Appendices

Note that appendix numbering is linked to the chapter the appendix relates to.

Appendix 3.1: Metaphor Models

Technology adoption as…	Based on…	Outcome stressed…	Common research method…
Consumer behaviour	Behaviourism Market research Economic theory	Purchase and installation behaviours	National and regional demographic surveys
Information diffusion and rational choice	Information and organisational theories Cognitive psychology	Information leading to decision to adopt	User surveys within an organisation or department
Assimilation of cultural tools and practices	Anthropology Cultural studies Activity theory	Interactions and practices within a local community	Ethnographies or case studies

Table A3.1.1: metaphorical models of technology adoption from Wilson et al 2000.

Metaphorical expressions	Ontology of metaphor	Material dimension	Social dimension	Temporal dimension
Cyberspace, virtual world, virtual school environment, VLE	Space (in)	Complex information system, open, autopoetically emerging system (a system that learns)	Cultural system, communication, language, institution	Socialization, emerging practices
Discussion board, course site, VLE, online community	Platform (on)	Operation management, combining learning, delivery, materials	Contextual, collaboration	Social construction, meaningful action
Online discussion, communication, collaboration	Flow (via)	Process, flow management system	Interaction, doing together	Social interaction, collaboration
Software and tools	Instrument (by, with)	Object management system	Function, the distinct way something works	Cognition Schemata creation
Hardware, displays, materials, packages	Physical object (with)	Technical system, Object (learning object)	Aspect, feature, how it looks	Reacting, memorising, adopting,

Table A3.1.1: Ontology of the metaphors in connection to research orientations, adapted from Pulkkinen 2003.

Appendix 3.2: EEMeC Metaphor Survey

EEMEC is a PUPIL	EEMEC is POLITICAL	EEMEC is a CULTURE
EEMEC is a BRAIN	EEMEC is an IRRIGATION CHANNEL	EEMEC is a SOCIETY/COMMUNITY
EEMEC is a WORLD	EEMEC is a PROSTHETIC	EEMEC is a ASSISTANT
EEMEC is a PRISON	EEMEC is a LANGUAGE	EEMEC is a PRODUCT
EEMEC is a COUNSELLOR	EEMEC is a PROCESS	EEMEC is VIRTUAL
EEMEC is DOMINATING	EEMEC is AUTHORITY	EEMEC is a MECHANISM
EEMEC is a THREAT	EEMEC is MANAGER	EEMEC is an ENVIRONMENT
EEMEC is a COLLEAGUE	EEMEC is an ORGANISM	EEMEC is a FRAMEWORK
EEMEC is a TYRANT	EEMEC is an IRRITANT	EEMEC is INFORMATION
EEMEC is a BUILDING	EEMEC is a LIABILITY	EEMEC is a SCAFFOLD
EEMEC is a TERMINUS	EEMEC is a LIBERATOR	EEMEC is a PLATFORM
EEMEC is an ECONOMY	EEMEC is an INSTRUCTOR	EEMEC is ELECTRONIC
EEMEC is a COMPUTER	EEMEC is an ACTIVITY	EEMEC is a STORE
EEMEC is a MIRROR	EEMEC is a CATALYST	EEMEC is a RESOURCE
EEMEC is a TOY	EEMEC is LEARNING	EEMEC is an OPPORTUNITY
EEMEC is an ECOSYSTEM	EEMEC is a NETWORK	EEMEC is SYSTEM
EEMEC is a CONTROLLER	EEMEC is an ENVIRONMENT	EEMEC is a MAP
EEMEC is an ORGANISATION	EEMEC is ELASTIC	EEMEC is a MEDIUM
EEMEC is a MACHINE	EEMEC is a SERVICE	EEMEC is a TOOL
EEMEC is ORGANIC	EEMEC is a CHANNEL	

Table A3.2.1: initial EEMeC metaphor statements

Appendix 4.1: Checklist Evaluation Frameworks for VLEs

EduTools (www.edutools.info/)

EduTools is a charity-funded cooperative organisation from Canada. EduTools has adopted the work of Bruce Landon (Landonline) on VLEs to provide a free online service that provides "independently-reviewed analyses of selected course management software tools". The site contains reviews of different 'course management tools', which are structured within a common framework. It also allows vendors to submit their systems for review, and it allows users to read reviews and then work through an online decision-support process for selecting a system.

This decision-support process takes the user through six steps that go to build a comparative evaluation of two or more systems. The process consists of:

1. Selecting products from a list of EduTools-reviewed systems
2. Adding any extra user-specified systems to the comparative analysis
3. Selecting those criteria from the framework that are of value and relevance to the reviewer
4. Adding any extra non-listed user-specified criteria
5. Applying relative weighting to the selected criteria
6. Based on the user's knowledge of each VLE in the comparison (gained from the EduTools reviews or from other sources), assign scores to each system against each of the selected criteria

The system then calculates the relative scores for each system and ranks them accordingly. The EduTools framework consists of a framework covering aspects of learner tools, support tools and technical specifications (full criteria in table below).

EduTools' process is, according to EduTools themselves, carried out independently and transparently. The user decision-support process is reflexive in that it allows for the inclusion of reviewers' own criteria, as well as the inclusion of non-reviewed systems in the comparative reviews. The EduTools system also allows for user-defined rating and weighting of criteria and systems. The phrasing of the results is notably neutral and considered.

However, the rating step does assume that the evaluator already knows each VLE system well enough to make an informed and objective assessment of each system's ability to match the criteria. The framework is appropriate, therefore, for structuring and ordering existing knowledge, but not necessarily suitable for exposing or developing new insights. Furthermore the criteria are structured around tools and technical specifications. There is little representation of the tutor's or the student's activities or much in the way of contextual grounding (for instance pedagogical) for this framework. The EduTools approach and methodology is relatively flexible and objective but the criteria grid is particularly focused on VLEs as machines and the ability of the reviewer to take this view.

Learner Tools	*Support Tools*	*Technical Specifications*
Communication Tools Discussion Forums File Exchange Internal Email Online Journal/Notes Real-time Chat Video Services	***Administration Tools*** Authentication Course Authorization Hosted Services Registration Integration	**Hardware/Software** Client Browser Required Database Requirements Server Software Unix Server Windows Server

Whiteboard		
Productivity Tools Bookmarks Calendar/Progress Review Orientation/Help Searching Within Course Work Offline/Synchronize	**Course Delivery Tools** Automated Testing and Scoring Course Management Instructor Helpdesk Online Grading Tools Student Tracking	**Pricing/Licensing** Company Profile Costs Open Source Optional Extras Software Version
Student Involvement Tools Groupwork Self-assessment Student Community Building Student Portfolios	**Curriculum Design** Accessibility Compliance Content Sharing/Reuse Course Templates Curriculum Management Customized Look and Feel Instructional Design Tools Instructional Standards Compliance	

CHEST VLE Comparison Grid (www.chest.ac.uk/datasets/vle/)

CHEST is an organization that "negotiates for all forms of commercially available electronic resource … for the education and research communities in the UK and Republic of Ireland". CHEST have provided a VLE comparison grid consisting of a static web page, displaying a comparative checklist evaluation between five leading VLEs: Blackboard Learning System, Learning Environment, LearnWise, Virtual Campus, WebCT Campus Edition and Wizlearn. At the last time of access (30 Dec 2003) the page had not been updated since December 2002. The full criteria for the CHEST framework are listed in the table below.

The CHEST Grid comes with the caveat: "Grid information has been provided by the VLE suppliers themselves, and is posted unedited. The validity of the information and any judgment expressed in the Grid's text is therefore wholly the responsibility of the supplier. CHEST has not evaluated the responses and potential purchasers should ensure that products satisfy the needs of their organisation before purchasing". These limitations are significant as the CHEST approach, unlike that for instance taken by EduTools, is to rely entirely on the vendor's objective and subjective honesty. In that the VLE market is lucrative and highly competitive, it is unlikely that a vendor's representation of their product is going to be a particularly reliable evaluative measure.

Although the CHEST Grid does provide a useful checklist of questions that might be asked during the specification and procurement of a large-scale VLE system, these criteria are subjective in the way they are phrased and in the way they are grouped. For instance there is a confusing mix of on-site and off-site hosting questions and data protection questions are mixed around in different sections. Overall, the CHEST grid consists of a long, although not exhaustive, set of criteria, which, just in terms of quantity are hard to aggregate to get a clear evaluative picture.

The Grid is also based on a 'vendor' model where a system is being procured as a finished product rather than being developed or designed. This reflects CHEST's role as a licensing negotiator and manager for the UK's tertiary education sector. Some of the five systems evaluated are now redundant; others have been updated. Although this does not directly compromise the framework, the evaluation data are now out of date.

Full name of product Product owner (Name, postal address, web address); Product Supplier Agreement Period Post-termination of Agreement period – possibility for outright purchase? Eligible Institutions (UK HE & FE, Associated sites, etc); Product description Product documentation: what is provided; is copying permitted? What is included in the product e.g. authoring tools, conferencing tools, etc: at entry level/at higher levels	Hosted services: e.g. Can the service be hosted? (i.e. not on institution's own site); Where is service hosted? Subject to English Law (this is a necessary requirement) Ring-fenced for individual institutions? What is security for personal data? Firewalls? Is there a disaster recovery plan for off-site hosting? If so, what is it?	Cost of Product: Cost of different levels – e.g. Pilot entry level cost; next level cost; full MLE cost; Annual cost for different levels; Migration from one level to the next – pay the difference between levels? Outright purchase at end of licence period? Discounted because of subscriptions already paid?

