Reflections On Undergraduate Mathematics Teaching

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Contents

1 Introduction

The aim of this portfolio is to reflect upon the things that I have learned, both through experience and through reading, about how to become a better teacher. I can then put these ideas into practice to improve the quality of my teaching.

The portfolio consists of five sections. In Section 2 I discuss theories of how students learn and how I can adapt my teaching style to encourage my students to learn in appropriate ways. Section 3 relates this theory to the real world, by seeing how it applies to two different teachers whom I have observed. In Section 4 I discuss how I think I should go about designing an effective curriculum and assessing its objectives. In Section 5 I use the theory above, along with feedback from students and other teachers, to evaluate the quality of my own teaching and reflect upon ways in which I can improve. Finally, in Section 6 I tie together all of the previous sections to produce a coherent plan for how I should approach my teaching in the future.

2 Reflections on Learning and Teaching

In this section I begin by discussing existing theories on how students learn. After this, I examine how I can adapt my teaching style to encourage more desirable forms of learning, in the context of undergraduate mathematics teaching.

A leading theory on students' approaches to learning was developed by Marton and Säljö [5][6], and divides students' responses to a learning task into two types: the *surface approach* and the *deep approach*. I begin by describing these approaches and why they arise, then discuss how I can encourage students to choose an appropriate one.

Surface learning is learning that is inappropriate to the task at hand. A student adopting the surface approach attempts to complete a task with minimal effort, whilst still appearing to adhere to the requirements of the task. This commonly involves rote-learning facts instead of fully understanding a concept, then simply regurgitating those facts (sometimes quite articulately) when asked a question about that concept.

Deep learning is appropriate to the task. A student adopting the deep approach tackles a task using the most appropriate methods. In the words of Biggs [1], such an approach arises from a "need to know". A student feeling this need to know will automatically try to understand underlying concepts and how they relate to one another, and will use this understanding when asked to answer questions.

Clearly, I would like to encourage students to adopt a deep approach to their learning. But how should this be achieved in practice? In order to find out, I will examine more closely the factors that drive a student to adopt a deep or surface approach.

Biggs' [1] *3P model of teaching and learning* proposes that a student's approach to his learning is determined primarily by a number of *presage factors*. These presage factors can be divided into two broad subcategories: *student based* factors, such as the student's prior knowledge of the subject, ability and motivation; and *teaching context based*, which includes the course curriculum, assessment method, classroom atmosphere and teaching style.

The presage factors interact in a complex way to determine the student's approach to learning. For instance, a keen student with a strong interest in the subject seems predisposed to adopt a deep approach, but may be forced to adopt a surface one by outside factors, such as time pressures. Conversely, a cleverly designed assessment task may cause a student who has previously used a surface approach to feel the need to switch to a deep one.

It seems difficult for me to have much effect on the student based factors, although I can attempt to understand them better; this will be explored a little later in this section. The teaching context based factors, however, are much more under my control.

Biggs' [1] *principle of constructive alignment* suggests that the teaching context based factors work most effectively to encourage deep learning when they are *aligned*. This means that there should be consistency between what is desired from the students, how the course is taught and how the course is assessed. In order to obtain such consistency I first need to be clear in the design of my curriculum objectives, then I can choose my teaching and assessment methods to realise and then test those objectives. I will return to the topic of effective curriculum and assessment design in Section 4.

For the remainder of this section I will assume that a curriculum has been provided, and look at the teaching methods that I may employ to realise the objectives of that curriculum. In order to do this, for simplicity I will focus my attention specifically on undergraduate mathematics teaching, where I have most experience.

I begin by examining the different approaches to teaching found by a study of undergraduate science teachers [9]. In this study Trigwell, Prosser and Taylor were able to identify three main strategies employed by these teachers: *teacher focused*, *student/teacher interaction* and *student focused*.

A teacher focused strategy is one in which the teacher has little interaction with the students. He plans what will be said and done in classes carefully in advance and is averse to deviating from his pre-planned strategy. Trigwell, Prosser and Taylor note that teachers that employ a teacher focused strategy have many characteristics in common with a student's surface approach to learning, and hypothesise that teachers that adopt such an approach are more likely to have students who adopt a surface approach to learning.

