Samar Zutshi & Matthew Mitchell - A Pilot Implementation of a Teaching Model for Independent Learning

Abstract
This research grew out of the authors’ experience suggesting that the traditional lecture model suffers from two primary drawbacks. Firstly, it encourages passive reception of knowledge; and secondly, it is drawn from a model of teaching that disempowers students from developing their own critical thinking skills. In this paper we discuss these drawbacks and relate them to the literature on the traditional teaching model. We then argue for new a model that addresses these two drawbacks by supporting student-centred learning and student autonomy and encourages students to take responsibility for their own learning. The model eschews traditional lectures and tutorials; instead students are supported through mentoring in teams. Assessment is through project-based group work and requires a significant degree of student autonomy. Continuous feedback is provided on assessable work. We describe the pilot run implementation of this model. The implementation of the model illustrates that it can be used within typical university workload allocations formulated in terms of the traditional lecture and tutorial model. Reflections on our experiences during this implementation are presented along with a discussion of the further work necessary to evaluate the model and its subsequent implementation.

1 Introduction
The traditional learning and teaching format in higher education typically involves breaking contact hours into lectures and tutorials. The lecture is where the “delivery” of the material takes place with the staff member presenting material to a comparatively large group. The tutorial (or lab) is where a staff member supervises a smaller group of students in facilitating learning activities. This format is relatively uniform in higher education in Australia (Phillips 2005), and in the UK (Gibbs 1992; Laurillard 2002) and USA as well. There are several assumptions implicit in the underlying design of this format, including the following. Firstly, students acquire a basic understanding of principles and concepts by attending lectures. Secondly, students cement their understanding and engage in learning in the tutorials. Thirdly, students spend a significant amount of time in learning activities outside of contact hours including self-study and preparation of assessable deliverables. Finally, there is also an assumption that students will be in contact with staff members outside of scheduled classes to receive help with assessable work and to guide their self-study. In the experience of the authors, these assumptions often do not hold true. This may be due at least in part to increased class sizes limiting the degree of student interaction possible with lecturers and tutors and increased expectations of what academic staff are expected to do (Gibbs 1992). However, in addition, the design of the format itself may suffer from certain inherent limitations. This means that even if the assumptions above were to hold true, the format may not be effective in terms of providing a student-centred learning environment, fostering critical and creative thinking and developing the ability to work autonomously. The limitations of the traditional teaching format and possible reasons for the assumptions not holding true are discussed further in Section 2. We then propose an alternative model that is intended to overcome these limitations while remaining feasible within workload and resource allocations provided in terms of the traditional format in Section 3. Section 4 describes the pilot run and presents our reflections on and the lessons learnt. We conclude with a report on the status of the pilot project and a statement on future work in Section 5.
2 Limitations of the traditional model

It has been suggested that the traditional method of university teaching (i.e. the method based on lectures, tutorials and exams) suggests a dissonance between education research and university practice (Phillips 2005). Phillips makes an argument supported by numerous references that lecturing tacitly adopts an objectivist epistemology, “assuming that the learner is an empty vessel to be filled with content” (Phillips 2005). He also draws on prior work (Laurillard 2002) to conclude that a significant limitation of lecturing is that in order to be effective it requires the entire class to have shared capabilities and background knowledge; a circumstance that is far from certain given open access courses, modular programs and diverse student cohorts that are becoming increasingly common. Further, lecturing creates a power imbalance where “the teacher’s responsibility is to ‘teach’, which implies determining the content, and controlling the sequence. The teacher assumes a pre-modern position of power, while the learner has the responsibility to ‘learn’. If a student fails, it is their fault” (Phillips 2005). Despite these limitations:

An often unstated assumption of the traditional teaching approach [...] is that lecturing is at the core of the educational process. This view is reinforced by administrative policies, which define a subject by the number of lectures it comprises, where workload allocations are defined by number of student contact hours, and where tutorials are, largely, conducted by casual staff (Phillips 2005).

Recent work on student attendance (Massingham & Herrington 2008) indicates that there is a mix of reasons for dropping attendance in traditional lectures and tutorials. Interesting points raised in that work include:

- Students will attend lectures only if they perceive value in them
- The traditional role of the lecturer in analysing and synthesising material thus making it simpler for students are based in an outdated pedagogy. A contemporary approach would require students to analyse, synthesise and explain rather than have the lecturer do it for them
- Students may be “instrumentally motivated” i.e. they may only be interested in doing what is required to successfully complete assessment work rather than engage in deep learning.
- Such students may not take sufficient personal responsibility for their own learning. Such an attitude may be developed if they have experienced a level of success in academic environments that do not support deep understanding and a thirst for knowledge.

