Conference Booklet

eSTEeM
exploring the frontiers of STEM education

The 1st eSTEeM Annual Conference 2012

STEM Futures: From Plan to Practice

6th March 2012

www.open.ac.uk/esteem

eSTEeM
The Open University
Milton Keynes, UK

The Open University

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Steve Swithenby, Director eSTEeM (Science), The Open University
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Professor Hazel Rymer, Dean and Director of Studies, Faculty of Science, The Open University
Professor Anne De Roeck, Dean and Director of Studies, Faculty of Mathematics, Computing and Technology, The Open University
Lucian Hudson, Director of Communications, The Open University

The eSTEeM Project Leaders and project team members

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Programme

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17:00 – 17:45	**'Wine down'** Come and enjoy a glass of wine whilst networking with faculty colleagues and debate the key issues raised by the conference.		**Medlar and Juniper**
17:45	**Close**		

Welcome and Introduction

Welcome to the 1st eSTEeM Annual Conference!

eSTEeM is a joint initiative between the Faculties of Science and MCT (Mathematics, Computing and Technology) and we are bringing together STEM academics to promote future innovation, scholarship and enterprise in open and distance learning. The emphasis of this conference will be to showcase the current work of eSTEeM and related areas whilst stimulating active participation, reflection, discussion and debate on wider issues relating to the future of STEM scholarship within the rapidly evolving higher education landscape.

Much of our work centres on the effective use of learning technologies at scale aimed at improving the student experience - our portfolio of projects includes work on e-assessment and feedback; mobile learning; teaching practical science and engineering online, the use of virtual learning environments and international STEM distance learning. We welcome partnerships and are already working with universities and other agencies both within and outside the UK to help develop a distinctive and influential STEM agenda.

We welcome you to our first conference and hope you have an informative, stimulating and enjoyable day.

Steve Swithenby and Keith Williams, eSTEeM Co-Directors

Keynote Speaker

Lucian Hudson

Director of Communications, The Open University

Lucian J. Hudson is Director of Communications, The Open University. He is responsible for all of The Open University's communications, overseeing 8 teams covering Vice-Chancellor's communications, alumni relations, digital engagement, government and external affairs, media relations, student, staff and stakeholder communications, communications support and production.

Lucian was Partner and Managing Director, Cornerstone Global Associates. For 10 years Lucian was a senior civil servant for the UK Government, its first Director of e-Communications, and Director of Communications in three departments, Foreign and Commonwealth Office, Department for Environment, Food and Rural Affairs and what is now the Ministry of Justice.

For 17 years, Lucian was a television journalist, and was producer, editor and head of programming at the BBC. He is author of an international report published by the FCO, "The Enabling State: Collaborating for Success", a ground-breaking study on what makes for effective collaboration between government, business and civil society. Lucian is an accredited CEDR mediator.

Google+ profile:
https://plus.google.com/102026461147867165212/posts

lucian.hudson@open.ac.uk

Conference information

Parking and transport

There is a map of the campus with the eSTEeM conference venue marked on the back cover of this booklet. We recommend using the South West, Church or East Parking overspill car parks. Any vehicle clearly parked in an unauthorized location will be issued with a parking charge notice by campus security.

Walton Hall

Registration

Registration will be in the Bay Reception in The Hub between 8:45-9:15 on the 6th March.

Sessions and recordings

There is no need to pre-register for any of the sessions. The Keynote presentations will be recorded and made available as replays soon after the conference. The video footage may be made available to the public via the internet. Audience members are participants in this process. If you have any concerns please speak to a member of the eSTEeM conference team.

Posters

There will be a poster presentation and display session during lunch between 12:45 – 13:45 in the Hub Lecture Theatre. Posters will continue to be displayed throughout the conference.

Session etiquette and electronic equipment

We ask that all delegates use any personal electronic equipment with respect for session presenters and fellow delegates; we suggest turning off mobile phones, and using electronic equipment in silent mode.

REFRESHMENTS

Conference refreshments

Conference registration includes tea and coffee on arrival and throughout the day, as well as lunch, afternoon tea and a 'wine down' reception.

