

A SURVEY OF LARGE CLASS TEACHING AROUND AUSTRALIA

Introduction

Sixty-nine highly accomplished teachers (HATs) and 21 academic developers (ADs), from 23 Australian universities, have been involved in this AUTC project aimed at identifying and disseminating best practice for teaching large classes. The HATs were emailed a survey questionnaire asking about the organisation and delivery of their large class courses in order to gather some data on how various sized classes operated within Australian universities. They were also asked about the least successful and most successful strategies they had implemented in teaching large classes. A survey was also emailed to the ADs, asking about the major issues in large class teaching, the most and least successful strategies they had come across for dealing with large classes, and details about any institutional support programs for large class teaching. Response rates were excellent, with 64 (93%) HAT surveys and 15 (71%) AD surveys returned.

Class Size

Most of the HATs (70%) taught between 70 and 500 students in their largest classes, however class sizes of between 500 and 1000+ students were reported. Class sizes varied within and across universities, however respondents from the University of NSW, the University of South Australia, the Queensland University of Technology and the University of Melbourne reported the largest classes (1000+ students). All of these were 1st year courses. Table 1 shows the distribution of class sizes reported by each university responding to the surveys.

Table 1.
Distribution of class sizes taught by HATs surveyed at each university.

University	70-299	300-499	500-999	1000+
University of NSW	1		1	1
Macquarie		1	1	
University of Sydney	1		1	
University of Western Sydney	6	3	2	
University of Wollongong	3	1		
Australian Catholic University	1	1		
Charles Sturt University	1			
University of New England	4			
Australian National University	1			
Griffith University	1	2	2	
Queensland University of Technology		1		1
University of Queensland		1	2	
University of Melbourne				3
Deakin University	1		1	
Monash University	3			
RMIT	1			
University of South Australia		1	1	1
Flinders University	2			
University of Western Australia	1			
Murdoch University	3	2	2	
Edith Cowan University	1			
University of Tasmania	1	1		
Sub-totals	30	15	13	6

Range of disciplines

The HATs surveyed came from a range of discipline areas. These have been roughly grouped into four areas: 1) business-related, 2) science-related, 3) social sciences and humanities and 4) maths and physical sciences. Class sizes varied across the full range of disciplines, however first-year business-related classes (such as business management, accounting and economics) do feature prominently in the larger categories (500-999 and 1000+). Table 2 shows the overall distribution of disciplines taught by the survey respondents.

Table 2.
Distribution of disciplines

Discipline area	Business related (including accounting, law, economics and business management)	Science related (including chemistry, biology and health science)	Social science and humanities (including education, psychology and cultural studies)	Mathematics and physical sciences (including statistics and engineering)
Number of cases (N=64)	24	17	16	7

Organisation of the classes

Survey participants were asked to provide general information about the teaching modes used, as well as some details about how they coordinated smaller sessions such as tutorials and labs. Details provided include the number of tutors employed, and the types of resources they provided to staff and students (eg. study guides).

Lectures

Nearly 66% of respondents (40 out of 64) indicated that they taught as part of a team of 2 or more lecturers. The likelihood that the class was taught by a team of lecturers did not appear to be influenced by class size. About two thirds of lecturers of both smaller classes (90-299 students) and very large classes (1000+ students) reported teaching in teams.

Most of these on-campus university courses were generally organised in a similar way, offering a weekly lecture supplemented by a weekly tutorial. About 75% of participants (47/64) reported giving 1 weekly lecture, although repeats of the same lecture were presumably used in larger classes (500+ students). Only 25% (16/64) reported providing 2 or more lectures on a different topic per week. The likelihood that more than one lecture per week was provided seemed to decrease with increased class size - 30% of classes with 70-299 student vs. 9% of classes with over 500 students.

Small group sessions

Small group sessions (labs, tutorials etc.) were used by 94% of HATs surveyed (60/64). Of these, 11 provided fewer than one small group session per week (usually fortnightly instead), but the majority (47 HATS) reported offering students a weekly tutorial or laboratory class. Only 2 of the HATs said they offered twice-weekly small group sessions; both of these had less than 200 students.