Type of licence: e.g. Full site? Number of users based on FTE (Full time equivalent) count? Number of users based on concurrency? Weighting factors?	Requirements: e.g. What platforms does product run on? (Sun-Solaris, NT, IBM, etc.) Migrating from one platform to another in licensed institution – e.g. NT to Solaris (cost involved); What does end-user need? – minimum facility; Scalability? Access and Management; Learner tracking and Tutor support; Integration with MIS; Reliable and robust product Access to information across different campuses of institution Access for disabled and special needs students; Multilanguage support-handling; Storage/archiving/backward compatibility; Resilience of system	Cost of Training: Timescales and rates must be included. Are the rates daily, weekly? What is included and what are additional costs? IT staff: Installation consultancy; Access and authentication; Time needed? Other staff: Who should do the training? Different levels of training and different timescales: Campus manager; Tutor; Administrator; Student
Users and Location / Use permissions (see end of document): e.g. All staff and students of an Institution regardless of location – includes admin staff; Distance Learning; Remote access in UK and abroad; Home use; Student placement in industry; Students on courses sponsored by commerce (possible additional cost); Walk-in users/Alumni/Honorary members of staff/Retired members of staff	Product Support: e.g. Included in cost? Any limits on support calls? e.g. Mon-Fri 09:00-17:00; maximum number of calls?; limited number of contacts at site? Contact details for support: Updates included? Version control; Longevity; Previous versions supported? Backwards compatibility? Perpetual use? Extent of support? Is upgrade automatic or can institutions choose? – upgrade of software may mean upgrade of hardware; Server upgrades? Are trials available? Performance issues – whose responsibility? MIS system and integration with VLE? – authentication and security issues;	Cost of Maintenance and Support – On site hosting: Minimum hardware requirements; Cost to upgrade server; Scalability; Cost if anything goes wrong – problem solving; Call-out time-scales; MIS system and integration with VLE? – authentication and security issues; Updates – are they backwards compatible? Any problems with changing versions or levels? Is this included in the price? Can vendor access the system? – i.e can data mining take place?

Rights issues: e.g. Copyright and IPR – whose is it? Access to and transference of data; Access to content provided by third party; Access to institution content; are ownership and access rights independent? to whom does the data and content belong if institution stops using the service? Data Protection Act compliance?	Standards and Specification: e.g. Statement of intent required; Standards bodies involved with? Timescales: Minimum spec (e.g. IMS/SCORM1.2/LIP1.1 etc); Minimum spec for hardware (upgrades, networking, routers, firewall) Minimum spec for software (browsers, desktop/workstation, laptop, palm) Compatibility between content products – is specific format a requirement?	Cost of Maintenance and Support – Off site hosting: Are hosting costs included in product cost? What support costs are incurred with off-site hosting? Problem solving? Access and authentication costs? Performance issues? Security issues? Any additional access costs?

Boston (software2.bu.edu/webcentral/research/courseware/index.html)

This site, from Boston University's Office of Information Technology, provides a comparison of three major VLE systems; WebCT (3.5), Blackboard (5.0), and Prometheus (4.1). The site outlines that "the original intent of the comparison was to help faculty select between WebCT and Blackboard, both of which are available at Boston University. While that intent remains, we added Prometheus (not available at BU) to the comparison, because MET College expressed strong interest in the product." The full criteria in the Boston framework are shown in table below.

The framework is phrased in terms of users performing various tasks, for instance "administrators and instructors can assign multiple instructors to a course", "group members can have a private chat area". This approach is akin to the 'use-case' aspect of unified modeling language (UML) (Fowler 2004), where system designs are specified in terms of its potential users being able to accomplish various real-world tasks. This approach, effectively reversing use-case models as a post-hoc evaluation tool, is interesting both in its conceptual similarities with system design and in its proximity to evaluating the users' experiences (rather than just abstract system properties). This is a good example of a multi-dimensional checklist approach.

The Boston model is also the one true checklist out of the frameworks selected: data is displayed as a binary yes/no check when a user activity is supported. The three system evaluations in the framework are becoming out-of-date (last updated in 2001), but this approach still has much to offer.

Product Facts	**Assessment**
Founded In	Courseware product can store questions in a database
Current version (used in comparison)	Instructors can upload questions from file to database
Requires	Instructors can download questions from database to file
In use at	Instructors can create questions offline in a program, such as Microsoft Excel
Largest user	Instructors can organize question database into self-created categories
Course Roles and Views (1-many)	Instructors can select questions from database according to specific characteristics
Title	Instructors can select a random set of questions from question database
Created by	Instructors can reuse existing questions on a new quiz
Duties/Privileges	Instructors can embed HTML within quiz questions
Site Administration	Instructors can embed images within quiz questions
Users log in with password and login name	Instructors can embed equations within quiz questions and answers
Users log in with [institutional] login name and Kerberos password	Instructors can embed images within multiple choice answers
Administrators and instructors can assign multiple instructors to a course	Instructors can allow more than one answer to
Administrators can create system-wide accounts (for example, within multiple courses)	
Instructors can automatically upload class	

roster files	multiple-choice questions
Instructors can create groups	Instructors can allow students to take quizzes multiple times
Course controls are on a separate page	Courseware product can store grades for multiple attempts at quizzes
Course controls are integrated with student view	Instructors can regrade all quizzes if the answer key changes
Users can navigate with a consistent, logical user interface	Instructors can assign weights to answers for partial credit
Navigational trail show the path taken to a particular screen	Instructors can set time limits for quizzes
Instructors can create an unlimited amount of course content	Instructors can view indicator when students exceed time limit of timed quizzes
Instructors can back up course content	Instructors can create anonymous surveys
Users can search the on-line manual	Courseware product can mark multiple choice and fill-in-the-blank questions automatically
On-line help is context sensitive	Courseware product can announce quizzes automatically
Users can print .pdf versions of the manuals	
Users can log out without exiting their browser	
Content Development	**Student Study Tools**
Select course components from a master set	Create study guide
Create a copy of an existing course	Resume reading content at previous stopping point
Hide work in progress	Add notes on course content Web page
Upload files from desktop to server	Take notes in an internal notepad
Upload multiple files at once	Compile a set of e-mail messages
Note: multiple file must be zipped into one file first.	Compile a set of bulletin board postings
Edit uploaded text online	Take self-tests created by the instructor
Create equations within the courseware product	Search course material
Release content based on student viewing certain prerequisite materials	Create original content on own Web pages
Release content based on chronological criteria	**Group Participation**
Release content pages based on student quiz performance	Instructors can create groups manually
Release feedback within quizzes	Instructors can have program create groups and assign members randomly
Release content to specified groups of users	Users can e-mail members of a group
Release content based on custom designed criteria, such as number of bulletin board postings, students whose last name starts with M, etc.	Group members can share files
Attach learning goals to content pages	Group members can have a private chat area
	Group members can have private bulletin boards
	Group members can have Web content

Attach review questions to content pages	presentation areas
Create references	
Use automated tool to build glossary	
Use automated tool to build content index	**Calendar**
Use automated tool to build searchable image database	Calendar on login page displays events from all courses
Integrate online course with CDROM	Announcements from all courses display on login page
	Instructor can upload multiple events from a file
Navigation and Interface	Instructor can post files in calendar entries Instructor can add links to calendar entries
Gateway page allows users to view all courses in which they are enrolled	Students can add entries to the course calendar (at instructor's discretion)
Instructor can change page design globally during course design	
Courseware product defaults to graphic interface	
Users can select text interface	**Bulletin Boards**
Courseware product automatically generates header and footer on new pages	Multiple bulletin boards per course
Courseware product provides multiple icon and button styles	Private bulletin board for each group
Instructor can substitute buttons or icons of own design	Instructors can allow anonymous postings
Instructor can specify a customized course banner	Instructors can move messages from one board to another
Instructor can select a custom background color or graphic	Instructors can delete messages
Courseware product can display components of the interface in a language other than English (in student-view only)	Users can mark messages read/unread
Users can view course map	Users can view messages based on read/unread status
Users can search course content	Users can view messages as threaded or unthreaded
	Users can compile a self-selected set of postings from bulletin board for their own notes
Monitoring Student Participation and Progress	Users can receive e-mail notification about new postings
Instructors can view number of hits per page	Users can e-mail posting authors directly from the bulletin board
Instructors can view date and time of each student's first and last login	**Chat/Whiteboard/Email**
Instructors can view a complete history of each student's time spent online in the entire course	External e-mail (accessible through regular e-mail client)
Instructors can view a graphic breakdown of the percent of total time online each student	Chat transcripts/logs
	Multiple chat rooms in a single course
	Restricted access to group chat rooms

has spent on each page of content Instructors can view a graphic breakdown of the percent of total time online each student has spent on content areas Instructors can analyze the class by combinations of information, such as students who logged in after a certain day and have posted a certain number of articles Instructors can view how many bulletin board articles a student has read Instructors can view how many bulletin board articles a student has posted Instructors can view a transcript of course chat room activity Student can view own grades Student can compare own grade to class summary data	Private messaging in chat Voice chat Ring in chat (to notify another user you want to chat with them) Alert in chat (receive notification when someone enters the chat room) Whiteboard facility Access whiteboard through chat only Save whiteboard images into course content Print whiteboard images Export whiteboard images Chat program type **Audio and Video** Include links to external RealAudio/RealVideo files Embed RealPlayer in pages Embed QuickTime player in pages Add audio and video content that is stored within the courseware product Add streaming PowerPoint presentations created with RealVideo or RealPresenter

Evaluating and implementing learning environments (Ingraham, Watson et al. 2002) (http://www.aace.org/dl/index.cfm?fuseaction=ViewFullText&paperid=10553)

This is from a paper that reports on work at five universities in North Eastern England; Durham, Newcastle, Northumbria, Sunderland, and Teesside. A number of checklist/criteria-based evaluation models are presented, although no one particular model is recommended or used across the collaborating institutions. Although this is a collection of discursive articles, it is still effectively providing checklist forms of evaluation.

In a similar way to the previous Boston model, a number of the articles take a UML-oriented 'use case' approach where criteria are framed in terms of 'the author should be able to …', 'the learner should be able to …' and 'the administrator should be able to…' and so on. Again, as in the Boston model, this places the evaluation close to the users' experiences of the VLE rather than concentrating on inherently abstract system properties.