Drinks reception

A drinks reception hosted by eSTEeM will take place after the Conference between 17.00-17:45 in the Medlar/Juniper suite.

General information

Helpdesk

A helpdesk will be manned in the Bay Reception at the same location as the Registration desk. Throughout the day, eSTEeM conference staff will be glad to help you with any queries you may have.

Security

For security purposes, please ensure you wear your conference badge while on campus. If you have any emergency security issues please ring ext 53666 for the security lodge, or contact a member of eSTEeM conference staff. Please do not leave personal items unattended. The University will not accept liability for loss or damage to personal items or equipment.

Disabled access and elevators

All venues at the Open University have disabled access. Please see a member of eSTEeM conference staff if you require assistance.

Please contact us immediately if you have any mobility requirements of which you have not made us aware.

No Smoking Policy

The Open University operates a non-smoking policy. We ask you to respect this policy whilst on campus. All premises are designated smoke-free. Smoking is not allowed in any part of any building, including bars and eating areas. Smoking is not permitted in or at entrances to buildings. Smoking while on site is only allowed outdoors in designated areas.

Other queries

eSTEeM conference staff will be glad to help you with any other queries you may have.

Feedback

We welcome your feedback. If you have any issues or concerns, please contact one of the eSTEeM conference staff.

eSTEeM Conference Team

ABSTRACTS

Parallel Session A – Short Oral Presentations

Making More of Structured Documents - From Custom Search Engines to Custom Navigation

Tony Hirst

Faculty of Mathematics, Computing and Technology

The current OU workflow results in the production of structured XML documents that can be used to generate several different "output" document formats, from HTML documents for use in the VLE to eBooks and PDFs. But XML documents can also be viewed as a database within which different asset types can be reliably identified.

In this presentation, I will review how OU-XML documents as used in course production and OpenLearn workflows can be mined in order to create course specific search engines (as well as reflecting on why these might NOT be such a good idea after all) and annotatable mindmap styled overviews of module units.

Evaluation of an assessed online collaborative activity designed to help students understand a threshold concept in evolution theory

Janet Haresnape

Faculty of Science

This work seeks to explore aspects which contributed to the success of a collaborative online assessed activity introduced on S366 in 2011. This activity took place on a wiki, and was designed to help students of evolution understand the concepts of genetic drift and the founder effect, which are two closely related threshold concepts in evolution theory. In the activity students were presented with photographs of founder populations (coloured beads representing a diverse population of flying insects) and each student took ownership of one of these, counted the different morphs present and entered their results on the wiki. They then compared their population with those of other students and the parent population in both qualitative and quantitative terms. This initial relatively simple task was followed by a more challenging task, aimed at more able students, which offered guidance through the somewhat challenging calculation of genetic differentiation, and hence offered a scaffolding teaching strategy, and the possibility of personalised learning.

The activity was scheduled in the S366 study calendar to be undertaken in June 2011, and reporting and discussion of the group's results formed part of TMA03, due on 14th July. Student engagement with the activity was analysed from the wiki history, and their perceptions of their learning through this engagement was investigated using structured telephone conversations with ten students in the researcher's own tutor group. These interviews explored students' understanding before and after participating in the activity, in particular, to what extent the activity had helped their understanding of the threshold concepts of founder effect and genetic drift and how they relate to each other. In addition, the conversations explored what aspects of the activity most enhanced student learning, in both the initial simple task and the more challenging calculation task. The interviews were recorded.

In the presentation, participants will be invited to engage with the first part of the activity the students undertook in order to get a feel for what was involved, and will then be shown short extracts from the student interview transcripts. The aim will be to summarise what made the activity successful, and to discuss how a similar approach might be applicable in other topic areas.

Enhancing employability in STEM: Long term outcomes from the T160 Return to SET module

Clem Herman[1], Katie Chicot[1] and Liz Whitelegg[2]

Faculty of Mathematics, Computing and Technology[1]; Faculty of Science[2]

The Career Development for STEM professionals project aimed to evaluate the long term outcomes in terms of employability and career progression for women returners who participated on the T160 Return to SET short course, with a view to creating a sustainable model which meets the needs of students and professionals who are seeking to build and develop careers in STEM. Questionnaires and interviews were carried out with students who attended the first presentations of the course in 2005/6 and analysed using an employability matrix that identified internal, personal and external influences on career outcomes. This presentation will outline results from the data collected and offer suggestions for sustainable models for continuing support for this target group. This will include a demonstration of an animated 'racecourse' developed by the project team that enables learning materials from the module to be explored in a fun and interactive way without the formal structure of a 10 week course. The project team have been in discussion with CIC and the Careers Service about possible ways to use this to support university strategic plans for employability and help meet targets for student engagement with employability issues.