Not surprisingly, classes with fewer than 300 students tended to have fewer tutors or lab demonstrators. Two thirds of these employed small group facilitators, the number ranging from 1 to 4. Only 7 classes involved five or more small group facilitators. As would be expected, most of the larger classes (300 to 1000+ students) employed 5 or more tutors, with all of the 1000+ classes employing more than 8 tutors.

All of the smaller classes (90-299 students) with 5 or more tutors appointed a tutorial coordinator or senior tutor to manage the team of tutors. Tutorial coordinators were appointed in about half of the larger classes

(300+ students). Where one tutor was not assigned the role of coordinating the team of tutors, the course coordinator usually assumed this role.

Class sizes in small group sessions (eg. tutorials) tended to increase as overall enrolment numbers increased. Whereas more than 50% of courses with less than 300 students reported running tutorials/labs with fewer than 20 students per group, only around 10% of the courses with more than 500 students were able to manage this. In the category of 300-500 students, around half kept small group sessions under 20 per group. However, some had as many as 40 students per group. Table 3 shows the class sizes of tutorials and small group sessions for three categories (70-300, 300-500 and 500+ students).

Table 3

Small group session size as a function of number of students enrolled in course

Small group session size	< 500 students	300 - 500 students	500+ students
< 20 students per group	17	8	2
> 20 students per group	13	7	17
Sub-totals	30	15	19

In terms of supporting tutors and students in large class contexts, 41 of the 64 respondents provided tutoring guidelines, handbooks or set materials to assist tutors with their teaching. This proportion increased in the largest category (1000+), where 5 of the 6 provided tutorial guides to help inform and manage large teams of tutors. In addition, 5 of the 6 1000+ respondents said they used some form of study or learning guide for students to work through, which tutors could also (presumably) use and refer to in class. Courses in the 300-500 category also commonly reported the use of study guides, with 12 of the 15 (80%) reporting that they offered such a resource to students.

Assessment: Assessment modes

Survey participants were asked to provide information about assessment used. Some respondents included a breakdown of weighting for each assessment item (eg. 50% exam, 25% assignment, 25% group project). However, others simply listed and described their assessment without this breakdown. Therefore, this section will discuss and summarise the range of assessment items used across various discipline areas and class sizes.

In general, the larger courses (500+ students) and business-related courses used more traditional assessment procedures; namely written assignments, sometimes accompanied with a seminar presentation, and one or more written examinations. Less “traditional” assessment exercises such as formative assessment, group projects, marks for participation (online or in class) and portfolio work were used across all discipline areas but tended to be utilised more frequently in the smaller courses (less than 500 students). As would be expected, most science-related and practical subjects, such as nursing (approx. 80%) incorporated practical assessment items such as experiments or fieldwork.

Interestingly, most respondents (54/64) reported using 3 or more pieces of assessment per semester, including exams, essays, reports, pracs, group work and portfolios. This was the case even in very large classes. Research suggests that a range of assessment items, if appropriately designed, increases the validity of the assessment program (Biggs, 1999). Thus, it may not be surprising that most respondents used a variety of assessment, given that the respondents were selected for the project on the basis of their teaching skills. However as discussed below, many still felt they had to use less meaningful and less authentic assessment exercises in large classes than they would in smaller classes.

Table 4 shows the number of HATs reporting use of various assessment exercises with their large classes. Some overlap between categories did occur and thus a few assessment activities were recorded under two headings (such as online examinations, recorded under *exams* and *online assessment*). Written reports (including essays, research papers and topical assignments) were the most frequently used assessment

activities. Examinations were most common, although less likely to be used in social sciences and humanities subjects where various types of written assignments were used, sometimes with no formal written exams at all.