USAFA (www.usafa.af.mil/iita/Publications/CourseManagementSoftware/cmseval.htm)

This framework, from a paper from the US Airforce Academy (Halloran 2001), is based around surveying staff and student (faculty and cadet) interpretations of course management systems. The paper reports an evaluation which is done twice, once before using the VLE and once afterwards. The principal criteria are as follows (full listing in appendix 4.1.4):

- General features
- Authoring features
- Course Management features
- Communication features
- Grading features
- Quizzing features
- Can be used with the following server /operating systems

This framework is based around evaluating a specific system's features. This is less mechanistic than a tool-focused approach but is less situated than the use-case frameworks. The embedded methodology of pre- and post-hoc tests sets this approach apart, but most significant is the use of student evaluations of the system as well as staff evaluations. None of the other checklists and frameworks listed here explicitly use students in their approaches to evaluating VLEs.

General Features Static toolbar Table of Contents Customized "look and feel" (colors, icons, logos, etc) Automated glossary tool Automated link to course material content Automated indexing tool Search tool for course material Student can make private annotations of course material Integrated Calendar tool Can support foreign languages Instructor can define groups of students - Can assign specific material to individual or group of students - Collaborative work area for group - Group presentation area Individual presentation area/homepage Student file upload capability/instructor comments Conforms to Instructional Management System (IMS) specifications Conforms to World Wide Web Consortium (W3C) specifications Other: Authoring features Does not require knowledge of HTML	Communication Features One to one course email One to many course email Searchable asynchronous discussion Logged synchronous discussion Virtual field trips within discussion pages Shared whiteboard Adaptable for desktop video/teleconferencing Other: Grading Features Student access to progress data available Ability to add offline grades Grade statistics and/or histograms Instructor comments available with grade Scores can be emailed to instructor Scores can be stored on server Scores can be exported into Excel Other: Quizzing features Quizzes automatically graded and entered into gradebook Allows for the following automatically graded question types: - True -False/Multiple choice - Fill in the blank - List matching

Allows Java applets Requires plug-ins Has drag and drop authoring features Allows Macromedia files Allows FrontPage files Allows links to custom developed pages Allows custom graphics Other: Course Management Features Class list can be entered one student at a time, or uploaded as a file Class list can be uploaded as a file Class lists can be presented, saved, and printed using Excel Online student manual Online instructor manual Course can be downloaded for safekeeping Courses can easily be moved from one server to another Directory upload capability from desktop Student tracking features - can track how often student accesses pages - can track when student accesses pages - can track time spent on each page Other:	- Essay questions - Imagemap (click on correct part of image) - Short answer Questions can have multiple correct answers Can use a mixture of question types on a single quiz One question at-a-time testing capability Question file upload capability Customized feedback Redirect path dependent on question answers Timed quizzes Delivered on-line on a predetermined time and day Supports graphics files adjacent to quiz question Supports both tutorial and real exam scenarios Random assignment of questions to exams Allows weighting of questions so students get equal quizzes Other: Can be used with the following server /Operating Systems Unix NT Macintosh Solaris Linux Other:

A framework for the pedagogical evaluation of virtual learning environments (www.jtap.ac.uk/reports/htm/jtap-041.html)(Britain and Liber 1999)

The "framework for the pedagogical evaluation of virtual learning environments" was commissioned under the UK's JTAP programme as report 41. The bulk of the report provides two well-argued theoretical models; the first based on Laurillard's conversational model (which was in turn derived from Pask's work, see (Laurillard 1993) which outlines how a VLE is to be evaluated on its ability to support the interactions in the conversational model. This is based on a six-step process:

1. Teacher Presents Conception
2. Student Presents Conception
3. Teacher sets up micro world
4. Student interacts with micro world
5. Tutor provides feedback to the student
6. Student modifies actions

Which is matched against criteria for tools and structure. Thus an evaluation criteria grid can be drawn up for any particular VLE based on its ability to support or facilitate the teacher-student interactions in the conversational model.

The second theoretical model is based on cybernetic theory, and in particular the work of Stafford Beer (Beer 1981) which raises the concept of the viable systems model (VSM) which is interpreted as a way of looking at the learning environment provided by a VLE. This is based on a criteria grid as follows:

- Resource Negotiation
- Coordination
- Monitoring
- Individualisation
- Self-Organisation
- Adaptation

The VLE is to be evaluated on its ability to support or facilitate these aspects of a learning environment.

The rest of the report is then given over to a prose description of each VLE system mentioned in the text, a comparison grid for a number of these VLEs based around the criteria groups of teacher tools, student tools and interaction tools each system has, and finally a survey instrument based on the properties of virtual learning environments, given as:

1. Structuring of courses, resources and learning content
2. Handling Workflow
3. Communication Tools
4. Student Profiling / Progress Tracking Tools
5. Integration Issues

The full details of the questionnaire and framework are given in the tables below.

Confusingly, none of the theoretical or subsequent worked approaches seem to match each other conceptually. Having established two well-grounded approaches (based on the work of Laurillard and Beer), these are then apparently discarded in favour of mechanistic feature and function lists. The embracing of a grounded approach to evaluating VLEs is a strong

one, but not well executed in terms of its instrumentation and is in the end weakened by recourse to more simplistic and blunt instruments and grids.

Britain and Liber Questionnaire

Part 1. Respondents' Details
Part 2. About teaching and learning at your institution
Part 3. Description of systems currently in use
Part 4. The properties of virtual learning environments
4.1 structuring of courses, resources and learning content How suitable is it for aggregating learning units and / or content? How adaptable are the structures once they have been created and are in use? Can a structured problem space be easily created for students to work in? How easy is it to support individual learners' needs? How specifically can informational resources or references to resource locations be incorporated into projects? (e.g. hypermedia support) Is the system suitable for incorporating a wide range of multi-media resources and content? How easily can non-proprietary software components (e.g. JavaBeans / ActiveX components) be embedded in the tool
4.2 Handling Workflow A fully integrated VLE should be able to handle all the workflow requirements between students and tutors in a flexible and context-sensitive way. It should also be able to handle a range of pedagogical models from a traditional delivery model to collaborative approaches. Does the tool provide shared workspaces? If so please rate the quality How well does the VLE provide for negotiation and development of individual learning plans? How easy is it for tutor and student to collaborate in constructing a problem domain within the virtual environment? How well does the system support collaborative working of a number of students on the same project? Does the system support submission of assignments from student to tutor? If so please rate the quality Does the system support recording and return of assessments to students? How well does this facility meet your needs? How well does the system accommodate off-line as well as on-line working?
4.3 Communication Tools If the system uses e-mail to support one-to-one conversations, how easy is it to use in a teaching / learning context? If conferencing software is integrated with the system in order to support group discussions and group working, how satisfactory is it? If the system uses any form of synchronous communications, how useful are these

components?
4.4 Student Profiling / Progress Tracking Tools How well does the tool allow tutors to track students' progress? How rich a picture of an individual student's background, interests and aspirations does the tool provide?
4.5 Integration Issues How well integrated are the various tools provided by the system? How easily can content from external sources be integrated into the environment? Is the system IMS compatible? How well does the system inter-operate with administration systems (e.g. student records databases etc.)?

Britain and Liber Framework

Teacher Tools Resource Management Tools creating /importing content Store resources Add metadata Add description Add/play multimedia content People Management Tools Store & view learner data Add / remove learners Track learner activities Course Management Tools Course structuring adding resources creating assignments performing assessments rapid course revising create discussion groups	Student Tools Resource Management Tools Web browsing creating / importing content Store bookmarks Add metadata Add description Play multimedia People Management Tools view people data Homepage authoring Learning Management Tools Calendar tool Self-testing tools searchable resource archive create discussion groups	Interaction Tools E-mail Noticeboard File exchange asynchronous discussions Chat Whiteboard VideoConferencing

Appendix 4.2: EEMeC Checklist Evaluation

Appendix 4.2.1: EEMeC Checklist Evaluation - EDUTOOLS Criteria

	EEMeC Evaluation	Comments
Learner Tools		
Communication Tools		
Discussion Forums	Academic and non-academic boards for each of the 5 years of the course, one for intercalating students, and special-purpose boards on demand	Language differences: boards:forums. No mention of whether moderated or not
File Exchange	No	Not peer-peer but certainly staff-student
Internal Email	One directional: from staff to students only.	Not email but intra-system messaging
Online Journal/Notes	Users can annotate pages.	
Real-time Chat	No. This was provided for a while but was discontinued due to lack of interest.	
Video Services	No	Not clear what this is. There are embedded streaming video sources within EEMeC but not videoconferencing which this seems to suggest
Whiteboard	No	Was available in discontinued chat rooms
Productivity Tools		
Bookmarks	Yes	Users can annotate pages, annotations are aggregated thus performing a bookmarking function
Calendar/Progress Review	Timetables provided but not progress review	
Orientation/Help	Help pages backed up by email helpdesk	
Searching Within Course	Yes	
Work Offline/Synchronize	No: EEMeC is entirely web-based. However most of the MBChB course runs in a traditional face-to-face modality	
Student Involvement Tools		
Groupwork	Peer-assessment, group-authored websites	
Self-assessment	SAQs and embedded CAL SAQs	
Student Community Building	Non-academic discussion boards	
Student Portfolios	Formal student portfolio supported	Specifically built to the parameters of the MBChB portfolio – specific slots and rules, not open-ended
Support Tools		

Administration Tools		
Authentication	Individual IDs and passwords, challenge and response, shortly moving to https	
Course Authorization	?	Not sure what this is
Hosted Services	?	Not sure what this is
Registration Integration	?	Not sure what this is
Course Delivery Tools		
Automated Testing and Scoring	Using linked EROS system	Automation as complete workflow not supported as this is not currently required.
Course Management	?	Not sure what this is – EEMeC does this as a whole so not clear what this is specifically
Instructor Helpdesk	Same as student helpdesk	
Online Grading Tools	Assessment engine stores and represents all assessments	
Student Tracking	Limited to recording logins plus occasional specific interactions	
Curriculum Design		
Accessibility Compliance	Observes general accessibility principles but does not seek to meet any specific benchmark	
Content Sharing/Reuse	Yes: object/node repository and linking	
Course Templates	Yes: inherited but adapted from other areas	
Curriculum Management	Yes: indexing and mapping tools	
Customized Look and Feel	Yes: although this is common across each iteration of the system	
Instructional Design Tools	Using linked EROS system	
Instructional Standards Compliance	Limited compliance within the system	There is currently no system or source with which we have a need to comply on common standards
Technical Specifications		
Hardware/Software		
Client Browser Required	IE4 or NS4 and higher	Also needs cookies and javascript enabled
Database Requirements	Uses Microsoft SQL Server	
Server Software	Windows 2000&2003/IIS/ASP/ASP.NET	
Unix Server	No	
Windows Server	Yes	
Pricing/Licensing		
Company Profile	EEMeC is developed and maintained by the Learning Technology Section, which is a part of the College of Medicine and Veterinary medicine at the University of Edinburgh.	