Towards a Generic Model for Assessing Alternative Media: The Tutor's Perspective

Soraya Kouadri Mostéfaoui and Judith Williams

Faculty of Mathematics, Computing and Technology

Within the proliferation of new media technologies, there is an unprecedented number of emerging applications facilitating the production and sharing of audio and videos over the Web. The wide selection of tools available opens up new opportunities for assessing students through media production rather than text-only documents. This is, exciting and innovative for both students' and educators, but assessing alternative media presents new challenges.

In T215 'Communication and Information Technologies', the Module Team took advantages of the opportunities offered by the multimedia creation tools by asking students to create a video as part of the final TMA. They also developed a flexible assessment model (for assessing both text and media elements) which is applied on each of the five TMAs. This model is built around a set of six criteria, and has been tested in two different cohorts (11-B and 12-B presentations) of approximately 500 students each.

Our eSTEeM project aims to investigate the feasibility of using the T215 assessment model across a range of 'alternative media' elements and a range of tasks in different contexts. As a first step towards this goal, we have conducted an online survey over the first cohort of

tutors. The survey sought to establish the impact of the assessment model on the tutors' experiences. The initial results are encouraging: 12 out of 18 respondents found the model easy to use and 16 would be happy to use a similar model -with minor modifications- in different contexts. 17 said it covered or almost covered all the required elements for TMAs 01-04, and 13 said it covered, or almost covered, all the required elements for TMA05 (video production). For TMA05, 4 respondents suggested that the model should provide some provision for the assessment of creativity and imagination and the assessment of the final video as a whole, as highlighted by the following comments:

"I think that there should be room for recognising 'creativity' and 'imagination'. The marking scheme is too clinical and doesn't measure the overall quality of the product" [Tutor 1]

"I think that there should be some marks allocated to how good or bad the actual video is as a whole. A video may actually fulfil all of criteria 1 but sometimes it lacks continuity and correspondence with the voice commentary. So a criteria to say whether the whole video is brilliant, pretty average or bad would be useful". [Tutor 2].

Because the first criteria of the model asks 'Does [the answer] meet the brief?' issues like this can be addressed by modifying the answer requirements brief rather than the assessment model, and we believe this is one of the strengths of the model.

Parallel Session B – Short Oral Presentations

Consistency v autonomy: effective feedback to a very large cohort

Frances Chetwynd and Chris Dobbyn

Faculty of Mathematics, Computing and Technology

In this presentation, we report on an ongoing project to change the culture of tutor feedback on assignments, at the Open University (OU), based on a new Level 1 Computing and IT module.

The OU course *My digital life* (TU100) is an innovative new module providing a pathway into degrees in Computing or Information Technology. Among other innovations, it features a specially-designed computing language, *Sense* (based on MIT's *Scratch*) which enables students to control external sensors and actuators. Currently, 4000+ students are enrolled, and assignment feedback is provided by over 200 tutors in tutor-groups of 20+.

In a Level 1 course, effective feedback is essential for students' retention and progression. With some exceptions, there exists a culture of feedback within the OU that is heavily biased towards consistency across multiple markers, with highly prescriptive marking schemes geared to the allocation of marks, at the expense of tutors' freedom to provide focussed and constructive feedback. In addition assignment questions have been heavily content biased with skills assessment being placed in the background, from a student perspective.

Our project is an experiment in moving towards a culture that foregrounds feedback and the development of core skills, and promotes tutor autonomy. It has three components: firstly, a new style of assessment material, intended to test and develop students' core skills, both in the discipline and as self-directed, reflective learners; secondly a complete rethink of the assessment guides tutors work from, to promote future-altering feedback.