A student/teacher interaction strategy is one in which the teacher believes that the student needs to be active in their learning, and so interacts with the students during classes. However, he remains in control of this interaction at all times. For instance, he may ask students to predict what they think the answer to a problem will be, then solve the problem as a demonstration to the students.

Finally, a student focused strategy is one in which the teacher believes that the student learns through what he does. As such, the teacher structures the classes so that students are encouraged to learn for themselves. Sheppard and Gilbert [8] show that teachers who teach using a student focused approach were more likely to have students that adopted a deep approach to learning.

Trigwell, Prosser and Taylor find a relationship between the strategy a teacher employs and his intentions (which, if his course is aligned, are governed by his curriculum objectives). However, I feel that there should be another important factor in this relationship, namely the *teaching environment*. For example, in undergraduate mathematics teaching, possible teaching environments can be divided into two categories: large environments such as lectures, which frequently contain several hundred students, and small environments such as tutorials and support classes, which usually contain fewer than twenty students. I will examine each environment in turn, to see how I can approach my classes in a way that encourages deep learning.

In a small environment it should be relatively easy for me to adopt a student focused approach. I can learn the names of all of the students in the class, and am in a position to cater to their individual needs. Group discussion is easily orchestrated and students can be asked to present ideas to the group. I can keep a constant check on the students' understanding of the material and take extra time to clear up troublesome points. All of these things taken together should create a good environment for deep learning. I will explore this type of teaching environment more in Section 3, where I compare the approaches of two tutors in small class settings.

Unfortunately, due to staff and budget constraints universities are rarely in a position to deliver all undergraduate teaching in a small group setting, and have instead to rely upon large environments like lectures. However, such a setting makes it significantly harder to adopt a student focused approach. I believe that encouraging students to take their own notes helps, as do audience participation techniques such as polls, but the learning dynamic is still very much controlled by the teacher; it is at best a student/teacher interaction strategy. In this situation, it seems as if the best I could do is to try to make the lectures as engaging as possible for the students, to make it more likely that they will focus on and follow the material presented. My lectures could then be backed up with small group support classes and carefully designed assessment tasks to facilitate deep learning of the lectured material.

But how does one make a lecture "engaging"? McColm [7] suggests first and foremost that one's lectures should provide a "navigable path" to the results that one wishes to present. This makes sense to me, because students who are confused are more likely to lose focus. Achieving this comes down to planning: I should be clear (and not too ambitious) about where I want to go with the course, and plan my teaching accordingly.

In order to go further, I need to understand what motivates students to learn; this is one of the student based factors mentioned earlier. Students are motivated by a diverse range of desires, the most common of which are identified by Jenkins et al. [4]. These desires seem to fall into two broad categories: the desire to succeed in assessments (possibly to enhance employability, compete with peers or impress others) and the desire to acquire knowledge.

I believe that students motivated by a desire to succeed at assessment would benefit most from a well-designed curriculum and assessment regime. I will explore how I can achieve this in Section 4, so will not discuss it further here.

Consider instead a student motivated by a desire to acquire knowledge. Wells [10] suggests that such students are motivated by teachers who try to place their course inside a wider framework. This helps the student to understand why the material covered is interesting or important, and helps them to see its place inside the bigger picture of their studies. I will try to achieve this by taking opportunities to tie the material to other classes the student may be studying and to present applications of the methods studied. Furthermore, Jenkins et al. [4] suggest that these students gather a good deal of motivation from seeing how the material they are studying relates to current research. In other words, such students are much more motivated to learn if they believe the material they are studying to be "useful beyond the demands of assessment" or "valid and applicable outside of the immediate learning context". Whilst I don't think it would necessarily be practical to do this for first or second year mathematics undergraduates, I will try to relate results in third and fourth year classes to open or recently solved problems.

3 A Comparison of Teaching Styles

In this section I continue my study of teaching styles by observing two different tutors teaching in a small class setting. The classes consisted of small groups of third and fourth year undergraduate mathematics students and were designed to supplement certain lecture courses that the students were taking.

I begin by describing the structure of the courses. In each course, the students attended a regular series of lectures in a large group. Aside from the lectures, the students also had the option to attend a number of small support classes, organised by a class tutor and a teaching assistant (myself in this case). During the lectures the lecturer provided examples sheets, which the students could complete and hand to the class teaching assistant. The class teaching assistant was then responsible for marking the work and providing feedback to the students and the class tutor. Finally, a small class would be held where the class tutor would discuss the examples sheet, along with any other questions that the students had about the course. It is these small classes, and the teaching styles of their associated tutors, that we will compare in this section.