Bligh (2000 p 20) acknowledges that lectures are primarily useful to transmit information and are not effective in promoting thought, changing attitudes and developing behavioural skills. If we accept this to be true, and also accept that assessment that can be successfully completed by “regurgitation” of information only reinforces poor student attitudes, then the conclusion is inescapable. We must seriously consider the primacy of lectures and the nature of assessment work given to students if we expect them to evolve into independent learners.

The concept of “independent learning” and “independent study” has been interpreted in various ways. As early as 1973, multiple uses were recognised (Moore 1973), including the use of the term to characterise correspondence and distance studies and out-of-school part time degree programs for adults. Moore goes on to define independent learning largely in the context of distance education. His definition of independent learning is based on the notion of physical separation between the teacher and student, requiring the communication of the teacher’s assistance through print or other media. For Moore, by contrast, in the traditional classroom, lecture or seminar, “the events of teaching are contemporaneous, and conterminous, with the events of learning” and the distinguishing element is social interaction.
between the teacher and the student (Moore 1973). To argue that learning can take place in non-traditional teaching methods, he claims that the learner’s distance from the teacher is not calculated in miles or minutes; it is rather a function of “individualization [sic] and dialogue” (Moore 1973). He recognises the variety of techniques used to provide communication between learners and teachers to include “books, correspondence programs, television, radio, programmed texts […], computers, telephones […], and tape recordings” However, Moore recognises that his sense of the term “independent learning” cannot be based solely on communications techniques between learners and teachers. The crucial ingredient is learning autonomy which is defined as “the will and ability to exercise powers of learning, to overcome obstacles for oneself, to try to do difficult learning tasks, and to resist coercion” (Moore 1973).

We would argue that higher education programs should be seeking to develop learning autonomy in students. Further, even within the traditional model, one could argue that there is reduced social interaction between staff and students given larger classes and reduced attendance rates. Finally, we argue that current higher education programs typically do in fact require a degree of learner autonomy due to the assumption that students are expected to undertake self-study outside of classroom contact. In our opinion that is appropriate and the challenge is to structure contact hours and assessments such that independent learning (in the sense that it is autonomous and requires learners to undertake significant learning activities outside of formal classroom contact) is facilitated, supported, encouraged and rewarded.

In addition to the limitations of the traditional model identified from the literature cited, the teaching experience of the authors suggests that there is also an expectations management issue. Namely, expectations of what constitutes an acceptable quality of work for submission, how much time to spend on assessable work, the level of autonomy required may vary significantly between staff and students. The nature of staff-student interaction in the traditional model of teaching and assessment does not seem to be effective in addressing the issue. This is an additional factor that highlights the need for an alternative to the traditional model.

3 The Proposed Model

We propose an alternative model for structuring contact hours and assessments that aims to overcome the limitations of the traditional model identified in the previous section. While the overall proposal is novel to the best of our knowledge, it does build on existing work; in particular it draws on the ideas of formative assessment, project-based learning and the Socratic method. While the structure of contact hours is significantly different from that of the conventional model, it is designed to be managed within workload and resource allocations based on the conventional, lecture-centric model. This is to try and ensure that it can be put into practice given existing constraints rather than requiring a change in the overall “system”.

The contact hours consist of two types of sessions; the full-group session which replace the traditional lectures and the small-group sessions which replace the traditional tutorials. Unlike in traditional tutorials where one staff member spends, say, two hours with a group of twenty students, in the small-group sessions the staff member takes turns spending twenty minutes with a group of four to five students. This group of students is an “assignment group” or a “project team”; i.e. they work on assessable work together. Students whom the tutor is not meeting undertake learning activities and possibly assessment work in their teams. Also unlike in the traditional structure, the full group sessions are not designed to exhaustively cover material; they run for a shorter duration than the conventional lecture and are split such that they sandwich the small-group session. The following diagram illustrates the basic approach:
In the first full-group session, the briefing, the lecturer provides a brief introduction to topic area. Its relevance is explained and links made to other topics and units. Finally, its relevance to the assessment is highlighted.

The full group is then broken up into small group tracks; each track is roughly like a tutorial in the sense that it might be made up of approximately 20-30 students. However, the mentor ("tutor") does not work with the entire "tutorial" group. Instead each project group is met with separately for approximately twenty minutes each. During these meetings, the group discusses with the mentor their progress on the assessable work by presenting a short paper (approximately 1 page) examining a particular issue from the curriculum. The mentor provides feedback on the quality of the write-up, the use of referencing and the choice of references selected. The group then presents their work on the assessable project carried out so far and raises any questions they might have. The mentor supports them by use of the Socratic method i.e. by attempting to get the students to arrive at a workable solution by asking them appropriate questions. The mentor also provides indicative feedback on the work done on the assessable task(s) being discussed, i.e. provides an assessment as to what grade would be awarded for that task if the work were submitted as is. They then provide ideas and guidance on what could be done to raise it the next higher grade level. While the project group is meeting with their mentor, the other project groups confer and work on their assessment tasks, write-ups or carry out project planning and work allocation activities. In this manner the requirements for supervised "class" time are met and students are provided a forum where the team can physically meet and discuss relevant issues.