Costs	As the system has been developed rather than purchased, costs are less explicit. On average 2 FTE developers pa have been working on EEMeC. This has been both for system development and content management	
Open Source	Written primarily in ASP, the system is considered to be open source within the university. An LTSN-01 project 'CREAM' may lead to a broader open-source build.	
Optional Extras	As this is a bespoke system this is not a valid concept.	
Software Version	Ongoing development but by and large: v1: flat html (1999-2000 session) v2: basic ASP functionality (2000-2002 sessions) v3: full nodal ASP build (2002-present)	

Appendix 4.2.2: EEMeC Checklist Evaluation - Boston Criteria

	Evaluation	Comments
Product Facts		
Founded In	1999	
Current version (used in comparison)	3 (see Boston criteria)	
Requires	Web infrastructure, Windows Server and SQL Server	
In use at	The University of Edinburgh	
Largest user	N/a	
Course Roles and Views (1-many)		
Title/Created by/Duties/Privileges	EEMeC has over 50 different usertypes which are mapped many-to-many on to user IDs. These are set up by EEMeC developers.	
Site Administration		
Users log in with password and login name	Yes	
Users log in with [institutional] login name and Kerberos password	Standard institutional IDs are used; there is no common authentication system in the University, Kerberos or otherwise	
Administrators and instructors can assign multiple instructors to a course	Yes, this is done by admins only	
Administrators can create system-wide accounts (for example, within multiple courses)	Yes	
Instructors can automatically upload class roster files	No, done by admins	
Instructors can create groups	No, done by admins	
Course controls are on a separate page	N/a	
Course controls are integrated with student view	N/a	
Users can navigate with a consistent, logical user interface	Yes	
Navigational trail show the path taken to a particular screen	No	
Instructors can create an unlimited amount of course content	Yes	
Instructors can back up course content	No, done by admins	
Users can search the on-line manual	N/a	
On-line help is context sensitive	Partially	
Users can print .pdf versions of the manuals	N/a	
Users can log out without exiting their	No	

browser		
Content Development		
Select course components from a master set	N/a	
Create a copy of an existing course	N/a	
Hide work in progress	Yes	
Upload files from desktop to server	Partially	
Upload multiple files at once	Partially	
Edit uploaded text online	Yes, although limited to specific users	
Create equations within the courseware product	In associated EROS system	
Release content based on student viewing certain prerequisite materials	No	
Release content based on chronological criteria	Yes	
Release content pages based on student quiz performance	No	
Release feedback within quizzes	Yes, in associated EROS system	
Release content to specified groups of users	Yes	
Release content based on custom designed criteria, such as number of bulletin board postings, students whose last name starts with M, etc.	No	
Attach learning goals to content pages	Yes	
Attach review questions to content pages	Yes	
Create references	Yes	
Use automated tool to build glossary	Sort of	Functionality is there but not in the way the questions suggests
Use automated tool to build content index	Sort of	Functionality is there but not in the way the questions suggests
Use automated tool to build searchable image database	Sort of	Functionality is there but not in the way the questions suggests
Integrate online course with CDROM	Sort of	Functionality is there but not in the way the questions suggests
Navigation and Interface		
Gateway page allows users to view all courses in which they are enrolled	Yes	
Instructor can change page design globally during course design		Functionality is there but not in the way the questions suggests
Courseware product defaults to graphic interface	Yes	
Users can select text interface	No	
Courseware product automatically generates header and footer on new pages	Yes	

Courseware product provides multiple icon and button styles	Yes	
Instructor can substitute buttons or icons of own design	Partially	
Instructor can specify a customized course banner	Partially	
Instructor can select a custom background color or graphic	No	
Courseware product can display components of the interface in a language other than English (in student-view only)	No	
Users can view course map	Yes	
Users can search course content	Yes	
Monitoring Student Participation and Progress		
Instructors can view number of hits per page	After log analysis	
Instructors can view date and time of each student's first and last login	On demand from EEMeC team	
Instructors can view a complete history of each student's time spent online in the entire course	Derivable	
Instructors can view a graphic breakdown of the percent of total time online each student has spent on each page of content	Derivable	
Instructors can view a graphic breakdown of the percent of total time online each student has spent on content areas	Derivable	
Instructors can analyze the class by combinations of information, such as students who logged in after a certain day and have posted a certain number of articles	Derivable	
Instructors can view how many bulletin board articles a student has read	No	
Instructors can view how many bulletin board articles a student has posted	Yes	
Instructors can view a transcript of course chat room activity	N/a	
Student can view own grades	Yes	
Student can compare own grade to class summary data	Yes	
Assessment		
Courseware product can store questions in a database	In accompanying EROS system	
Instructors can upload questions from file to database	EEMeC admins	
Instructors can download questions from database to file	EEMeC admins	
Instructors can create questions offline in a program, such as Microsoft Excel	Possible	
Instructors can organize question database into self-created categories	In accompanying EROS system	
Instructors can select questions from	In accompanying	

database according to specific characteristics	EROS system	
Instructors can select a random set of questions from question database	In accompanying EROS system	
Instructors can reuse existing questions on a new quiz	In accompanying EROS system	
Instructors can embed HTML within quiz questions	In accompanying EROS system	
Instructors can embed images within quiz questions	In accompanying EROS system	
Instructors can embed equations within quiz questions and answers	In accompanying EROS system	
Instructors can embed images within multiple choice answers	In accompanying EROS system	
Instructors can allow more than one answer to multiple-choice questions	In accompanying EROS system	
Instructors can allow students to take quizzes multiple times	In accompanying EROS system	
Courseware product can store grades for multiple attempts at quizzes	No	
Instructors can regrade all quizzes if the answer key changes	No	
Instructors can assign weights to answers for partial credit	No	
Instructors can set time limits for quizzes	Yes	
Instructors can view indicator when students exceed time limit of timed quizzes	No	
Instructors can create anonymous surveys	Yes	
Courseware product can mark multiple choice and fill-in-the-blank questions automatically	Yes	
Courseware product can announce quizzes automatically	Yes	
Student Study Tools		
Create study guide	Uses existing student study guides	
Resume reading content at previous stopping point	No	
Add notes on course content Web page	Yes	
Take notes in an internal notepad	As above	This is the same thing
Compile a set of e-mail messages	No	
Compile a set of bulletin board postings	No	
Take self-tests created by the instructor	Yes	
Search course material	Yes	
Create original content on own Web pages	Yes (limited to specific parts of the course)	
Group Participation		
Instructors can create groups manually	Yes, although this function is not being used	

Instructors can have program create groups and assign members randomly	See above	
Users can e-mail members of a group	One-way: staff-to-student only	
Group members can share files	Yes	
Group members can have a private chat area	No	
Group members can have private bulletin boards	No	
Group members can have Web content presentation areas	Yes (limited to specific parts of the course)	
Calendar		
Calendar on login page displays events from all courses	Single integrated course. Common integrated timetable	
Announcements from all courses display on login page		
Instructor can upload multiple events from a file	See above	
Instructor can post files in calendar entries Instructor can add links to calendar entries	See above	
Students can add entries to the course calendar (at instructor's discretion)	See above	
Bulletin Boards		
Multiple bulletin boards per course	Yes	
Private bulletin board for each group	No	
Instructors can allow anonymous postings	Partial	
Instructors can move messages from one board to another	EEMeC admins can do this	
Instructors can delete messages	EEMeC admins can do this	
Users can mark messages read/unread	No	
Users can view messages based on read/unread status	Yes	
Users can view messages as threaded or unthreaded	No (all threaded)	
Users can compile a self-selected set of postings from bulletin board for their own notes	No	
Users can receive e-mail notification about new postings	No	
Users can e-mail posting authors directly from the bulletin board	No	
Chat/Whiteboard/Email		
External e-mail (accessible through regular e-mail client)	Yes	
Chat transcripts/logs	Yes	
Multiple chat rooms in a single course	N/a	
Restricted access to group chat rooms	N/a	

Private messaging in chat	N/a	
Voice chat	N/a	
Ring in chat (to notify another user you want to chat with them)	N/a	
Alert in chat (receive notification when someone enters the chat room)	N/a	
Whiteboard facility	No	
Access whiteboard through chat only	N/a	
Save whiteboard images into course content	N/a	
Print whiteboard images	N/a	
Export whiteboard images	N/a	
Chat program type	N/a	
Audio and Video		
Include links to external RealAudio/RealVideo files	Yes	
Embed RealPlayer in pages	Yes	
Embed QuickTime player in pages	Yes	
Add audio and video content that is stored within the courseware product	Yes	
Add streaming PowerPoint presentations created with RealVideo or RealPresenter	Yes	

Appendix 4.2.3: Britain & Liber - Conversational Framework

	Tools	**Structuring**
Discursive	Discussion boards and noticeboards.	Noticeboards are available from My EEMeC, discussion boards can be linked in to any part of the system and aggregated or kept separate.
Adaptable	Nodal architecture allows all objects to be reconfigured and linked.	Nodes can be security controlled and time-released.
Interactive	Layers of information, resources and CAL objects can be configured in many different ways. The system supports discussion, annotation and many aspects of interaction and representation.	Students have personal home pages, annotations, portfolios, assessment information and logbooks.
Reflective	Access to annotations, portfolio, assessment information, course evaluation, activity logs and other information allows for a high degree of student reflection.	These functions are available system-wide.