The third component comprises a sequence of interviews with a group of tutors, randomly selected but representing the full range of experience and background, to elicit their experiences with the intended culture shift. Interview transcripts are subjected to discourse analysis and the results are expected to enable us to refine the assessment and feedback system in future presentations.
Participants in this session will learn about the innovative methods being employed to tackle assessment and feedback on a high population Computing and IT module that uses multiple software applications and a hardware kit. They will hear about the views of tutors on the required shift in their thinking and practice in delivering tutor feedback according to new tutor guidance.

Can a computer-marked exam improve retention?

Jon Rosewell

Faculty of Mathematics, Computing and Technology

Many OU courses suffer from poor retention. Folk wisdom is that exams and the end-of-module assessment represent a significant hurdle to students, who appear to be deterred by perceived difficulty and do not submit. On the other hand, computer-marked assignments (CMAs), particularly delivered as interactive quizzes (iCMAs), are typically attempted by most students.

Can retention therefore be improved by offering part of the end of module assessment in the form of an iCMA?

The specific context to be explored is T184 *Robotics and the meaning of life*, a 10 point 10 week course originally designed with a mid-course iCMA and a final written end of module assignment (EMA). For the last two presentations of this module, the final assessment took the form of a computer-marked exam (CME, presented as a further iCMA) and a reduced script-marked EMA. The CME corresponded to the short-answer questions of previous EMAs); the reduced EMA retained the programming and essay questions that required human marking. Students were given detailed feedback on their iCMA immediately after cut-off, rather than more typical anodyne performance profile provided some months after the end of most OU modules.

The hypothesis to be tested is that this change would result in improved engagement and confidence, feeding through to improved retention and progression measures.

Measures to be looked at:

- standard OU measures of submission, retention and progression (for comparison with pre-intervention presentations);
- patterns of submission;
- structured interviews with a sample of students.

Comparisons can be made with other companion courses in the Relevant Knowledge programme whose assessment strategy has not changed.

The Wolfson OpenScience Laboratory – principles, plans, and progress

Steve Swithenby

Faculty of Science

eSTEeM has been awarded £1M by the Wolfson Foundation to develop an online laboratory/observatory that will be used by students in the OU and elsewhere. Through the Wolfson Laboratory, students will access remote physical labs, virtual labs and instruments, interactive screen experiments, immersive field trips and citizen science studies. In this brief presentation, I will outline the long term thinking behind this initiative and describe the progress made so far.

Putting a face to a name: students' use of profiles in Moodle VLE forums

Helen Jefferis, Frances Chetwynd & Karen Kear

Faculty of Mathematics, Computing and Technology

An important aspect of social networking is the user's profile: an area where the users can share information about themselves, and add photographs or other media elements (Boyd & Ellison, 2008). The profile forms a central role in public social networking environments such as Facebook and LinkedIn. In an online community, the profile enables participants to demonstrate their interests and personality, and to learn about each other (Ellison et al., 2007).

Within the OU, staff who moderate *Moodle* VLE forums have noticed an apparent increase in students' use of profiles and profile photos/images, as compared with the level of use in the predecessor online environment *FirstClass*. Research is needed to investigate the levels of use, and the extent to which profiles and images contribute to online community, online presence and online identity.

The project reported here takes place within the new OU module *My Digital Life* (TU100). Using two of the tutor groups, the project investigates students' use of profiles in the module forums. For example:

- Do students enter information into their profile?
- If so, what kind of information do they include?
- Do they add a photograph or other image?
- Do they look at other students' profiles?

Using a combination of quantitative and qualitative data, the first phase of the research addressed these questions, together with the issue of why students use, or do not use, the profile facility. This first data gathering phase took place a few months after the start of the module, by capturing students' profiles, and inviting students to complete an online survey. The data and findings from the survey indicate that some students (though not all) use profiles, and particularly profile photos, to increase the sense of sociability and social presence (Short et al., 1976) in the forums, enabling people to 'put a face to the name'.

References:

Boyd, d. m. and Ellison, N. B. (2008) 'Social network sites: definition, history and scholarship' *Journal of Computer-Mediated Communication* 13(1) pp. 210-230.