Tutor A adopted a very teacher focused strategy. Before each class he would meet with the class teaching assistant to discuss the performance of the students on the examples sheet, then he would rank the questions on the sheet based upon how well the students performed at answering them. During the class he would solve the questions on the board, beginning with the worst answered and proceeding towards the best. In each class a student would be selected to answer a question at the board, but the student was always selected in advance and known to have a complete and correct solution to the question. Students were encourged to ask questions if there was anything that they misunderstood, but few ever did. The atmosphere in the classes felt like just another lecture, with students carefully copying in silence the things that the tutor wrote up on the board.

In contrast, Tutor B adopted a much more student focused strategy. His classes were still based upon the examples sheets, but the atmosphere was very different. The tutor frequently asked students to fill in parts of arguments on the board, and the rest of the audience was encouraged to help them out when they were doing this. This contributed to a relaxed feel to the classes that meant students felt happy to interrupt to ask questions about things that they didn't understand. These questions would frequently lead to digressions on the part of the tutor, in which he would explain parts of the lectures in more detail or relate topics covered to other areas of mathematics.

It is clear to me from these descriptions that Tutor B made a better teacher, and was more likely to engender deep learning in his students. What is possibly most interesting, though, is the reaction of the students to these two styles. In the post-course questionnaires, 60% of students strongly agreed with the statement "Tutor B made the subject understandable", compared with 25% for Tutor A. Furthermore, 100% of students agreed or strongly agreed that "Tutor B's classes were worthwhile", compared to just 75% for Tutor A. Here the students' perceptions seem to agree with the theory, and Tutor B's more student focused approach made the students feel that his classes were more understandable and worthwhile.

In addition to this, 80% of students strongly agreed that "Tutor B was approachable" and 60% strongly agreed that he "allowed sufficient time for individual queries", compared with 38% and 25% respectively for Tutor A. This seems to suggest that students find a teacher with a student focused approach more accessible and easier to ask questions of.

Finally, and possibly most tellingly, out of eleven students who attended the first of Tutor A's classes, only six turned up to the final one. Compare this to four out of five for Tutor B, a fact made doubly impressive by the fact that Tutor B's classes were held at the unsociable hour of 5-6pm! This strongly reinforces the idea that the students found Tutor B's classes much more worthwhile, as they were willing to give up more time to attend.

These observations seem to support the theoretical idea that teachers adopting a student focused approach are more likely to give classes that students believe to be worth attending, so the students are more likely to engage in deep learning once they are there.

4 A Commentary on Curriculum Design and Assessment

In this section I discuss what I think is an effective way to design a course curriculum, then talk about ways in which the objectives of such a curriculum could be assessed. Finally, I discuss what I feel is one of the most constructive ways to give feedback on this assessment to students.

I begin by discussing the theory behind writing an effective curriculum. As I mentioned in Section 2, effective curriculum design is important because of the principle of constructive alignment. In brief, I should be clear from the start about what I expect from the students, then structure my teaching and assessment around this. I feel that the best way to achieve this is through good curriculum design.

I agree with Biggs [2] that the secret to good curriculum design is not just to specify what one wants the students to understand by the end of the course, but how well one wants them to understand it. This can be achieved using the SOLO taxonomy, which subdivides student understanding into five levels (prestructural, unistructural, multistructural, relational and extended abstract). In practice this means that, when planning a curriculum, I should first think about what my objectives are when teaching a certain topic, then use this to decide upon the level of understanding that I wish the students to acquire.

For example, in an undergraduate course on real analysis, one of my objectives could be "students should be able to recall the definition of convergence of a sequence". After all, this is a very important definition which every mathematics undergraduate should know! However, this objective only requires the student to have a very low level of understanding (unistructural on the SOLO taxonomy). In contrast, in the same course another of my objectives could be "apply the definition of convergence of a sequence to prove that an unseen sequence converges". This requires a much higher level of understanding (relational on the SOLO taxonomy); the student needs to be able to understand how to apply what he has learned in an unknown setting.

In this example I was careful to use verbs (recall, apply) to describe my objectives. I agree with Biggs [2] that this is an excellent way for me to decide upon the level of understanding that I want my students to acquire: I begin by describing my curriculum objectives using verbs, then use a hierarchy of verbs such as that displayed in [2, Figure 3.2] to convert these verbs to levels of understanding on the SOLO taxonomy.