Table 4.
Reported frequency of use of various assessment activities

Assessment activity	No. Used (N=64)
Written reports, essays or assignments	53
Mid-semester and/or final exams	52
Formative and/or non-graded assessment <i>(including MCQ quizzes, set questions or problems, etc)</i>	25
Tutorial or seminar presentations	20
Practical exams <i>(+ those with accompanying written tasks)</i>	19
Group projects or activities	19
Peer- and self-assessment	18
On-line assessment <i>(including online tutorials, computer assisted learning, etc.)</i>	16
Participation marks <i>(on-line or in class)</i>	7

Respondents were not specifically prompted to make mention of peer- and self-assessment tasks used in their large classes, however 18 reported using some form of assessment activity carried out by someone other than a teacher. This included peer marking, group exercises with a self- or peer-marking component and formative self-assessment (such as marking one's own work against a set of criteria). None explicitly mentioned that these marks contributed to final course grades. However, in response to a survey item asking about the most successful strategies used, one HAT suggested that the introduction of peer marking had to some degree reduced the teachers' marking loads.

One of the HATs who taught over 800 students explicitly described his use of flexible assessment where students have the option to omit certain assessments if they are happy just to pass, whereas students wishing to obtain a high grade undertake all assessment tasks. This arrangement has reportedly reduced the number of students appealing their final grade as well as the overall marking load.

Marking

Survey participants were asked to say who marked the various assessment activities. Eight of the respondents (all in the 70-300 students category) said they handled all marking on their own. The remainder of HATs reported sharing the marking load amongst all teaching staff (including lecturers and tutors). The use of computer marking was only specifically mentioned by 8 respondents. Only 3 mentioned hiring casual markers to handle large marking loads. A common arrangement was for lecturers to take responsibility for marking exams and sessional staff (tutors or lab demonstrators) for marking their own students' essays, lab reports, presentations etc. In 10 of the 64 cases, sessional staff carried out all marking tasks according to guidelines set by the lecturer, with the course coordinator moderating final marks and mark distributions. As mentioned below, marking load was still seen as problematic in large classes, with 11 respondents specifically mentioning this as a major issue.

Teaching and Learning Technology

HATs were asked whether their courses included any web-based activities to structure or enhance students' learning. In 40 of the 64 cases, web-based activities were described covering the full range of disciplines. As shown in Table 3, 16 cases involved on-line assessment that contributed to between 2.5% and 40% of students' final grades. Twenty-eight of these had course-specific web-sites or web-pages (such as Web CT) for students to download course materials such as marking criteria and lecture notes, perform practice exams and access course updates and announcements. Five reported using computer conferencing or discussion boards. Three of the HATs running 500+ classes report using audio-streaming to make video clips and lectures available online.

One respondent required all students to download pre-lecture material before attending classes. Two HATs from the same university reported using computer managed testing whereby students download and print out random sets of test questions, take home and work on the questions and return within 1-2 weeks to input their answers which are then corrected by the software program. Students wishing to seek further clarification or explanation can discuss the questions with their peers, in tutorials or approach the lecturer personally.

The remaining 12 cases that did not have course-specific web-sites described a more incidental use of web-based activities where students were directed to related web-sites and encouraged to use the web when writing assignments or answering set problems. HATs were not directly asked about their use of non web-based teaching and learning technology. However some did specifically mention using various forms of technology. One HAT reported the successful use of a set text accompanied by a CD ROM study guide. Several respondents commented on their use of teaching technology such as Power Point presentations. Interestingly, one respondent said Power Point was the most successful lecturing tool she had used for structuring lecture content whereas two others deemed it to be the least useful method, claiming that it reduced flexibility in teaching and in movement around the lecture hall.

Major Issues

Survey participants (both HATs and ADs) were asked: "What do you see as the 2 major issues/problems in teaching large classes?". The most frequently reported problematic issue in large classes was the inability to get to know students personally and reduce students' feelings of anonymity in class. The frequency with which HATs reported various problematic issues arising in large classes is as follows (number of responses in brackets);