Ellison, N. B., Steinfield, C., and Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4) pp. 1143-1168.
Short, J., Williams, E. and Christie, B. (1976) *The social psychology of telecommunications,* John Wiley and Sons, London.

Parallel Session C – Structured Discussions / Briefings

Let's make stuff cheaper, better, faster! Lessons from the Creative Climate project's experiences of commissioning and sharing learning content

Joe Smith and Susan Fawssett

Faculty of Social Sciences

In our presentation we will quickly sketch the project as a whole, show some examples of the commissioned learning materials and the teaching they can deliver. We will also have a live demonstration of the internal learning resource sharing website (using the VLE) we have developed.

We want to use the opportunity presented by the eSTEeM conference to reflect on where next for the project, and to consider which aspects of our efforts to encourage sharing across a programme / thematic area are of wider significance for the OU (we think there are plenty). Initially commissioned in light of the OU's Broadcast Strategy (2009),it is even more relevant in the context of Securing the Mission. The project has been about environmental resources, but we want this workshop to consider Creative Climate as a pioneering case study of an approach that could be replicated across the curriculum. We hope to inspire participants with some positive stories about what can be achieved to improve outreach, quality and bring down costs in the production of learning materials. But we also want to test some ideas and learn from a diverse mix of colleagues.

In the pilot phase 2010-2011 we worked to make cost effective and innovative broadcast and learning assets. In addition to serving the OU's outreach and broadcast missions, these assets are being used across the OU's environment and development modules. They include:

Diaries: We have gathered 200 audio or video 'diaries' from around the world showcasing diverse perspectives on environmental change issues. They demonstrate how the costs of AV commissioning can be dramatically reduced. We want to test the diary concept further using the diaries as case studies 'with a human face' that can support teaching across the environment offering.

BBC World Environment Films: 6 x 30 min films giving first-hand accounts of the determined and imaginative approaches people are taking to understanding and acting on environmental issues across Africa, Asia, the Polar regions and the oceans. Themes include:

- ocean science;
- planning;
- polar science;
- dams for power;
- soil restoration
- public health.

The films are available on the Creative Climate site and all five programmes will be used in full within OU courses. Over 70 million viewed these films on their first screening on BBC World. The sheer scale of the viewing figures, the global reach and the scale of use in teaching are all unprecedented for the OU.

BBC World Service Radio commissions: 9 x 30 min programmes entitled The Climate Connection, including five on culture; leadership; consumption and behavioural economics, plus a debate on 'what's stopping us' held at the OU that would all make good teaching content. All of this content is available on the BBC WS website.

BBC Archive 50/50: 50 hours from 50 years of BBC environmental content, archived and available for use by module teams in production and presentation

OU/BBC Creative Climate Short Film Competition 2011: Films of the 10 finalists are available, 5 of them directly from the Creative Climate site.

In 2012 we will continue to develop the internal learning resource sharing website (using the VLE), in particular challenging ourselves to produce interactive environment quizzes for teaching, and look for new opportunities to grow the diversity of diaries on the Creative Climate website.

We are very proud of what has been achieved to date. We believe our model for providing diverse AV materials to module teams cheaply and quickly has lessons for the whole OU. Also, the development of a VLE website provides an easily accessible platform to showcase these materials, as well as a forum to provide news and encourage dialogue among the environment teaching community. We want to share some of what we've learnt along the way.

Parallel Session D – Structured Discussions / Briefings

Interactive and accessible line charts

Michel Wermelinger[1], Paul Piwek[1] and Callum Lester[2]

Faculty of Mathematics, Computing and Technology[1]; Learning and Teaching Solutions[2]

The iChart eSTEeM project aims to develop a tool to create and use charts in a more interactive and accessible way, to facilitate the engagement of students and their understanding of numeric data that is presented graphically. In this session we will present the features we are considering for the tool to display line charts, based on the Dataplotter tool used in MU123. The second and longest part of the session will be dedicated to discussion with attendants to solicit their feedback on the proposed features, and their suggestions for improvements, and potential pedagogic activities based on such line charts. The intended outcome of this session is a full specification of the tool to implement.

