lesson

a) Choice of the topic to be taught (the teacher chose to teach "shapes" after considering the syllabus coverage and the level at which her class was)
b) Shapes to be taught (circle, rectangle, triangle, square, kite, oval)
c) Lesson objectives: Learners should be able to identify, name, draw and spell various shapes
d) Instructional materials (Concrete objects such as an egg, kite, and rectangular objects such as geometry set, paper, scissors and razor blades for cutting various shapes). The teacher was advised to request the learners to come with any object signifying any shape that they knew in real life.
e) Instructional activities (to begin with what the children know such as asking them to name and identify any object; teacher shows various shapes randomly and asks learners to identify them, acting various shapes while singing; learners in groups cutting various shapes from paper, drawing and naming the various shapes as an individual exercise)

Implementing the lesson

Actual number of learners turning up: 79 (44 boys and 35 girls)
Major reason for the absentees as per the teacher: rainy day
Sitting arrangement: learners seated in groups of 10-12
Seated per desk: 5-7 learners
Observers: 4
Lesson duration: 9:00-9:45 am (45 minutes)

STEP 1: Warming up
Teacher begins the lesson by asking the learners to stand up and sing while dancing as a warm-up exercise after which she asks them to sit down and goes ahead to introduce the lesson.

STEP 2: Identifying and naming shapes

Teacher:	Who can tell me the name of shapes you know [sic]?
Learners	(various): circle, square, triangle…
Teacher:	Very good. We have many. We are going to learn about many shapes.
Teacher:	Showing a triangle to the class: What is this shape?
Learner:	Triangle
Teacher:	Who can spell the word triangle?
Pupil:	Spells the word correctly
Teacher:	Very good (as she writes on the chalkboard)…
Teacher:	What is this (showing a square)?
Learner:	rectangle
Teacher:	It is a rectangle (she goes ahead to show the difference between rectangle and square).
Teacher:	(showing an egg) What is this?
Pupil:	Oval.
Teacher:	Good. (She goes ahead and shows other concrete objects and asking learners to identify the relevant shapes e.g. cell-tape for circle, ruler for rectangle, book for square, set for rectangle and kite for kite)

STEP 3: Acting shapes through play and singing

Teacher:	(Asks the learners in their groups to act out the various shapes while singing). E.g. They sing “make a circle, make a circle, how do you do…?” and keep moving in circles. When they sing “make a triangle”, “make a triangle”, they keep moving in triangular shape). As the class space is limited, the teacher and one of the observer teachers help to re-organise the learners when they get excited and start moving out of the required shape being acted). The learners seem to enjoy the singing i.e. the shapes become alive in the classroom setting.

STEP 4: Cutting out shapes

Teacher:	(Assigns each group to cut out a particular shape e.g. rectangle using the paper and scissors or razor blades provided. The teacher moves around supervising the learners in the small groups while ensuring that accidents do not happen while using sharp objects such as scissors or razor blades).
Learners:	(Working in their groups, seem to be enjoying the activity, and there is a sign of satisfaction once they finish cutting out a given shape)

STEP 5: Individual work (Teacher draws various shapes on the chalkboard without naming them. She asks the learners to draw them in their exercise books and name them. The shapes

include circle, kite, rectangle, triangle, square)

The lesson ends at 9:45 (exceeds the official time allocation by 15 minutes). The teacher collects the books for marking later.

Post-lesson conference

The post-lesson conference takes place in the staffroom. One of the researchers who did not participate in the lesson preparation leads the session. He thanks the teacher for a lively lesson and for permitting the group into her classroom. He requests the teacher to comment on the lesson. The teacher makes the following comments:

- The lesson took long but it is difficult to complete all activities in 30 minutes
- The children seemed to have enjoyed the lesson and they learnt the various shapes by practising in various activities
- The sitting arrangement in groups helps because I can easily move around and check on what each group is doing.
- The groups are still very big but there is nothing to do because the space and furniture are limited.
- The group activity would have been nice if children were cutting the shapes using manila paper but the school only provides 3 manila sheets to each teacher for the whole term.

The session leader then opens the discussion to the rest of the observers requesting them to begin with the strengths of the lessons ending with areas where they think the lesson would be improved.

The positive comments on the lesson include:

- The lesson was active
- The lesson objectives were achieved as children were able to name and draw the shapes.
- Classroom control was good and all learners participated.
- Children enjoyed the lesson
- There was a variety of activities that allowed children to practice the shapes
- The teacher was audible and confident.
- There were a variety of learning aids

The areas for improvement included:

- Allowing learners to correct themselves or other learners to correct them in case of a non-desirable response.
- Stretching the lesson on shapes into real life. For example, in what circumstances are circles used, or squares or rectangles?
- Splitting the big groups into smaller groups

- Rather than allocating different shapes to be cut by each group, children would have been given the liberty to cut out any shape they wished.

Ideas for large class teaching generated from reflection and participating in lesson study

The above lesson on shapes and many other lessons covering various topics in English and mathematics were planned, implemented and reflected on during the course of the research. A number of strategies were identified and developed during the lesson study strategy. These, we hope would be useful strategies in facilitating teaching and learning in large classes, most especially in contexts where resources are constrained. They include planning multiple activities, grouping, teamwork and maximising use of the chalkboard.