- Knowing students and creating interactive classes (27)
- Engaging students' interest, maintaining attention of back rows in lectures (22)
- Heterogeneity of the group; knowing at which level to pitch the lecture (14)
- Coordinating and managing assessment; marking load (14)
- Identifying and making time to help students at risk (11)
- Getting/giving feedback and managing student inquiries (11)
- Course design (including how to add value to course materials), planning and preparation time (10)
- Consistency/conformity of teaching and feedback (10)
- Co-ordination/training of tutors/staff (8)
- Motivating students to participate in class (7)
- Limited resources and budget for the class size (6)
- Devising authentic/valid assessment (5)
- Crowd control/noise levels (5)
- Finding capable/enthusiastic staff (5)
- Lack of admin support (inc. timetabling assistance) (4)
- Finding effective presentation methods, varying presentation strategies (3)
- Devising manageable yet flexible learning (3)
- Getting authentic, student-centred learning to occur
- Space/equipment requirements (including configuration of lecture theatres) (2)
- Plagiarism (1)

HATS providing these responses had the opportunity at the 1st National workshop held in July, 2001 to discuss and further 'tease out' these issues with one another.

Responses to the "major issues" question were by and large consistent with, and paralleled by, the available literature on large classes. Much has been written about course design, managing assessment and effective delivery in large class settings. Most of the literature that deals specifically with the problems encountered by members of large classes (teachers and students) highlights the issue of student anonymity as a major concern (although students generally experience more disadvantage because of this anonymity). The anonymity of students in large classes has been associated with students taking a more passive role and being less likely to participate with in-class activities, hoping that their lack of involvement will 'go unnoticed'. Several techniques have been suggested that can encourage and obligate students to be more involved in class. These strategies, as well as a range of other methods for managing these issues have been reported in the literature (see [literature reviews](#)) and are touched upon in the following section.

Most successful strategies with large classes

The choice of teaching and assessment methods is directly and indirectly influenced by class size. Issues such as insufficient physical space, resource constraints and workload for marking can directly constrain the choice of teaching and assessment methods for large classes. Class size also impacts on the range of teaching and learning methods that can be used effectively and these in turn affect the appropriateness of various instructional and assessment tools.

In an attempt to identify effective methods currently being used to teach and assess large classes, survey respondents were asked the question: "What are the 2 most successful things you have implemented in teaching a large group?" A wide variety of descriptions were provided, although there were some with a common and similar theme. The most common response was that introducing a course web-site was a successful means of facilitating learning and communication with large groups. However, a range of responses were provided covering issues of delivering lectures, handling students, coordinating small group sessions and managing assessment. The frequency with which various strategies were reported as successful is as follows (number of responses in brackets);

- Small or focus group discussions in lectures and tutorials (eg. student-centred discussion) (12)
- Web-based course materials, course web-site, discussion boards, on-line resources (including video clips of lectures) (8)
- Using mixed media including videos, music, slides, overheads etc (8)
- Lecture exercises, individually or in pairs, students to discuss and/or write (8)
- Study and learning guides, tutorial and lecture guides, lecture outlines with space to write (7)
- Encouraging team work amongst tutors and academic staff (6)
- Tutorial or lecture tests/quizzes (5)
- Peer assisted learning; study-skills sessions, teaching collaborative learning skills (5)
- Problem-based learning (4)
- Innovative use of lecture space (eg. rearranging furniture), using flat floor lecture room (4)
- Clear marking guidelines; moderation or standardisation of assessment (3)
- Helpdesk, student liaison officer, tutor on 'duty' roster (3)
- MCQ's in lectures and a show of hands; direct Q&A in lectures (2)
- Tutor teaching guide/plan for activities (2)
- Oral presentations (group and peer assisted) (2)
- Open door policy & after/hours for students (2)
- Case studies/narratives (2)
- Provocative introductions; use of real examples from media etc (2)
- Learning names (2)
- Power-point presentations (1)

- “Special topic” lectures/guest lectures (1)
- Short breaks (1)
- ‘Rehearsing’ lab sessions in tutor meetings (1)
- Range of interesting topics (1)
- Replacing tutorials with longer, less frequent workshops (1)
- Skills based assessment (1)
- Diagnostic assessment (to identify students at risk) (1)
- Assessment of tutorial participation (1)
- Tutorial exercises as weekly feedback (1)
- Essay examinations (to avoid plagiarism) (1)
- Standardisation of assignments across all tutorial groups (1)
- Multiple assessment methods (1)
- Portable microphones around the lecture theatre to encourage student participation (1)