Parallel Session E – Structured Discussions / Briefings

The integration of knowledge based learning with professional body CPD and employer appraisal in STEM professions

Kay Bromley

Faculty of Mathematics, Computing and Technology

The IT Professional Development programme is a 60 credit Postgraduate certificate for the B2B market, assessed by portfolio, developed in collaboration with e-skills in direct response to employer needs. Its learning outcomes are related to the SFIA framework.

The module contains six units, each with a formative tutor marked assignement. The summative assessment is an end of module portfolio which requires refletion on achievement with supporting evidence. The articulation of achievement is important in demonstrating to the student and their sponsoring employers the benefit of continuing education at postgraduate level in their working life. The first portfolios to be submitted show that students are only then beginning to see how the study on the module has enabled them to make more impact in the work environment.

This esteem project is looking at how to encourage and facilitate the application of academic learning within the workplace. Research is at an early stage and will include

1. Review of tutor experience of supporting/motivating students
2. Survey of students and summary of student articulated application of learning to professional context in submitted portfolios
3. Identify trends, if present, in student engagement.
4. Development of recommendations and dissemination of findings

Many other subject areas already address the development of competencies through study and practical experience. For graduate students, in demanding employment, how do we motivate their engagement with the academic material and support the articulation of learning for the purposes of assessment? How do we continue to do this when the employing sponsor presents conflicting priorities to the student?

This structured discussion presents some of the issues identified for the students on this programme and the impact on teaching and assessment. I welcome contributions to the discussion from others who have experience or interest in similar and related areas.

Parallel Session F – Structured Discussions / Briefings

A generic model for researcher-centered investigation modules

David Robinson

Faculty of Science

Academic staff in other universities generally offer a short course, often linked to practical work, to students in their final year. Such a course links a member of staff with a small group of students interested in their own research area. The course can often be presented using the most up-to-date research findings as the staff member is teaching in their research area. Despite the specialised nature of the subject area such courses teach generic skills. In the Open University, such direct links with staff engaged in research rarely – if ever – occur.

Against the background of declining practical work in a laboratory and increasing availability of technology, it is timely to look at new models of distance learning linked to practical work. The presentation in this session describes a possible model that would enable individual researchers to offer a 10 week, personally led, module as part of an honours level programme in an on-line distance learning curriculum. The researcher would take responsibility for presenting the module and assessing it, using a standard module design.

Participants in this session are invited to come prepared to pitch an idea for a module that they would like to offer, in the discussion session. There will be an opportunity to contribute ideas to the development of the generic model.

Parallel Session G – Workshops/Demonstrations

The use of peer assessment/review in distance teaching via the Moodle VLE

Peter Taylor

Faculty of Science

At present there is very little use of peer assessment/review across the Open University, despite widespread use across the sector. We have very little institutional knowledge of;

- the advantages and disadvantages of peer assessment/review;
- how it can be applied to distance learning
- automated systems for delivery

We are carrying out a series of pilot studies on a number of courses across the University, but mainly in Science and MCT, on the use and advantages of peer assessment/review in distance learning. So far we have;

- Carried out a literature review of peer review/assessment and in particular it's applications to distance teaching.
- Carried out a review of online peer review/assessment tools used in other universities
- Carried out four pilot studies run by ALs with relatively small numbers of students. Modules include, S104, ED209, T320 and A850
- Contacted LTS regarding the release of the workshop application for Moodle 2.0. They hope to have it available for Easter
- Briefly analysed the results of the pilot studies to identify the questions to be asked in a more focussed set of pilot studies using the Moodle workshop application later in the year.

This workshop will provide an opportunity for us to share our findings and discuss the direction the project should take based on the needs of Module teams – both technical support and pedagogical support. From this we hope to develop guidance documents to help module teams implement peer assessment/review.

Parallel Session H – Workshops / Demonstrations

Hybrid learning technologies: emerging models of networked learning?

Steve Walker

Faculty of Mathematics, Computing and Technology

Objective
To consider examples of networked 'hybrid' digital and physical resources to support distance learning.