Once I have a clearly defined curriculum, I wish to set up methods of assessment that will effectively test whether students have achieved the level of understanding required by the curriculum. In order to talk about this in more detail, I return my attention to undergraduate mathematics teaching.

I think that effective assessment in mathematics is unusually tricky, as the nature of the subject makes it difficult to distinguish between students who have rote-learned solutions to problems (a surface approach) from those who have understood the underlying concepts in a deep manner. This difficulty arises because almost any problem that one poses in a mathematics examination necessarily has a "correct" answer (as opposed to say, a History examination, in which there is no "correct" answer to an essay question). This means that it is hard to be sure that a student submitting a correct solution has not simply encountered a similar problem in a textbook the week before and rote-learned the answer.

I believe that the most effective solution to this problem is to move to continental-style oral examinations, in which a student's understanding of a topic can be explored in a one-on-one setting. However, this sort of decision usually rests with the policy-makers further up in a given university, so I will instead concentrate on how to do the best within the framework with which I have to work.

Bressoud [3] proposes a good alternative, suggesting a move away from the traditional "two midterm exams and a final" structure followed in most university mathematics courses. Instead, he recommends that one should base at least part of the final grade on assignments and projects that require students to demonstrate appropriate levels of understanding. These should be spaced throughout the course, giving the double benefit of ensuring that students learn as they go along (rather than just spending a couple of days cramming for a final exam, then forgetting the material just as quickly) and giving the students regular feedback on their progress within the course. Furthermore, he puts forward the controversial idea (that I wholeheartedly agree with) that students should be encouraged to work together and discuss these projects with their peers. After all, this is how mathematics is done "in the real world". It is this idea that I will take as my model for assessment in the future.

The final component of effective assessment is giving constructive feedback to the students. However, there are many ways to achieve such feedback. I believe that one of the best is the tutorial/support class structure available to undergraduates at Oxford. Within this framework the students can be easily kept informed of their progress, and this progress can be continually monitored by the course teachers. Furthermore, such classes provide a forum for discussing the assessment itself, so that students can question why they received the grades that they did and, through doing so, learn what they can do better in the future.

Finally, Bressoud [3] makes the important point that “students should never be surprised by what you expect of them”. I strongly agree: however I decide to structure a course, I will always try to ensure that the expectations of the curriculum and the assessment methods employed are clear to the students. This will be easier to achieve if my course is well-aligned.

5 Evaluation of Teaching

So far, most of this portfolio has concerned teaching theory and my view of its application to undergraduate mathematics teaching. In this section I begin to analyse my own teaching, looking for ways in which I can improve my practice in light of the discussion above.

A good place to start seems to be the feedback provided by the students and class tutors during my spell as a teaching assistant. The class tutors that I have worked with seemed very pleased with my teaching, saying that I “displayed a thorough understanding of problems”, “presented solutions coherently and concisely” and had “done a very good job”.

However, whilst it has got better with experience, student feedback on my teaching still leaves some room to improve. In the first class I was teaching assistant for at Oxford, only 63% of students agreed or strongly agreed that I “marked work thoroughly”, with 13% disagreeing outright. Furthermore, only 50% of students thought that I “made fair and constructive comments” and just 63% thought that I “was available to answer queries about the marking”. By the most recent (two) classes that I was teaching assistant for, this had improved so that 100% agreed or strongly agreed that I “marked work thoroughly”, 90% thought that I “made fair and constructive comments” and 73% thought that I “was able to answer queries about the marking”.

It seems clear from this that my marking style has improved greatly during my period as a teaching assistant, with most students now being satisfied that I mark work fairly and thoroughly. However, there is still room to improve my teaching. I need to be more open to discussion with students, both about their work and the course material in general. A good way to do this will be to hold more discussions in class, so that students feel relaxed and able to ask questions. Informal conversations with the students before and after the class also seem to help, as they allow the students to talk about the course outside of the formal setting of the classroom.

Following my spell as a teaching assistant, I worked as a tutor for two groups of second year students. In this case I did not receive any written feedback from the students, but verbal feedback was generally very positive. However, after learning more about teaching theory I feel that I could improve here as well.