A few examples were given which, although included under one of the above categories, were somewhat unique in nature. One simple yet innovative example provided by a business lecturer involved having students complete exercises in lectures using carbon paper to create 2 copies of their responses. This method may act as a kind of informal assessment, as students are required to hand one copy to the lecturer at the end of class and keep one copy for themselves. Presumably the names of students submitting a copy could be recorded and this information used either to provide a small number of marks or in case of borderline end-of-semester results. The lecturer could also select a random sample of responses for discussion at the following lecture.

One HAT teaching statistics reported on the success of using games to teach statistics and an engineering-mathematics lecturer reportedly provides short, interesting problems at the beginning of each lecture so that ‘early bird’ students have something to do while the ‘stragglers’ arrive. On the issue of maintaining attention in large lectures, several HATs report success with using a variety of multi-media, including beginning their lectures with pop music and/or interesting videos or comic strips that relate (however tenuously) to the lecture topic. Last, on the issue of coordinating sessional staff, one respondent reported *pre-running* lab experiments to ensure quality control, as well as provided thorough training of lab demonstrators and conducting “wash-up” meetings with all lecturers, demonstrators and technical staff at the end of each semester to identify and correct any problems.

As noted above, class size often determines the appropriateness of the instructional and assessment tools that could be used, meaning that some teaching and learning methods that are effective with smaller groups are less effective (or entirely ineffective) with large classes. Hence, participants in the present survey were also asked to comment on any strategies or techniques they had tried that had been *unsuccessful* in teaching or managing large groups.

Least successful strategies with large classes

Participants were asked the question: “What are the 2 *least* successful things you have implemented in teaching a large group?” Again, a wide variety of responses were provided, although some shared a common and similar theme. The most common response was that optional activities and workshops which were not assessable or were unrelated to assessment items were least successful in motivating students and encouraging participation. The frequency of which various strategies were reported as least successful is as follows;

- Optional (non-assessable) workshops/classes/activities (7)
- Straight didactic lecturing (5)
- Overloading tutors/staff; inadequate support/guidance (4)
- Discussion groups with 400+ students; group work in lectures (4)
- Over-reliance on, or inappropriate use of technology (4)

- Power-point presentations; strict lecture notes (4)
- Poor coordination/communication amongst tutors & academic staff (3)
- Assigning marks to tutorial preparation and/or participation (3)
- Q&A in lectures (3)
- Incongruent lecture and tutorial topics (inc. different essays/exams for different groups) (2)
- On-line discussion groups (due to students lacking skills) (3)
- Over reliance on MCQ exams/final exam; badly written MCQs (3)
- Lack of preparation/organisation (3)
- Weekly tutorial papers (increases marking load) (2)
- Group assignments (due to lack of participation from some students) (2)
- Student-driven tutorials; “self-discovery” exercises with 200+ students (2)
- Asking redundant questions (eg. “Does that make sense?”) (2)
- Guest lecturers (with little integration to overall course) (2)
- Student note-taking without skeleton hand-out (1)
- Giving students a full set of lecture notes (1)
- Assisting formation of study groups (1)
- Time consuming training of first years to use web site (1)
- Take-home tests (1)
- Learning portfolios with no regular follow-up/encouragement (1)
- Taking rolls; making lectures compulsory (1)
- Too much focus on bottom end (needy) students (1)
- Streaming students according to ability or major (1)
- Computer marking (due to lack of qualitative feedback) (1)
- Didactic teaching methods (1)
- After-hours student contact (1)
- Jokes (1)
- Personal anecdotes in lectures (1)

Once again, responses to the “least successful” question were largely consistent with much of the available literature. Much has been written about the need for assessment to be a part of the learning process and for activities to be related to or incorporated into the assessment. Furthermore, the literature has frequently highlighted the importance of systematic coordination and communication with sessional staff (tutors etc) as well as many of the other issues and examples described above (see [literature reviews](#)).