Background
The IBZL eSTEeM project has begun to explore some of the potential opportunities afforded to educators and learners by technologies which may be on the brink of becoming commonplace. IBZL was premised on the widespread availability of 'superfast networks', as currently planned by the UK government and, using the 'Imagine' workshop methodology encouraged participants to develop ideas for how they might be used to support innovative applications. Many of these ideas proposed other contemporary technological developments such as 3D-printing, smart tags and the 'internet of things', linked together by 'next generation' networks. One strand of thought considered the potential of networking such hybrid applications for learning, and identified some initial examples within the OU.

Structure
This workshop will introduce the idea of hybrid networked learning technologies, as identified during the eSTEeM IBZL workshops to date. It will include two or three brief examples of 'hybrid' networked learning that OU colleagues have already implemented in both Science and MCT (e.g. S288, TU100). Working in small groups will consider whether such approaches have any relevance to their own teaching in the short, medium and long terms.

Poster Presentations

ArguEd: Argumentation Education using iCMAs

Paul Piwek

Faculty of Mathematics, Computing and Technology

The skill to analyse the structure of an argument is important for students across the STEM disciplines from Mathematics, which is underpinned by rigorous argumentation, to Technology and argumentation about its impact on society. The ArguEd project investigates the use of iCMAs to help students develop this skill. It focuses on a technique, argument mapping, for making the underlying structure of an argument explicit through a diagram of that structure. The approach is deployed in TU100 ("My digital life"), where students analyse the argument structure of short pieces of text in both iCMA and TMA questions. For the evaluation of this approach, we will consider both quantitative and qualitative data. Quantitative data from the iCMA system and TMA question will be available from April 2012 and be compared with qualitative information gathered through interviews with tutors. The aim of the poster presentation is to give an overview of the ArguEd approach to helping students develop argument analysis skills and, also, to briefly describe the planned evaluation of the approach.

Student motivation to engage with formative quizzes

Rita Tingle

Faculty of Mathematics, Computing and Technology

Module teams are being encouraged to increase their use of formative assessment in order to reduce the workload of course presentation. Formative assessment provides opportunities for student engagement with a module, but requires more self-motivation from students. Following on from the FAST project, an OU study indicated that students who are short of time tend to work tactically as the module progresses and many only complete summative assessments (Jordan and Butcher, 2010).

In this study six students were interviewed who had completed a level 1 computing module which included both formative and summative quizzes. Students were asked about their motivation for doing the various quizzes. During initial analysis several themes emerged amongst which the notion of rewards and the importance of clear signposting within the module were the most prominent. An interesting issue became apparent that those who might have benefitted most from quizzes exercising part of the module students found most difficult were avoided by the very students they were aimed at. Future study of the web logs for the module is intended to investigate if this phenomenon is true for the module cohort of 2011B.

Reference:
Jordan, S. and Butcher, P. 2010. *Using e-assessment to support distance learners of science.* The GIREP-EPEC 2009 International Conference, Leicester, UK.

Elluminate - better than face to face tutorials???

Eleanor Crabb and Simon Collinson

Faculty of Science

The Elluminate synchronous “class-room” provides an attractive alternative to conventional face-to-face tuition, with increasing use across the Open University for on-line tutorial delivery. We are keen to understand whether Elluminate in combination with recordings of its sessions, provides a better means to engage students?

Our research seeks to understand the factors that ensure an optimal Elluminate learning experience. One area of interest is the debate over whether the chat box is an aid or a distracter? Another is the apparent reluctance of many students to talk during sessions whereas more will use the whiteboard. Similarly attendance at sessions is moderate but there is great use of the recordings afterwards.

We will outline our analysis of level 3 Chemistry ‘module-wide’ Elluminate synchronous sessions and their recordings. For example, it was found that for large sessions (30-40 students) having one academic controlling the whiteboard and another responsible for the chat box produces an effective team.

We have also begun to analyse the levels of attendance, use of the chat box and recordings by students. Additionally we present our initial feedback from conversations with a group of students concerning their views of Elluminate sessions.

We aim to provide the conference participants with analysis of the student participation with Elluminate sessions and the student perspective on Elluminate including conflicting viewpoints.

Assessing with confidence

Jon Rosewell

Faculty of Mathematics, Computing and Technology

This project uses a twist on multiple choice questions and confidence-based marking to create ‘open’ questions. Choices are hidden until the student selects their level of confidence: the student must therefore formulate an answer in the absence of clues, but the subsequent marking is simple, objective and robust.