The full group is then brought back together for a final session where a brief overview of the content is provided. Rather than attempting to cover curriculum material, this session is intended to summarise relevant literature and introduce and explain selected core concepts. This forms a starting point for students to identify further relevant resources that they can use for subsequent write-ups and assessment tasks.

If deemed necessary, the contact hours structure above can be introduced in week 2 or 3 of semester after taking the first few weeks to introduce the new structure, set expectations, manage the setting up of the assessment groups etc.

The assessment work recommended in conjunction with the contact structure below consists of the following components

- An individual assessment handed in early
- A major assessment undertaken as a project and a final presentation by the group based on the project

The purpose of the individual assessment handed in early is to clarify expectations and requirements including regarding language, expression and referencing; to familiarise
students with assessment submission and feedback procedures; and finally to get students “into” the material early. The major assessment is the one that is typically weighted highly and the one or which expectations are continuously managed through progressive feedback in the mentor meetings.

As explained previously, ongoing write-ups based on unit material may also be used; they need not be formally assessed but can constitute an additional source of feedback and may prove useful as stepping-stones for students to build upon for the final project report. If an exam component is deemed necessary, then these write-ups also help students prepare for the exam. However, the authors do not consider it essential.

The fundamental change in the nature of the staff-student contact, i.e. being based primarily on a staff member meeting a small group of learners to discuss their work, is an important ingredient in introducing a significant degree of social interaction. The emphasis on project-based assessment work requires significant learning tasks to be undertaken and obstacles to be overcome autonomously by students. However, there is recognition that all students may not already be independent learners and hence the student contact is arranged to provide a degree of support that can be tailored if not at the individual level then at least the level of the project-group.

4 Reflection on Pilot Implementation

The model was implemented as a pilot run over summer 2009 with a third year unit. The initial student contact took the form of an introductory workshop to establish the nature of subsequent contact, an overview of the assessment tasks and a discussion of what would be expected of students at the meetings.

As a practical measure, electronic submission of the individual first assignment was arranged. This enabled parallel marking of the assignments with two staff members simultaneously updating a collaboratively shared spreadsheet. This enabled quicker turnaround of marking and also feedback from different staff members on student work.

The two mentors maintained a separate spreadsheet each to keep track of their project groups. A spreadsheet tab was used for each group. All assessment tasks were listed and each meeting feedback on the groups work was recorded against relevant task along with an indication of what grade might be received on that task, given the state of the work presented by the group at the meeting. This method allowed the project groups to focus on assessment tasks in their own preferred sequence and yet allow the mentor to develop a feel for overall progress in the group work and to advise and support the group accordingly. The project groups were made up of four to five students each. It was attempted to have self-organising groups but final arbitration rights were reserved by the mentors.

The experience of being involved with the pilot run has given the authors insights into the model that will guide their subsequent investigations and also their future implementation of the model. The splitting of the full group contact hours into two brief sessions still retains a strong information transmission element; however keeping the sessions briefer than conventional lectures seemed to make it less likely that students “tune out.” The briefing session helped was used to set up the session and the overview session was used to wrap up the session. Having had the chance to review aspects of the curriculum and/or assessable work prior to the overview session meant that students had the opportunity to ask questions after engaging with their peers, reflecting on material/assessment activity and having engaged with their mentor in the small group session. By not attempting to cover material extensively in the full group sessions, the students were given the opportunity to take ownership of their ideas on the topics covered and also to take responsibility to search
for and identify relevant material. Synthesis and analysis of the material was left to the students; however support was available in the form of the project groups and the mentor meetings. Students were initially a little disoriented by lack of conventional “lectures”, but seem to have adapted reasonably.