As with the “most successful” responses, a few examples of least successful strategies were somewhat unique and interesting. One HAT teaching marketing commented on the use of video “up-linking” of lectures in real time to remote lecture theatres in order to avoid running repeat lectures. The comment was made both in the HAT survey and by several HATs at the workshop that this technique was ineffective due to poor sound quality, a lack of feedback and interaction between teacher and students and the impersonal atmosphere the remote lecture creates.

In keeping with the literature on effective note-taking, a lecturer in nursing noted that providing complete sets of lecture notes had previously caused some students to ‘switch off’ and so now uses structured lecture notes with key points/questions left blank for students to fill in during lectures. Also consistent with the literature was a comment from another lecturer that on-line resources such as bulletin boards are unsuccessful if not properly promoted and incorporated into the course and into at least some classroom activities.

Institutional Support

The Academic Developers surveyed were asked to describe programs for supporting large class teaching that were operating from their Academic Development Unit, or at the Faculty/School level. Not all universities represented by the survey respondents had any support programs in place currently, or in the past. In about 75% (10 of 15 universities represented), there were either no ADU run programs, or no Faculty/School based programs. A small number of universities did not have any support programs for large class teaching. There was a range of different initiatives described, but the most common included the following:

ADU programs

- generic teaching workshops with large class component (eg. Introduction to Teaching, Good Lecturing)
- large class specific workshops (eg. Encouraging Active Learning in Large Classes, Teaching Large Classes)
- projects on large class issues (eg. Using Peer Assessment to Improve Student Learning in Large Classes, Promoting Teamwork in Course Coordination)

Faculty/School Programs

- tutor training (often supported by ADU resources), tutor Manuals
- peer mentoring (for tutors)
- student learning support (eg. Supplemental Instruction, Peer Assisted Study Sessions)
- administrative support for large classes
- support for creating and maintaining web-based materials for large classes

While a few universities seemed to have a range of support mechanisms in place, in the majority, these initiatives were often ad-hoc and only operating on a needs basis (i.e. school/individual goes to ADU for resources which may include a workshop).

Summary

The survey results show that, for the most part, large classes across Australian universities are similar in many respects. The majority of large classes are taught as part of a team of 2 or more lecturers (and tutors), and are generally organised around a model of weekly lectures supplemented by a weekly small group session (eg. labs, tutorials etc). Most classes also supported tutors with tutoring guidelines, handbooks or set materials to assist tutors with their teaching. In terms of assessment, the larger courses (500+ students) tended to use more traditional assessment procedures (eg. written assignments and exams) while smaller classes (less than 500 students) were more like to include alternative assessment methods such as formative assessment, group projects, marks for participation (online or in class) and portfolio work.

The major issues faced by teachers of large classes were similar, with the most frequent issues centring around student and teacher interaction (eg. getting to know students, engaging students' interest, facilitating interactive classes), heterogeneity of the group (eg. knowing where to 'pitch' the lecture, identifying and making time to help students at risk), coordinating and managing teaching and assessment (eg. consistency/conformity of teaching, getting and giving feedback, managing student inquiries, coordination and training of staff) and course design (eg. planning and preparation time, how to add value to course materials etc).

The strategies that teachers had implemented to enhance their large classes teaching were also similar, but there were also many different methods used. The most successful strategies that survey respondents reported included small or focus group discussions in lectures and tutorials, web-based course materials, discussion boards and on-line resources (including video clips of lectures), using mixed media in lectures (eg. videos, music, slides, overheads etc), giving lecture exercises (individually or in pairs, getting students to discuss and/or write), providing study and learning guides, tutorial and lecture guides, and lecture outlines

with space to write. The most frequently reported least successful strategies that had been tried included using optional (non-assessable) workshops, classes or activities, and straight didactic lecturing.

In terms of available institutional support, the results indicate that there is little systematic or ongoing support, specifically for large class teachers, operating currently in Australian universities. The most common initiatives involve workshops offered once or twice a year from the ADU, and tutor training workshops run by individual Schools or Faculties (but usually not across the board at a single university).

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