Appendix 4.2.4: Britain & Liber - VSM Framework

VSM Functionality	Support within VLE
Resource Negotiation	EEMeC is the programme support environment rather than the prime medium for course delivery. Despite this a component sub-system 'EROS' provides over 300 CAL tutorials and self-assessment quizzes. The nodal architecture facilitates managed resources being directly linked into any part of the system. All authors can create new pages, link in materials and get specific discussion boards linked into any area required.
Coordination	The timetable, noticeboard and discussion boards all provide different forms of course coordination. All course documentation, support materials and study guides are available and cross-searchable through the system. Collaborative work such as group-authored websites and peer-assessment are also provided.
Monitoring	The noticeboard allows staff to see if a student has viewed any particular notice. Logins and user-specific functions such as uploads are tracked. All in-course evaluations are carried out in the system. The portfolio holds all in-course written assessments.
Individualisation	The system has personal annotations, personal timetable entries, personal web pages, a portfolio, and access to individual assessment information.
Self-Organisation	There are annotation functions throughout the system, which together with the timetable provide a degree of self-organisational support.
Adaptation	Highly abstracted architecture and database make the system completely reconfigurable. These are not user-specific.

Appendix 5.1: Fitness to Context Analysis Framework for a VLE

Factor	Descriptor and Rating	Description
1: Technical		
1.1: Access	1.1.1: The VLE should be accessible to all users irrespective of location and time.	*Context:* *Positive fit:* *Negative fit:*
	1.1.2: The VLE should be accessible for different kinds of users and their needs.	*Context:* *Positive fit:* *Negative fit:*
1.2: Security	1.2.1: the VLE should be secure and users should be trackable and accountable for their actions.	*Context:* *Positive fit:* *Negative fit:*
	1.2.2: Information in the VLE should be held safely and securely and within the requirements of data protection and other legal and institutional frameworks.	*Context:* *Positive fit:* *Negative fit:*
	1.2.3: Access to logins and the ability to impersonate users should be available but strictly limited to those who manage the VLE.	*Context:* *Positive fit:* *Negative fit:*
1.3: Support	1.3.1: Technical support for the VLE should be available to ensure a continuous and high quality of service.	*Context:* *Positive fit:* *Negative fit:*
	1.3.2: Required technical support for the VLE should be minimal and easy to provide, and should build on existing skills and capacity.	*Context:* *Positive fit:* *Negative fit:*
1.4: Inter-operability	1.4.1: The VLE should interoperate with all other relevant systems within its working environment. Data should be held by single systems and distributed and shared as necessary.	*Context:* *Positive fit:* *Negative fit:*
	1.4.2: The VLE should employ appropriate interoperability standards and specifications so that information and content can be moved from system to system and the system can interoperate with other relevant standards-based systems.	*Context:* *Positive fit:* *Negative fit:*
2: People		
2.1: Students	2.1.1: The VLE should support the needs, wants and dynamics of the student population.	*Context:* *Positive fit:* *Negative fit:*
	2.1.2: The VLE should support students at different stages of their course and in	*Context:* *Positive fit:*

	different situations.	*Negative fit:*
	2.1.3: The VLE should support the diversity of approaches and needs of its student users.	*Context:* *Positive fit:* *Negative fit:*
2.2: Teachers	2.2.1: The VLE should allow teachers to easily and effectively design, organise, deliver and assess teaching and learning processes.	*Context:* *Positive fit:* *Negative fit:*
	2.2.2: The VLE should support the pedagogical approaches required by the teacher and the course in general.	*Context:* *Positive fit:* *Negative fit:*
2.3: Administrators	2.3.1: The VLE should facilitate easy, reliable and secure administration of course processes.	*Context:* *Positive fit:* *Negative fit:*
2.4: Support staff	2.4.1: The VLE should facilitate easy, reliable and secure support of course processes by appropriate staff.	*Context:* *Positive fit:* *Negative fit:*
2.5: Course Managers	2.5.1: The VLE should meet the requirements of the course's strategy and policy makers and it should facilitate course management.	*Context:* *Positive fit:* *Negative fit:*
3: Organisational		
3.1: Strategic Management	3.1.1: the VLE should support the organisation's strategic goals.	*Context:* *Positive fit:* *Negative fit:*
3.2: Operational Management	3.2.1: the VLE should support the organisation's operational goals.	*Context:* *Positive fit:* *Negative fit:*
3.3: Information Management	3.3.1: the VLE should support the organisation's information goals.	*Context:* *Positive fit:* *Negative fit:*
3.4: Pastoral Management	3.4.1: the VLE should support the organisation's pastoral goals.	*Context:* *Positive fit:* *Negative fit:*
4: Logistical		
4.1: Place	4.1.1: the VLE should support the course across its various locations.	*Context:* *Positive fit:* *Negative fit:*
4.2: Time	4.2.1: the VLE should support the course's temporality.	*Context:* *Positive fit:* *Negative fit:*
4.3: Sequencing	4.3.1: the VLE should support the course's periodicity.	*Context:* *Positive fit:*

		Negative fit:
4.4: Control	4.4.1: the VLE should support the course's control of its logistics.	*Context:* *Positive fit:* *Negative fit:*
5: Cultural		
5.1: Values and Norms	5.1.1: the VLE should support the course's values and norms.	*Context:* *Positive fit:* *Negative fit:*
5.2: Symbols	5.2.1: the VLE should support the course's epistemology, language and terminology.	*Context:* *Positive fit:* *Negative fit:*
6: Resources		
6.1: Time	6.1.1: the VLE should be time-efficient.	*Context:* *Positive fit:* *Negative fit:*
6.2: Money	6.2.1: the VLE should be cost-efficient.	*Context:* *Positive fit:* *Negative fit:*
6.3: Staffing and skill base	6.3.1: the VLE should fit the profile of staffing and the skills of staff in the course.	*Context:* *Positive fit:* *Negative fit:*
7: Procedures		
7.1: Core heuristics and pedagogies	7.1.1: the VLE should support the course's approach to teaching, learning and assessment.	*Context:* *Positive fit:* *Negative fit:*
7.2: Practices	7.2.1: the VLE should support the course's practices and activities.	*Context:* *Positive fit:* *Negative fit:*
7.3: Regulations	7.3.1: the VLE should support the course's rules and their enforcement.	*Context:* *Positive fit:* *Negative fit:*
8: Strategy		
8.1: Curriculum	8.1.1: the VLE should support the course's curriculum.	*Context:* *Positive fit:* *Negative fit:*
8.2: Quality assurance	8.2.1: the VLE should support the course's quality assurance and audit processes.	*Context:* *Positive fit:* *Negative fit:*
8.3: Stability and change	8.3.1: the VLE should support the course's dynamics of change.	*Context:* *Positive fit:* *Negative fit:*

	8.3.2: the VLE should support the course's dynamics of stability.	*Context:* *Positive fit:* *Negative fit:*
8.4: Authority	8.4.1: the VLE should support authority within the course.	*Context:* *Positive fit:* *Negative fit:*
9: Distal Factors		
9.1: Funding	9.1.1: the VLE should fit the general funding environment.	*Context:* *Positive fit:* *Negative fit:*
9.2: Compliance	9.2.1: the VLE should fit the general compliance environment.	*Context:* *Positive fit:* *Negative fit:*
9.3: Research	9.3.1: the VLE should fit the general research environment.	*Context:* *Positive fit:* *Negative fit:*
9.4: Politics and status	9.4.1: the VLE should fit the general political environment.	*Context:* *Positive fit:* *Negative fit:*

Appendix 6.1: EEMeC Use Case Scenarios

ID	UC01
Title	Year 1 student prepares for week ahead
Players	Year 1 student, year 1 secretary, year 1 student peers, EEMeC
Assumptions	Student is working in semester 1.
Description	A year 1 student prepares for the week ahead on a Sunday evening by logging in to EEMeC. When they log in they are presented with their 'My EEMeC' page. This has notices from the year 1 secretary about changes to a practical session venue and timings. There is also a link to a form they need to complete and hand in. From the 'My EEMeC' page the student follows the 'My Courses' links to the year 1 home page and then in to the course areas within year 1. They download lecture notes and post-lecture self-assessment questions from the previous week and for the week ahead and print them out for use later. On the My EEMeC noticeboard there was a note that a section of the virtual simulated patient 'Hannah" had been released. The student therefore goes to the integrated topic pages for 'Hannah' and works through the sections that have just been released. They then check their personal timetable for the week ahead to which they add a reminder to meet their Director of Studies and then they print this out. When they have gone through all of these steps the student goes to the first year academic and non-academic discussion boards, reads through the latest posts and replies to a few of the threads. Seeing that a post has come back immediately to one of theirs the student has a brief exchange with a student logged in to EEMeC elsewhere and they agree to meet for a drink later that evening. Finally the student logs off.
Transactions	Student logs in to EEMeC, staff add notices to EEMeC, information and resources are provided by EEMeC, discussions are shared between students.
Exceptions	Student has mislaid login so they click 'remind login' button on the EEMeC home page that sends their login details to their SMS account. Various messages have not yet been posted. Student does not print out timetable but notes events in their diary or takes some other kind of record. Student puts off non-mandatory tasks until later. No other student is using the discussion boards at the same time as the principle actor student.