The small group sessions where the mentors met with project groups separately allowed for the mentor to engage with each group in manner tailored to their level of progress on learning and assessment tasks. In particular, the idea of “continuous feedback” seems to have been successful in that students were able to see how they were tracking. The act of recording the feedback in a spreadsheet, and discussing this feedback with the students seemed to be effective in students taking the feedback on board. It also allowed them ample opportunity to respond to the feedback without incurring a penalty. This was useful in managing expectations and also in avoiding students perceptions where feedback on assessable work is seen as punitive rather than constructive. A factor that seemed to go particularly well was the degree of interaction the authors experienced with their project groups; anecdotally it seemed that students were more willing to interact with their mentors in their project groups than they do in a tutorial setting. This could be due to the assessment/feedback-centric nature of the meetings, the fact that the group is smaller and also perhaps to the more “personalised” nature of these meetings. An attempt was made to provide feedback that could truly be considered formative i.e. feedback that would meet the criteria outlined by Bransford et al (1999) as cited by Phillips (2005). However, a formal evaluation of whether or not the feedback “improv[ed] the quality of thinking and understanding” will need to be evaluated. Finally, having scheduled class time that students were expected to attend and work on assessment and learning activities in their groups may have helped overcome one issue in group project work; the allocation of times when the group can meet to discuss and plan work and divide up tasks. One point of concern with the small group tracks is that mentors need to be careful to question and guide rather than direct students. While in a session with a group that is facing difficulties an overwhelming temptation can arise to just give the group an instruction, as this can actually be far simpler for the mentor than eliciting responses and guiding students to reach their own conclusions.

The trial run also highlighted the necessity of having strategies in place for project group conflict resolution and mentoring in how to work in groups effectively. Just as the model is designed to support the development of independent learning abilities and does not assume that students are already independent learners, so too must there be provision for students who are not effective team members. There is also the need to be careful regarding dominant group members who by force of personality and/or force of their stronger academic background can affect the direction a group takes. They can also result in less participative/skilled group members being “carried.”

One possible solution is to allocate a proportion of the marks to an assessment of the teamwork process followed rather than only to the deliverable outcomes. A reflective journal that carries an individual mark can be an aid for students to manage the group work process and to develop strategies for effective teamwork. Reviewing a project group’s reflective journals can also provide the basis for an assessment of the teamwork process, which may be distinct from an assessment of the quality of the project deliverables.

5 Future work
This work documents our alternative model for teaching and learning to fit within traditional university workloads and contact hour requirements yet that supports independent learning. Our experience and reflection suggests that the model does have merit. However, further investigation is necessary to develop the model and also to evaluate its subsequent implementation. Firstly, subsequent implementation of the model can draw on the
considerable literature on group assessment and project-based learning (e.g. Blumenfeld et al. 1991). Also, related material based on a formalisation of the Socratic method (Collins 1977) so that sessional staff can be provided training and resources on how to be mentors in this process will need to be prepared.

In addition to the theoretical development outlined above, we intend to gather data on student perception regarding their involvement in university studies conducted according to our proposed model. We have applied for ethics clearance to collect such data from students and hope to report our findings based on these data as well as based on university administered student satisfaction surveys.

More significantly, this research is to be tied into our overall philosophical perspective that university learning and teaching models need to evolve. Over recent decades the percentage of the population attending university in Australia and other developed nations has been steadily increasing (Davis 2007). As such, universities are increasingly becoming institutions for mass education. While efficient from an institutional perspective, serious questions have been raised about the broader implications of this approach in a world where innovation is both necessary and inevitable (Mead in Christensen, Johnson & Horn 2008; McLendon 1963, pp 289-295). Many educational experts have suggested that the best educational outcomes for individuals arise from a more personalised approach (Christensen, Johnson & Horn 2008), this is at direct odds with the tendency for large classes requiring minimum resources at modern universities. A personalised learning approach would allow students to take control of their own learning and in doing so develop their ability to learn independently in a supported environment. Universities are currently very good at providing post-graduate research students this opportunity, but providing large numbers of undergraduates this learning experience seem unlikely given available resources. Nevertheless, we believe that Universities should aspire to offer the best possible learning environment for all students. The proposal we presented in this paper was our first attempt to investigate these possibilities. In this attempt we investigated strategies to allow small groups of students a higher level of independence in learning, and while not personalised to individuals, we have tried to allow learning to be personalised to the small groups. We are intending to continue this approach to investigate the limitations of this model. While our aims are to empower students to take control of their own learning, one problem we anticipate is that some students may be uncomfortable with this less structured approach. This is an issue that we wish to investigate further. We hope that as a result of this ongoing initial investigation we may be able to develop strategies for personalised learning for individual students, however, given the resource issues this will most likely involve some online elements of content presentation and teacher-student interaction. Our ultimate intention is to provide a framework for students to undertake personalised undergraduate degrees that are truly student centred, in that they begin with student interests and support students in expanding their knowledge into new areas of interest, but through individualised courses.

References


Christensen, CM, Johnson, CW & Horn, MB 2008, *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*, Mcgraw-Hill.


Phillips, R 2005, 'Challenging The Primacy Of Lectures: The Dissonance Between Theory And Practice In University Teaching', *Journal of University Teaching and Learning Practice*, vol. 2, no. 1