Project Title: Argumentation Education (ArguEd)

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Names of any key staff associated with the project: Paul Piwek (Principal Investigator). The project was supported by John Woodthorpe (as chair and assessment lead of TU100), Crispin Boyd (the TU100 Curriculum Manager), and Phil Butcher and Callum Lester for the iCMA implementation in OpenMark.

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Executive summary

This project investigated the use of the argument mapping technique for helping Computing and Technology students with developing their argument analysis skills. The focus was on scaffolding of these skills through interactive computer-marked assessment. The approach was deployed in the Level 1 gateway module TU100 ('My digital life'). Both quantitative and qualitative feedback on the approach was analysed. The results were presented at the 2013 HEA STEM and IEEE EDUCON conferences.

Aims and scope of project

The main focus of this project was the development of a new kind of iCMA question for helping students develop their argument analysis skills. This tied in with Part 5 Block 5 of TU100, which introduced argument mapping in the context of discussions about freedom of speech on the internet. Evaluation of the approach was partly quantitative, comparing results for the iCMA with results for the subsequent TMA, and partly qualitative, through analysis of verbal feedback from students and tutors.

Activities

1. Specification and implementation of argument mapping iCMA and TMA content for TU100.
2. Analysis of data (student logs) and feedback from tutors for first two presentations TU100.
3. Interview with tutors on their experience with argumentation education in TU100.

Findings

A detailed report of the results of the work is documented in Piwek (2013). We found a correlation between on the one hand 1. whether students do the argument mapping iCMA question and 2. how well they do on it and on the other hand their score on the relevant TMA question. Of course, this does not imply a causal relation, though it does provide further evidence for the claim that engaging with iCMAs is an effective learning strategy for students. We also analysed feedback from students and tutors on the argument mapping materials and performed a detailed analysis of the types of mistake that the students made in their answers to the TMA question.

Impact

A novel type of iCMA question was implemented (using OpenMark) and deployed in TU100 (~2000 students per presentation) and is still in use.

As a result of the analysis of student mistakes in the TMA question on argument mapping, material for a tutorial session was developed for the TU100 day school. This is in use by tutors at the day school.

The work has been presented at local, national and international venues: the eSTEeM conference, Joint workshop of eSTEeM and MCT Scholarship of Teaching Sub Group, HEA STEM Conference and IEEE Educon. Simon Buckingham Shum at KMI blogged about the project at http://people.kmi.open.ac.uk/sbs/2012/03/openu-rolls-out-argument-mapping-in-its-vle/

List of deliverables

Piwek, Paul (2013). Supporting computing and technology distance learning students with developing argumentation skills. In: IEEE Global Engineering Education Conference (EDUCON 2013), 12-15 March 2013, Berlin, pp. 258-267. http://oro.open.ac.uk/36817/