Validation notes:

"1) How well does this use case represent the ways in which you work with EEMeC? Almost alike, though I hardly use the reminders programme to add personal events. 2) In what ways is it different and in what ways the same as your experiences? i use the timetable link everyday to check what i have for the day but do not print it out. i check all the short notices posted on too and also the discussion threads. however i have not experienced a exchange of immediate messages between me and another eemecer. 3) What would you add or change to make it more realistic? not all the lecture notes are on eemec. i am unsure whether this is eemec's problem or the lecturer's. maybe emoticons or coloured fonts can be added to make it more fun?"

"Genrally this case agrees pretty much with the way I interacted with Eemec last year and this year. However on sunday evening I tend to check the notice board first, followed by

checking my timetable against my diary,(I normally have the whole my semster timetable in my diary by the end of the 1st week). I don't normally print out lecture notes before lectures; I probably should but I still tend to rely on handouts. It would be great if lecture notes could be somehow linked to the lecture in the timetable, this would make me more inclined to print out notes before hand. Also I prefer it when notices have links to the subject they are highlighting, as it saves me the hassle of trying to find the task in Eemec."

Validators = 3

ID	UC02
Title	Year 2 student completing SSC2 project
Players	Year 2 student, student's peer group, year 2 secretary, SSC project supervisor, year 2 students.
Assumptions	SSC groups are set up and running and coming to end of their run.
Description	As part of the student's year 2 Student Selected Component (SSC) project work they have to prepare a group-authored website on their topic of research. In preparing for this the student has already uploaded a series of self-authored web pages to EEMeC as personal homepages. Now, as the project is coming to an end, the student uploads several pages and related images they have been working on. They wish to check how a similar project was done several years ago so the go through the EEMeC archive and view the older site. Satisfied with what they have done they contact the project supervisor and ask them to take a look and comment. The student then uploads the URL of their project's home page into their Portfolio. They also add some peer assessment comments about their fellow project members regarding how they have performed in their group project work. Having completed these tasks the student then checks their personal timetable and, seeing a topic that is of particular interest, decides to review the online materials provided on that topic. These consist of annotatable pages (the student uses the annotation function as a bookmarking tool rather than creating substantial annotated text), and CAL objects running in the EROS sequencer. Finding a clinical aspect that they are interested in, they use the EEMeC search to find out where in the course they will come across this topic. Having exhausted their keenness for this they go back to their My EEMeC page, quickly scan their notices and then go to the year 2 discussion pages and there they both read and add messages to the boards.
Transactions	Student logs in, student uploads and checks web content, student contacts supervisor, student uploads into portfolio, student adds to peer assessment record, student searches and annotates EEMeC pages, student engages in online discussion with peers.
Exceptions	Student makes a low contribution to the web production aspect of the project, either by choice or by having web authoring co-opted from them by other more 'techie' students in their group. Student finds no supporting materials or EROS CALs for their topic of interest.

Validation Notes:

"Most students don't use annotation."

Validators = 1

ID	UC03
Title	Year 3 student on respiratory rotation (last of four)
Players	Year 3 student, ACT Office, clinical skills organiser, year 4 SSC organiser
Assumptions	The year 3 student is in the last of their four rotations which happens to be 'respiratory'. This is based at one of the main teaching hospitals and the student uses a computer in the medical education centre there to access EEMeC.
Description	The student logs in and immediately receives an ACT course evaluation form in a pop-up window. They quickly complete and submit the form and return to My EEMeC. They check their notices, paying particular attention to a notice regarding the arrangements for the OSCE in two weeks time from the clinical skills organiser. Being reminded of the imminence of the OSCE, they quickly book themselves in for a couple of sessions in the clinical skills lab and they also review a couple of the clinical skills CALs in EEMeC. Returning to the current module they are preparing their portfolio case report for the respiratory rotation. To help them with this they search EEMeC for related topics and annotate a couple of the relevant pages for future reference. They also use the ATHENS-DA function to authenticate directly to a journal article referenced by PubMed. Returning to My EEMeC they see a notice regarding the selection of individual SSC projects in year 4. The student follows the link to the SSC site within EEMeC and browses the various projects taken by students in previous sessions. They decide that they will come back and do this later. They log off and go to their next clinic-based teaching session.
Transactions	Student logs in and accesses various EEMeC services, central ATHENS-DA web service is invoked, student accesses ATHENS-controlled resource
Exceptions	Student decides to dismiss ACT evaluation without completing it. EEMeC search for topics fails to return any useful sources of information.

Validation Notes:

Most students don't use annotation.

Validators = 1

ID	UC04
Title	Year 4 student at end of second rotation
Players	Student, EEMeC help desk, student peers
Assumptions	The student is completing the Obstetrics and Gynaecology (O&G) rotation and as such has completed and uploaded their O&G case report and is now preparing for the O&G in-course exam. At the same time they are also writing their first overview essay.
Description	The student logs on to revise and prepare both coursework and for the end of rotation exam. For their overview essay they read through items stored in their portfolio from earlier stages and years of the MBChB programme, making notes and devising a plan for their essay. Finding a couple of items from the previous year have formatting problems they contact the EEMeC help desk and report the problem so that the errors can be fixed. Going on to the preparation for the O&G exam, the student checks the exam arrangements and assessment criteria and devises a revision plan. As part of this the student searches EEMeC and annotates the relevant pages and resources. They also revisit the learning outcomes and the related materials to help structure and reflect what they know and what they need to revise. Before they log out, they check the My EEMeC page and note information on preparation for the fifth year and on changes to ethical guidelines regarding research and medical students. The student briefly scans the discussion boards and, noticing a new thread on the upcoming OSCE, adds a post regarding the work they have just done. The student then logs off.
Transactions	Student logs in and accesses various EEMeC services, EEMeC help desk developer fixes portfolio items, student's peers engage in discussion
Exceptions	None

Validation Notes:

Most students don't use annotation.

Validators = 1

ID	UC05
Title	Year 5 student preparing for their next rotation
Players	Student
Assumptions	Student is at home and using own laptop to connect to the web
Description	After checking their web-based student mail, the student logs in to EEMeC. They briefly check their notices and scan the discussion boards but knowing that they will be going almost straight into a GP practice in the Scottish Borders, they decide to focus on preparing for the rotation. They check the location of the practice in EEMeC and look up transport details and finding public transport not appropriate they look up the attachment list and see which students will be on attachment with them. They email them to see if anyone is going to be driving down. The student, who intends to be a GP, reviews the teaching materials on EEMeC and downloads them onto the laptop for later reference. They also check the outcomes for the rotation and make some preparation notes to help focus on the required competencies and knowledge they should be looking to acquire. They also review current and previous teaching materials and notes in General Practice from the EEMeC archive. While doing this they come across a new CAL 'Alcohol Abuse and Misuse' and work through a couple of sections and follow up the links for clinical guidelines and demographical statistics. Noting that the district they are going in to has relatively high alcohol-related problems they revisit the CAL and work through the remaining sections. Although it is pitched at students earlier in the course it proves useful, both as a reminder and as a stimulus to reflective thinking. The student also wishes to see if Registry has updated their student record to reflect a change in address. They follow the link to the institutional portal 'My Ed' from EEMeC to check this data. Finding that it has been updated the student logs off.
Transactions	Student logs in and interacts with various EEMeC services, downloads materials and follows link to 'My Ed'.
Exceptions	Student is using someone else's computer.

ID	UC06
Title	Student preparing to rejoin course after taking an intercalated year to do a BSc Honours in Virology
Players	Student, peers from student's original year group, peers from student's new year group, student's Director of Studies, year secretary
Assumptions	Student is at the end of their intercalating year and about to rejoin the MBChB programme in the third year.
Description	The student, who has just completed their intercalated year, is preparing at the end of the summer vacation for entry into third year. They have recently been given posting access to the new third year discussion boards and have accordingly lost this for the new year 4 boards where most of their original peers are based. The student scans through the boards, getting a feel for the dynamics and culture of their new year group. The student also scans the study guides and checks what carousel group they are in from the timetable for the year and checks who is in their group with them. The student, who has been keeping in contact with their fellow intercalating peers via EEMeC intercalated discussion boards, now contacts some of them who are in the same new group and, discussing both how their studies have gone and the prospect of the new year, agree to meet up for lunch the following day to talk things over more fully. The student also looks up their new Director of Studies (following the retrial of the previous one) and contacts them to arrange an appointment to discuss the academic year ahead. Finally, the student, still fired with interest in the topic of their intercalated degree searches EEMeC for material relevant to that topic and sees that they will have an opportunity to revisit some relevant themes in year 4. The student then logs off.
Transactions	Student logs on and interacts with various EEMeC information and services, contacts Director of Studies.
Exceptions	None

Validation Notes:

"As a student doing an intercalated BSc I have not really used Eemec discussion boards as the intercalated board never really receives that much interest compared to previous years. But I have continued to use the resources section of Eemec particularly the useful website links submitted by the students."

Validators = 1

ID	UC07
Title	Curriculum designer reviewing and reviewing a part of the course
Players	Curriculum designer and colleagues, EEMeC developer
Assumptions	There are already a number of annotations from fellow developers and teachers. There is a degree of extant cataloguing and coded structure in place relevant to the area of review. The CD has write access to specific parts of the EEMeC content management system.
Description	One of the MBChB programme's curriculum designers (CDs) is reviewing one of the MBChB's vertical themes. Working intermittently between other tasks, the CD has reviewed the study guides and the learning aims and objectives both in the current and in previous academic sessions in EEMeC. When material needs to be amended or updated the CD uses the nodal content management system to update material, create or remove links and associate (and disassociate) resources with nodes. The CD uses the annotations for node pages to keep reminders and to review notes left by both staff and students over time to feed in to the review process. At one stage a whole section needs to be restructured and linked elsewhere in the system. At this point the CD meets with one of the EEMeC developers and identifies the nodes to be altered and the changes to be made to the system topology. These changes are made directly in the database rather than through the web front-end. The CD, now satisfied with the underlying structure, now adds more metadata to key nodes and indicates where the vertical theme nodes should intersect with the main horizontal aspects of the course. These additions are also made directly to the database. The CD contacts her colleagues and asks them to review the changes and feed comments back as to whether further work is required. One module organiser refers the CD to some of the previous session's evaluations as to the need for coverage of a particular topic. The CD tweaks the appropriate material and signs off the changes to the vertical theme.
Transactions	CD logs in, reviews archive, nodes, annotations, evaluation reports. CD makes changes to nodes and nodal structure. EEMeC developer makes changes to database version of nodal structure.
Exceptions	The CD asks an EEMeC developer to make all of the changes to the system for them.

