

Peer support assisted through anchored discussion forums

Interim Report for IATL

Introduction

The transition to university is often challenging for first year undergraduate students. This is particularly pronounced in the mathematical sciences where the emphasis changes from the procedural approach to mathematics that is prevalent in A-levels and equivalent to the conceptual and problem solving focus of university level mathematics.

Mathematical discussion, the exploration of mathematical concepts and methods, asking questions and finding solutions are a vital ingredient of learning in undergraduate mathematics. However, in particular in the first year, it is not an uncommon experience to find that students hesitate to ask questions and take part in discussions. This may be because students feel concerned about appearing less competent and about asking 'stupid' questions. Also, a substantial proportion of undergraduate students in the department are from overseas and thus, aside from language barriers, are often less used to conversational models of teaching and learning.

The aims of this project are two-fold. Firstly, it explores the use of peer tutoring as a means to help students with the secondary-tertiary transition. We will use fourth year undergraduate students on our integrated Master's programmes to act as peer tutors. These students have a more immediate experience of having successfully managed the transition themselves. They also have less 'social distance' to the first year students and thus are regarded as peers. This hopefully will lead to first year students feeling more comfortable to turn to these tutors for information and advice. The peer tutors on the other hand gain a deeper understanding of the material that they teach as well as gaining experiences in taking leadership and in communication within the discipline.

Aside from traditional face-to-face small group teaching delivered by the peer tutors the project uses anchored online discussion groups implemented in Moodle to deliver peer support and engage in a conversational model of learning. Guzdial and Turns (2002) introduce the idea of anchors, that is "a document or topic in which students may be interested in discussing" to promote discussion on online discussion forums.

Progress

The project is being delivered according to the timescales set out in the project proposals. At the start of the academic year the peer tutors were given an initial training in providing tutorials, assessing student work and giving feedback. The peer tutors marked weekly work handed in by first year students. This would allow them to gain an overview of the students' current understanding and misconceptions and help them prepare for the upcoming tutorial. Dr Thonnes was available while the tutors were marking the work and provided support when needed.

The initial online discussion forums were provided via the ST116 Mathematical Techniques Moodle. Each tutorial group had their own discussion forum, but the anchors posted on each forum were the same. Using Vygotsky's concept of the zone of proximal development the topics of discussion were chosen such that they related to material from the A-level syllabus

but tied into the material delivered by ST116 Mathematical Techniques. The aim was for students to use the topics to

1. expand their current knowledge and understanding;
2. review concepts encountered in school and re-examine them in a more general framework;
3. develop a more conceptual understanding of methods encountered previously;
4. extend concepts to a more abstract level than encountered in school mathematics.

Some of the material used was developed and used with permission by the Cambridge Mathematics Education Programme (CMEP). CMEP, now re-branded as Underground Mathematics, developed resources to support and enhance A-level mathematics and enable students to “explore the connections that underpin mathematics”. The material posted on the discussion forums focussed on ideas related to functions which are important concepts covered in the first year syllabus of modules in our undergraduate curriculum including mathematical analysis, linear algebra and probability.

In the current spring term of 2015/16 we changed provision of peer tutoring by establishing a revision club. This is a less formal arrangement than the tutorials delivered by peer tutors in the autumn term of 2015. The peer tutors are available in one of the departmental work areas for two hours per fortnight and first year students can drop by to discuss lecture material from any of their core modules.

Financial Statement

The grant awarded by IATL is £865.92 which covers the teaching cost of 6 fourth year students who provided 8 tutorials each and monitored the online discussion forums during the autumn term of the academic year 2015/16.

Project Timeline

1. October 2015: implementation of discussion forums and training of peer tutors.
2. October 2015 – December 2015: Delivery of ST116 peer tutorials and discussion forums.
3. February 2015 - May 2016: ST104 online discussion forums.
4. June 2016: evaluation (questionnaire + exam results).

Activities 1 and 2 have already been delivered, 3 is ongoing and 4 is planned for term 3.

References

Guzdial, M., & Turns, J. (2000). Effective discussion through a computer-mediated anchored forum. *The journal of the learning sciences*, 9(4), 437-469.