The main problem that I have been able to identify is that my teaching style is currently quite teacher focused. Previously, my tutorials have tended to consist of me talking at the board about material that the students find difficult (as evidenced by their performance on assignments). Although I try to encourage students to ask questions about things that they find difficult or do not understand, student interaction is usually limited to questions that I ask of the students in tutorials.

In future, I should adopt a more student focused approach. I would like to have future tutorials work more as “discussions” than “lectures”, and will try to build an atmosphere that encourages this. In order to achieve this, I would like to encourage students to do much more of the “work” in tutorials, by interspersing more discussion and group work. For instance, I could ask the students to try to solve a problem as a group and step in to assist only if they become too stuck or sidetracked to continue.

Furthermore, rather than simply telling the students about important concepts, I feel it would be much more fruitful to discuss them as a group. This not only lets me know how well the students understand important concepts, but also helps the students to develop important intuition about how the concepts work and relate together. It should also provide a natural setting to tie concepts to other courses and areas of mathematics, which is important for student motivation (see Section 2).

Finally, I have only taught one course for which I was responsible for course design and setting assessment. In this case I was asked to teach a reading course to a single visiting undergraduate. I held regular tutorials, in which it was quite straightforward to gauge the student’s level of understanding from oral discussion and tailor the course design to suit her needs. I decided to assess the course through a series of assignments rather than a final exam, as this enabled me to keep better track of her progress. If I were to run such a course again I expect that I would use a similar method, as the student seemed to respond well and completed the course with a good understanding of the material, despite not having a strong pure mathematics background.

6 A Plan for Future Practice

In this section I will tie together all of the work of the previous sections to come up with a coherent plan for how I should approach my teaching in the future. I will split this plan into two parts, depending upon the size of the group of students being taught.

In a small group environment, such as a tutorial, I will aim to foster discussion between myself and the students about the material being taught. I will encourage students to talk about the material and solve problems as a group. This has a great number of advantages over a simple lecturing strategy. Firstly, it has been noted [3] that a group of students can often solve a problem as a group that would seem intractable to any one of them individually. Furthermore, personal experience suggests that talking with peers about mathematics is one of the best ways to facilitate deep learning, as there are few ways to test one's own understanding of a concept better than trying to explain that concept to others. As well as this, it creates a relaxed environment in the class, where students are less likely to feel afraid to ask questions about concepts that they do not understand. Finally, in such an environment it is easy for me as the teacher to observe how well the students understand the concepts in the course, and I can step in to clarify difficult issues or explain subtleties that the students may have missed.

In order to achieve this, I will attempt to structure my classes as follows. At the end of each class, students will be provided with a collection of problems that will be discussed in the next class. This will give the students time to think about and discuss the problems before the class, as difficult problems in mathematics can rarely be solved without spending some time thinking about them first. In the next class I will ask the students to discuss their ideas for how to solve the problems with myself and the rest of the group. One way to do this could be to appoint one of the students "chairperson" for each problem; that student would then be responsible for directing the discussion and collecting the ideas of the group into a coherent solution. In this situation I would work to guide the students with pointers or hints, and would step in to highlight important points or to place problems in a wider context.

My approach to teaching a large lecture course will necessarily be different. The structure of the course will play a very large role. If possible, I would prefer to support the lectures with a system of regular small group support classes, as I believe that such classes form the best environment for facilitating deep learning amongst students. Regardless of whether this is possible or not, I will provide times when students can come and ask me questions that they have about the course, or discuss concepts that they are finding difficult.

If possible, I will try to move assessment away from the "one final exam" method used by many courses. I believe that a series of assignments or mini-projects spread throughout the course provide a better way to assess student progress, and motivate students to learn continuously throughout the course rather than cramming on the day before the final exam. I also believe that students should be encouraged to discuss these assignments with their peers, although direct plagiarism should be strictly punished. Depending upon the nature of the subject being taught, such assignments should be worth anything from 20% to all of the student's final grade for the course, and their difficulty should be set accordingly.

Finally, when it comes to actually giving the lectures, I will try to find ways to to make the lectures engaging for the students. If possible I will try to explain difficult concepts using several different mathematical approaches, so that students can choose that which best suits their mode of thinking. I will also try to explain the intuitive ideas behind abstract concepts, as I have found that this both aids understanding and gives one a glimpse of the "bigger picture". Furthermore, I will try to relate my course to others that the students may be taking or, in the case of higher level courses, difficult or open research problems. This has been shown [4] to reduce demotivation in students, as they are better able to understand the purpose of the material in a wider mathematical framework.