Having realised that it was difficult to closely work with each individual learner on specific tasks in classes as big as 70 learners and above, the teachers made efforts to ensure that they arranged for multiple student activities in any given lesson. This was a common practice in mathematics classrooms. The multiple activities gave each learner the opportunity to observe, participate and also practice given learning procedures. This, in the end, facilitated the learners to achieve or acquire acceptable levels of proficiency in the intended learning. As in the preceding lesson on shapes, the children benefited from the multiple activities that had been planned.

Although it was challenging to have effective working groups of more than 10 learners, it was realised that it was still useful to have the children seated in groups, with each group having a leader. Such seating arrangement made classroom management a little easier. With group leaders, teachers could easily share leadership roles with learners. For example, the group leaders assisted the teachers in tracking classroom attendance, without the teacher having to roll-call everyday. Each group leader would take note of the members of his/her group who were absent on a given day and pass them over to the teacher.

The teachers felt the process of lesson study had helped them to appreciate and comprehend the meaning of team teaching. Even in instances where there had previously been co-teachers, the concept had not been well implemented in practice. The teachers felt team teaching was a useful practice that relieved the burden of one teacher managing a large class alone. The role of co-teachers was also expanded to include joint planning of lessons and instructional materials development.

In the absence of enough instructional materials such as textbooks and flip charts, the teachers fully maximised the potential of the chalkboard by writing useful information on it, and making it as interactive as possible. For example, on several occasions children would be called upon to solve problems on the chalkboard.

Conclusion

While teachers can do what is in their means to facilitate teaching and learning in large classes, they would still need institutional and policy support. The urgent support required include, but not restricted to provision of basic infrastructure such as bigger classroom space,

sufficient furniture and instructional materials. Increasing the number of teachers to allow at least two teachers per class, providing schools with the necessary resources and enabling teachers to develop the confidence and skills to improve the learning environment in large classes seems to be paramount. It might also be necessary to revisit the lesson duration for lower classes from the current 30 minutes. Various studies such as Betts & Shkolnik (1999), Smith (2000), Hong (2001) and Banicky & Janicki (2006) have also alluded to the need to review instructional time allocation depending on class size variations.

Finally, while the ideal situation would be to argue for class-size reduction, this research contends that in instances where resources are constrained to bring down the numbers, alternative strategies for increasing learning in large classes ought to be explored. There is research that points to the fact that in a classroom situation what matters most may not be the size of the class but the quality of the teacher. For example, Haddad (1978) and Burke (2003) note that pupils tend to be less concerned about class size than teachers and instead tend to feel that the quality of teaching and the teacher affect the quality of learning more than class size. Other studies such as McGinn & Borden (1995) suggest that better trained teachers can handle more students with no decline in learning outcomes and that large classes with instructional materials do as well or better than small classes with no instructional materials. In the context of this research, it is argued that in addition to training teachers in specific strategies for large classes and providing them with the necessary instructional materials, the culture of reflective practice should be cultivated. There is need to bring teachers together in action and reflection and in participation with others, in the pursuit of long-term solutions to issues of large classes. Indeed as Biggs (2003) has noted: “Learning new techniques for teaching is like the fish that provides a meal today; reflective practice is the net that provides meals for the rest of your life” (p.7).

References

Baker, B. & Westrup, H. (2000). *The English Language Teacher's Handbook: How to teach large classes with few resources*. London: Continuum.

Banicky, L. A. & Janicki, H. L. (2006). *Maximising Instructional Time: Identifying impediments and strategies*. VA: Virginia Beach City Public Schools, Department of Accountability.

Bennett, N. (1996). Class size in primary schools: perceptions of headteachers, chairs of governors, teachers and parents. *British Educational Research Journal*, 22, 33-35.

Betts, J. R. & Shkolnick, J. L. (1999). The behavioral effects of variations in class size: The case of mathematics teachers. *Educational Evaluation and Policy Analysis*, 21(2), 193-213.

Biggs, J. (2003). *Teaching for Quality Learning at University* (2nd edition). Berkshire: The Society for Research into Higher Education & Open University Press.

Billington, H. L. (1997). Poster presentations and peer assessment: Novel forms of evaluation and assessment. *Journal of Biological Education*, 31 (3), 218-220.

Blatchford, P. (2003). A systematic observational study of teachers' and pupils' behaviour in large and small classes. *Learning and Instruction*, 13, 569-595.

Blatchford, P. & Mortimore, P. (1994). The issue of class size for young children in schools: what can we learn from research? *Oxford Review of Education*, 24, 411-428.

Burke, W. M. (2003). The class size debate: Is small better? *British Journal of Educational Studies*, 51(4), 428-430.

Davies, P. (2000). Computerized peer assessment. *Innovations in Education and Training International*, 37 (4), 346-355.

Elliott, J. (1991). *Action Research for Educational Change*. Buckingham: Open University Press.