Validation Notes:

"When I have updated the skills guides, the editorial process has taken place outside Eemec and, when complete, I have posted the final version [to EEMeC] ... I don't think I have had any experience of the second part of the scenario where major revisions have had to be made. Also, I fear the last section about the module organiser's suggestions might be a little idealistic for CSPPD … the other issue is that it fails to take account of all the people involved in the process, for instance, secretaries are absolutely vital in my experience"

"I recognise what I read. The notion of "nodes" is a key issue. As far as I am aware, these are only visible and manipulable to Eemec. Other users don't normally know about them, recognise them or manipulate them. However, not all courseware developers remember this, and I have been asked for node details by CWDs"

Validators = 2

ID	UC08
Title	Year secretary's morning tasks
Players	Year secretary (YS), year director, fellow year secretaries, College Office administrative staff, students, EEMeC developers
Assumptions	All participants have logins Activity takes place in term time
Description	A year secretary (YS) is working through the morning's tasks. She first checks her email. One student has uploaded a portfolio report early and has since made changes and wishes to change the copy uploaded. As this is before the submission deadline, she enters the student's EEMeC portfolio and removes the particular item, recording the reason for removal as she does so. Another student has mislaid their login details. The YS emails them back reminding them that they can get their details sent to their student mail account by a link from the EEMeC login page. Another student has a query about a practical session later the same week. The YS checks the event on the EEMeC timetable and confirms that the student is indeed in the right group for the intended session and emails the student back. A member of staff emails a change of venue for a lecture the following week. Having already uploaded the timetable, the YS has edit rights to the EEMeC timetabling system and is therefore able to make the changes directly to the system. She also uses the noticeboard to inform the group affected by the change to make a note of the new venue. One of the central College administrators has emailed to ask that students are reminded to complete a health and safety form. The YS sets up a notice for all of her year reminding them of the form – the notice contains a link to the form on EEMeC. Another member of staff has requested that a flyer for a seminar be posted to the year noticeboard. The YS sends this to the EEMeC team. An EEMeC developer converts the flyer to PDF format, uploads it to EEMeC, adds a notice announcing the seminar with a link to the PDF flyer. The year organiser has signed off a set of student marks following an exam board the day before. The YS goes to the Assessment Engine and adds the marks to the appropriate event and aggregate event pages. She double checks the online data with her master copy and confirms the data is correct.
Transactions	Email exchanges with various users. YS logs in, views various pages and makes various changes. EEMeC developer makes some changes.
Exceptions	None

Validation notes:

"The only thing I might say is that the staff never really inform us of a change of venue - its quite unusual for them to request a change of venue - but I would say that they request the change of venue and we have to find an alternative and then inform students and staff of location. The only other thing is that Year 2 don't have the assessment engine so Im not sure how that works."

"I think the case is fine, you probably don't want to include too much detail in the case. However, my comments: I would post individual or group messages (as well as whole class info) on eemec rather than send an email. Keeping an eye on the discussion and chat boards. Particularly the academic discussion board and its usefulness, (perhaps mainly to academics) for discussion threads for the essays etc. And of course the non-academic for its

sometimes inappropriate chat! If you are planning to prioritise your 'description' list I would move the Assessment Eng bit near the top. From a Year Sec point of view I'd see these items as being more weighty than posting a flyer although of course thats a useful way of getting info to the masses. In your 'players' box - add academic and clinical staff. I'm a great fan of eemec”

“Actually learnt something I didn't know about EEMeC from your document (about the login details)! The only comment I would make is that Year 3 doesn't use the timetable system of EEMeC, the Module Secretaries send the Module timetables for each Rotation to you guys & they are posted up from there. However I would still put a notice on the Noticeboard about any changes. Also re the Assessment Engine - I input direct to the Assessment Engine so any marks presented to an Exam Board are printed from the Assessment Engine pages. The Year 3 Exam Baord doesn't see them in any other format now. Not sure what [year 5 secretary] does for Year 5.”

Validators = 2

ID	UC09
Title	Assessment officer prepares for an exam board and its follow-up
Players	Assessment officer (AO), year secretary, students, exam board, EEMeC developer
Assumptions	AO and year secretary have assessment engine rights on top of their general EEMeC access rights
Description	The AO has checked the existing event slots for the latest rotation's assessments. She adds or amends these as needed and ensures the aggregate events are properly structured. The appropriate year secretary collects the various assessment sheets and marksheets and and enters the data directly into the assessment engine. Data usually also comes from two other sources – an excel/access document from a Module Secretary/Organiser and from marking carried out on Speedwell. In both instances these documents are sent to the AO for reformatting and then sent to EEMeC for upload. Once this is complete the year secretary prepares the material for the exam board. One of the items is a portfolio case report. The Year Secretary synchronises data between the more granular portfolio and the integrated assessment engine parts of the database. One or more markers may not mark online in which case these marks are sent to the Year/Module Secretary and subsequently need keyed into the AE. (these are normally entered into Portfolio so that students get breakdown and then synchronised). The exam board views are given the appropriate committee paper titles and IDs. Sometimes (always so far) an exam board will work offline with printouts but this exam board will also be working online. In the meeting the AO is able to project the distribution of marks and post-hoc moderated Angoff standard setting is applied to a number of the individual events (this would be very rare. Standard setting is done in advance of the students sitting the exam. Any minor changes would also be done in advance. Only in situations where there has been a very tight turn around between the marking and the exam board (e.g. the OSCE) would this occur). In a few cases overriding inputs or exemptions are also added directly to the system (I don't really see this happening at a board very often at all – again it would be done in advance). The exam board ratifies the assessment data (this may be the case if we were working online at an exam board but because we print the papers this needs done in advance – I'm unsure that we would do this live as the time it takes for the system to do this would be better spent moving on to another module. Following ratification at the exam board, the AO checks the students' view of their results before releasing them, phones an EEMeC developer for a tweak to be made, suspends mark release to two problem students and then releases the marks to the rest of the student groups. The Year Secretary adds a notice to EEMeC to let the year know their marks are now available. This action does not relate to an exam board at all but as a task it does happen: at the same time, and in preparation for the next set of Overview Essays the AO creates new marker accounts in EEMeC and sends out their details to them directly.
Transactions	Year secretary entering data directly. AO reformatting data for EEMeC to upload. AO checking and assembling event, aggregate and marking information. AO projects data at exam board and makes live changes to the

	system reflecting the wishes of the board. Yr Sec releases marks. AO creates marker account and sends out details.
Exceptions	Exam board may entirely offline. In this situation the papers for the meeting are prepared, printed off and copied before the meeting (currently this is the norm). AO may set up the mark release to students without needing developer support.

Validation Notes:

Use case reflects changes made by both validators.

“So far we have not worked offline at all at an exam board. I would imagine that we would do the angoffing in advance of the board and only in exceptional circumstances would we amend it in a meeting.”

Validators = 2

ID	UC10
Title	College Office administrator's (COA) morning tasks
Players	COA, specific students, COA colleagues, room administrators
Assumptions	The COA in this use case has a general range of responsibilities and is based at the satellite office at the New Royal Infirmary at the edge of the City. The COA has a number of tasks to work through this morning, a number of which involve EEMeC.
Description	The COA first checks their email and notes a couple of requests that require them to use the EEMeC noticeboard. The COA logs in to EEMeC and posts one notice to years 4 and 5 regarding changes to the assessment regulations passed from the University senate, and another to the whole MBChB regarding the clinical grand rounds presentations at the Royal Infirmary for the next two months. The COA has also received a request from her line manager to check whether three particular students (identified by matriculation number) have read an earlier notice with which they have not complied. A notice is considered read if a student has logged in while it was actively displayed. The COA checks the 'student read' function and confirms that all three students had logged on while the notice was displayed, she emails this confirmation back to her line manager. Her next task is to set up a meeting between a member of the medical teaching organisation (MTO) and those students who were direct entrants to third year. The COA is able to check the common diaries for the staff involved (as they all share the same MIS-supported desktop) and the timetables for the students concerned and is able to identify a common date/time for the meeting. The COA then uses the EEMeC authentication link to the College's room-booking system and makes a room-booking request. The room's administrator emails back straight away and confirms the booking. The COA emails the staff member involved and uses the EEMeC individual noticeboard to inform the students of the meeting. Just before she goes to get a cup of coffee, a student comes in to the Office counter with problems and enquiries. They are having personal problems and needs an extension to their studies. The COA looks up the academic member of staff the student needs to contact and also their Director of Studies on EEMeC and phones both of them for input. An appointment is arranged for the student to meet both the academic and DoS concerned. The COA gets a cup of coffee and, alerted by a colleague, views an emerging year2 discussion thread where two students have just announced their engagement.
Transactions	COA coordinates information flow between staff, students and administrators and uses a range of systems to do so.
Exceptions	None

Validation notes:

"Have read the use case validation. Not many comments : I haven't actually used the "student read" function or to contact DoSs but do use EEMeC to access Year Study Guides (especially in connection with Assessment). I also contact the EEMeC team quite regularly to ask them to display notices too long for me to produce or to upload lecture notes/handouts especially in connection with Year 5 Preparing for Practice course."