A Teaching Experience

In this appendix I list my teaching experience. In chronological order:

First Year Supervisor, Warwick University, 2006-07 I was responsible for supervising a group of four first year undergraduate students. We met twice a week to discuss material from the courses that they were taking. I was also responsible for marking their assignments in these courses, and providing support and feedback based upon their performance.

Teaching Assistant, Oxford University, 2008-09 I was a teaching assistant for four courses between January 2008 and March 2009. Each class consisted of a group of 5 to 12 third or fourth year undergraduates. In this role I was responsible for marking the students' work and providing feedback during classes.

Number Theory Tutor, Oxford University, 2008 In this role I was responsible for preparing and delivering a reading course on number theory to a visiting second year undergraduate student. I had to select suitable reading, hold regular tutorials to provide support and feedback, and assess and grade the student at the end of the course.

Undergraduate Tutor, Hertford College, 2009 I gave weekly tutorials to two groups of 2-3 second year undergraduates. The tutorials were designed to support one of the lecture courses that the students were taking. I was responsible for marking the students' assignments, then discussing the course material and providing feedback on work during the tutorial sessions.

B Feedback Data

In this section I give the raw student and Class Tutor feedback data used in Section 3 and Section 5.

Selected student feedback on Tutor A's teaching:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No response
The class tutor made the subject understandable	25%	63%	0%	0%	0%	13%
The class tutor was approachable	38%	50%	0%	0%	0%	13%
The class tutor allowed sufficient time for individual queries	25%	25%	38%	0%	0%	13%
The class tutor's classes were worthwhile	50%	25%	13%	0%	0%	13%

Selected student feedback on Tutor B's teaching:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No response
The class tutor made the subject understandable	60%	40%	0%	0%	0%	0%
The class tutor was approachable	80%	20%	0%	0%	0%	0%
The class tutor allowed sufficient time for individual queries	60%	20%	20%	0%	0%	0%
The class tutor's classes were worthwhile	60%	40%	0%	0%	0%	0%

Class Tutor feedback on my job as a teaching assistant for Algebraic Number Theory, January-March 2008:

Marking Assessment:	The students seemed contented with the marks given and there were not many 'quibbles' at the end of tutorials.
Demonstrating Assessment:	Alan displayed thorough understanding of problems, and also presented his solutions coherently and concisely.
Additional Comments:	I would be happy to work with him again, or to see him in the future become a class tutor.

Student feedback on my job as a teaching assistant for Algebraic Number Theory, January-March 2008:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No response
The class teaching assistant marked work thoroughly	50%	13%	13%	13%	0%	13%
The class teaching assistant made fair and constructive comments	38%	13%	38%	0%	0%	13%
The class teaching assistant was available to answer queries about the marking	38%	25%	25%	0%	0%	13%

Class Tutor feedback on my job as a teaching assistant for Geometry Of Surfaces, October-December 2008:

Marking Assessment:	Excellent.
Demonstrating Assessment:	Excellent.
Additional Comments:	Alan has done a very good job as TA.

Student feedback on my job as a teaching assistant for Geometry Of Surfaces, October-December 2008:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No response
The class teaching assistant marked work thoroughly	50%	50%	0%	0%	0%	0%
The class teaching assistant made fair and constructive comments	50%	50%	0%	0%	0%	0%
The class teaching assistant was available to answer queries about the marking	25%	50%	25%	0%	0%	0%

Student feedback on my job as a teaching assistant for Algebraic Number Theory, January-March 2009:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No response
The class teaching assistant marked work thoroughly	33%	67%	0%	0%	0%	0%
The class teaching assistant made fair and constructive comments	33%	33%	33%	0%	0%	0%
The class teaching assistant was available to answer queries about the marking	33%	33%	33%	0%	0%	0%

Student feedback on my job as a teaching assistant for Algebraic Topology, January-March 2009:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No response
The class teaching assistant marked work thoroughly	60%	40%	0%	0%	0%	0%
The class teaching assistant made fair and constructive comments	40%	60%	0%	0%	0%	0%
The class teaching assistant was available to answer queries about the marking	60%	20%	20%	0%	0%	0%

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