Fernandez, C. (2002). Learning from Japanese Approaches to Professional Development: The Case of Lesson Study. *Journal of Teacher Education*, 53, 393-405.

Fernandez, C., Cannon, J. & Chokshi, S. (2003). A US-Japan lesson study collaboration reveals critical lenses for examining practice. *Teaching and Teacher Education*, 19, 171-185.

Finn, J. D., Pannozzo, G. M. & Achilles, C. M. (2003). The 'why's' of class size: student behaviour in small classes. *Review of Educational Research*, 73, 321-368.

Flanagan, W. (1995) *Reading and writing in junior classes. Johannesburg*: Maskew Miller Longman.

Gibbs, G., Lucas, L. & Spouse, J. (1997). The effects of class size and form of assessment on nursing students' performance, approaches to study and course perceptions. *Nurse Education Today*, 17 (4), 311-318.

Glaser, B. G. & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. London: Weidenfeld and Nicolson.

Haddad, W. (1978). *Educational Effects of class size*. Staff Working Paper No. 280. Washington, D. C: The World Bank.

Hong, L. K. (2001) Too many intrusions on instructional time. *Phi Delta Kappan*. 82(9), 712-714.

Ives, S. M. (2000). *A survival handbook for teaching large classes*. [http://www.fctel.uncc.edu/pedagogy/focuslargeclasses/ASurvivalHandbook.html](12 October 2006)

Johnson, D. (1998). Teacher assessments and literacy profiles of primary school children in South Africa. *Assessment in education: Principles, policy & practice*, 5(3), 381-412.

Kember, D. & Kelly, M. (1993). *Improving teaching through action research*. Green Guide No.14. Campbell Town, NSW: Higher Education Research and Development Society of Australia.

Lewis, C. (2000). *Lesson Study: The Core of Japanese Professional Development.* Invited Address to the Special Interest Group on Research in Mathematics Education, American Educational Research Association Meetings, New Orleans, Session 47.09.

Lockheed, M. & Verspoor, A. (1991). *Improving Primary Education in Developing Countries*. Oxford: Oxford University Press published for the World Bank.

Maged, S. (1997). *The pedagogy of large classes: Challenging the "large class equals gutter education" myth*. M.Phil dissertation. University of Cape Town, South Africa.

Mbabazi, J. G. (2008). Implementation of the Universal Post-Primary Education and Training (UPPET) programme and economic growth in Uganda. In K. King (Ed.) *Education for sustainable development? Or The sustainability of education investment?* Edinburgh: NORRAG NEWS, No. 40. [http://www.norrag.org/pdf/NN40.pdf](12 October 2008)

McGinn, N. F. & Borden, A. M. (1995). *Framing Questions, Constructing Answers: Linking Research*

with Educational Policy for Developing Countries. Cambridge, MA: Harvard Institute for International Development.

Michaelowa, K. (2001). Primary education quality in Franco-phone Sub-saharan Africa: determinants of learning achievement and efficiency considerations. *World Development*, 29, 1699-1716.

MoE&S (2005a). *A comprehensive analysis of basic education in Uganda*. Kampala: Ministry of Education and Sports.

MoE&S (2005b). *Education Sector Review*. Kampala: Ministry of Education and Sports.

Nakabugo, M. G. (2003). *Closing the gap? Continuous assessment in primary education in Uganda*. Thesis presented for the Degree of Doctor of Philosophy, Graduate School in Humanities, University of Cape Town.

Nye, B., Hedges, L. V. & Konostantopoulos, S. (2001). Are effects of small classes cumulative? Evidence from a Tennessee experiment. *The Journal of Educational Research*, 94 (6), 336-345.

O'Sullivan, M. C. (2006). Teaching large classes: The international evidence and a discussion of some good practices in Ugandan primary schools. *International Journal of Educational Development*, 26, 24-37.

Race, P. (1998). Practical pointers on peer assessment. In S. Brown (Ed.), *Peer assessment in practice*. SEDA Paper 102, Birmingham, SEDA.

Reason, P. & Bradbury, H. (Eds.) (2001). *Handbook of action research: Participative inquiry and practice*. London: Sage Publications.

Robinson, G. E. (1990). Synthesis of research on the effects of class size. *Educational Leadership*, 47(7), 80-90.

Schon, D. A. (1983). *The reflective practitioner: How professionals think in action*. London: Temple Smith.

Schreyer Institute for Teaching Excellence (1992). Teaching large classes well: Solutions from your peers. *The Penn State ID Newsletter*. [http://www.aus.edu/fdc/docs/articles/Teaching%20Large%20Classes20Well.pdf] (17 October 2006)

Smith, B. (2000). Quantity matters: Annual instructional time in an urban school system. *Educational Administration Quarterly*. 36(5), 652-682.

Smith, P. & Warburton, M. (1997). Strategies for managing large classes: a case study. *British Journal of In-service Education*, 23, 253-266.

Valérien, J. (1991). *Innovations for large classes: A guide for teachers and administrators*. Educational Studies and documents No. 56. Paris: UNESCO.