NOTES

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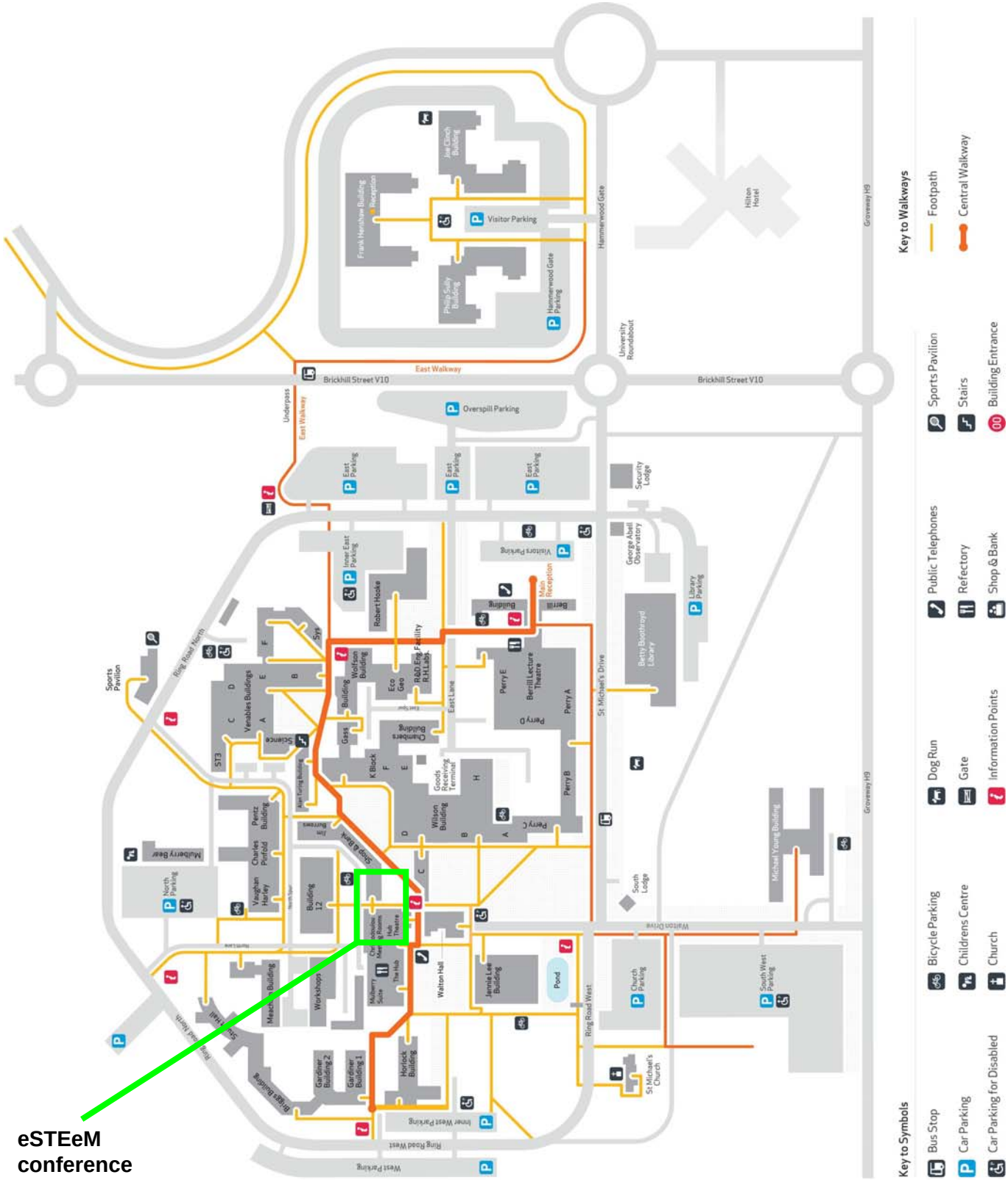
OU Campus map



The Open University
Walton Hall
Milton Keynes
MK7 6AA
United Kingdom