Validator = 1

ID	UC11
Title	Year 2 organiser (Y2O) preparing for new academic session
Players	Y2O, year 2 secretary, year 2 teachers, EEMeC developers
Assumptions	EEMeC session backup has been completed for the previous academic session.
Description	In preparation for the new academic year the Y2O is going through EEMeC making sure everything is how they wish it to be. They notice a number of blank areas, which won't have changed from the previous session. They send a request to the EEMeC help desk and get a reply back 10 minutes later to say that the pages have been reinstated from the archive. The Y2O also contacts their teaching staff to request that they also review where materials and links can be reinstated or where new or changed materials need to be put in place. Over the summer a number of new CAL materials have been completed using the EROS CAL sequencing system and the Y2O now lets the EEMeC help desk know the CAL IDs and the nodes in EEMeC where these should now appear. The joins are done rapidly and the Y2O receives an email back letting them know they are in place. The Y2O then phones the EEMeC help desk and discusses a number of additional services they need to establish for the upcoming academic session. One is the provision of a 'micro-VLE' a short-life system linked to EEMeC but able to provide an institution-agnostic shared space for a collaborative teaching/project exercise involving students from Edinburgh and from GIFU University in Japan. The other is the extension to the online peer-marking system for students and staff involved in the collaborative project work that takes place throughout the year. The EEMeC developer confirms the additions, consisting of ongoing peer-assessment and assessor-assessment by the students, have been completed and are ready to use. The Y2O next checks the first few weeks of the personalised student timetable, which has for the first time been uploaded by their year 2 secretary. The Y2O notices a change that needs making but which they realise they haven't informed the secretary of. They phone the secretary and let them know the change. The secretary is able to make the change immediately and while she is on the phone the Y2O refreshes the timetable page and sees the change made. The Y2O thanks the secretary and rings off. Finally, noting that the discussion boards for their new academic year have already started to get a lot of posts, the Y2O reads through the threads. Most are from students on vacation or working over the summer and outwith Edinburgh while already there are a few posts from their teaching colleagues and the year secretary responding to questions or misunderstandings. The Y2O posts a message welcoming the students back and then logs off.
Transactions	Y2O logs in and checks various information sources, contacts EEMeC developers to make various changes and confirm functional availability and changes, contacts year 2 secretary and makes various changes.
Exceptions	The Y2O may email the EEMeC help desk rather than phoning them.

ID	UC12
Title	SSC in Year 4 Organiser (SSC4O) in run-up to SSC4 submission
Players	SSC4O, SSC4 administrative support, Year 4 secretary, students, EEMeC team, External Examiner
Assumptions	The SSC rotation runs three times in year 4 and consists of a full mini research project that is the equivalent of 9 weeks work over a 14-week rotation. It is assessed based on a project report submitted to the student's portfolio. These reports are often much larger and more complicated than other portfolio items.
Description	The day-to-day running of the SSC4 by the SSC4O, which involves about 80 students being supervised by the same number of members of staff across Edinburgh and also in some peripheral attachments is reliant upon EEMeC and email for providing information, communication and for storage of the final submission. The only direct contact the SSC4O has with students is an introductory lecture in Y3 to set students off to find their projects, and a 30 min introduction at the very beginning of their SSC4. The SSC4O is checking the current state of play with various strands of the SSC rotation using EEMeC. The SSC4O uses EEMeC notices to send timely reminders about approaching deadlines, support and advice that is available, and provide information on accessing it within EEMeC. Also, to indicate that the EEMeC support team can help with upload problems, or if the upload is only a minor problem that the student themselves can solve, the Y4 secretary can permit them to re-upload. The SSC4O will then look using the EEMeC audit tools on the Monday after the submission deadline on the previous Friday to see who has not submitted their project reports, and if any of these non-submitting students have broken the deadline without requesting and receiving an extension. If so, these students will be sent messages by EEMeC and email to contact the SSC4O urgently and explain. The SSC4O now turns his attention to the upcoming rotation, sends out prompts about prior planning, the assistance that is available and how to access it. The SSC4O also checks which students have submitted their ethical approval information to EEMeC in advance of the rotation starting. Most have but again the SSC4O sends notice to those that have not completed to get a move on. EEMeC is the essential tool in providing all contact and information to Y3 students working on organising their projects. The SSC4O now sends a notice to all of year 3 to remind them that they need to organise their SSC4 project for the following academic year within the next month, and reminds them where the useful information can be found on EEMeC. The SSC4O updates the SSC4 area of EEMeC with points of contact in different units, and supervisors with new projects seeking students. A number of SSC reports from previous academic sessions have been identified by the SSC4O as representing exemplary work. The SSC4O asks the EEMeC team to set these up as 'exemplar SSC4s', by removing the reflective diary component, and the resulting document placed within the SSC4 section in EEMeC as a guide to other students. The SSC4O indicates to the External Examiner that the projects are now becoming available for review. Satisfied with the progress of the various strands of the SSC4 the SSC4O logs off.
Transactions	Y4SO logs in and accesses various EEMeC information and tools, contacts students, requests exemplar SSC4 reports to be set up by the EEMeC team, and indicates that the external examiner can review projects.
Exceptions	None

Validation Notes: Use case reflects changes made by both validators. Validators = 1

ID	UC13
Title	Year 1 module organiser (Y1MO) preparing week's work for the students
Players	Y1MO, liaison librarian, EEMeC developer, respiratory module organiser
Assumptions	Y1MO has access to the various parts of EEMeC, that the CAL is under development and the e-Reserve set up.
Description	The Y1MO is preparing work for the week ahead. They log in to EEMeC and check that all of the items they need have been set up in the course's e-Reserve (a repository of copyright cleared third-party materials purposively acquired to support the course) and finding one item missing emails the medical liaison librarian and the EEMeC help desk to enquire after it. They also check the EEMeC news feeds from sources such as the BBC, LTSN-01, Reuters and Johns Hopkins for breaking topics to discuss. Finding a couple of particular appropriate breaking stories the Y1MO sets up discussion threads on the year 1 academic board about them with links to the appropriate feed and asks students to discuss and find contributory or confounding information regarding them. They also send off a set of background notes for the week's lectures to be uploaded by the EEMeC developers that refer to these feeds. Next they wish to edit a CAL programme that they have been co-authoring with the year 1 respiratory module organiser. They follow the 'My CAL' link on their My EEMeC page and enter the EROS authoring environment. Although the CAL is largely complete they make a few adjustment to the wording of some of the question feedback, add one question and resort another section. Having made these changes the Y1MO emails their co-author to let them know these changes have been made. Having done this, the Y1SMO checks the discussion pages and sees that there have already been a few posts in response to the questions they set earlier. Satisfied and intending to wait for more activity before they post again, the Y1MO logs off.
Transactions	The Y1MO logs in and accesses various information and tools in EEMeC and is authenticated into EROS authoring.
Exceptions	If the e-Reserve or the CAL materials are complete then no editing will be required. The news feeds from the external news providers are functioning.

Validation Notes:

"I must say that I have never used EEMEC in such a coherent way; I tend to use it mainly to monitor discussion boards and I have never tried CAL with the medics (the scientists give me really positive feedback for the fact that I still teach with chalk and blackboard, which they seem to like: this is not a negative comment about CAL - both have their roles)."

"The scenario described could be applicable to certain aspects of the Year 1 course, including PBL and possibly parts of strand 2 - Health & Society). I might describe the paradigm as one known in current industrial production parlance as a 'just in time' line (or the deadlines of a weekly paper?), ensuring the 'work/tasks' are always just current on a week by week basis. I suspect it is most applicable to many of the efforts that have been made this current semester in the multitude of Year 4 Science courses delivered on a fixed once weekly basis throughout the 11 weeks. It is not uncommon there to desire to make students aware of the latest primary or review paper. I suspect a similar desire would not be unwelcome in MBChB PBLs. On the other hand, there is certainly a strong desire in Year 1 strand 1 to make the learning robust across the semester with a desire to lock down the

schedule of events and activities across the semester, i.e., semester planning rather than weekly planning.”

Validators = 2

ID	UC14
Title	Portfolio marker (PM) marks portfolio case reports
Players	PM
Assumptions	The PM has been identified, briefed and EEMeC access details provided. The PM only sees a students matriculation number as full names are removed to provide a degree of anonymity in the marking process.
Description	The PM logs in to EEMeC from a hospital workstation with the intention of marking the portfolio case reports they have been assigned. They are able to log in to EEMeC but when they try and open a report the computer tells them that the Acrobat plug-in is not available and when the PM tries to download the plug-in, they are told they do not have enough privileges to do so. The PM tries again from their own office and this time is able to download the reports without problem. The marking process involves reading the report and then completing a pro-forma marksheet and submitting this along with feedback and any penalty information to the portfolio for each student. To start with, they read the report and complete the marksheet online. However they find shuffling the windows troublesome so they print off the student's work and just do the marksheets online. One of the student reports they have been allocated is coming up as ' not found' so they email the year secretary to query it. For all of the others they are able to enter marks and provide feedback. Having completed this task the PM logs off.
Transactions	The PM receives login details from the year secretary and contacts her when they have queries, otherwise the PM accesses student work and completes marksheets for each report.
Exceptions	Those PMs who do not like or choose to mark online. In this situation completed paper marksheets are returned to the year or module secretary for entering into the portfolio; the PM in this situation may never have logged in to EEMeC. (this only really happens for Child Life and Health, Acute/General Medicine, Geriatric Medicine and Elective Reports are all inputted by Year 5 secretary)

Validation Notes:

Use case reflects changes made by both validators.

Validators = 2

ID	UC15
Title	External viva examiner (EVE) not entirely clear what this role is. We have External Examiners for Year 5 of the MBChB, there are two with specific Portfolio responsibilities but all External Examiners are invited to attend the Viva. They may be examining or observing. The remaining examiners are recruited from our Board of Studies of Medicine, potentially including members of the Board from outwith Edinburgh in the run up to, and during exam week
Players	EVE, assessment officer, year 5 secretary, year 5 students
Assumptions	The external examiners will see a sample of students and the other examiners work in pairs and see 8 students in one day. The External Examiner can choose which room they will enter to observe the exam but if they are examining then they will know in advance which students they have been assigned to. The EVE is one of a team of examiners tasked with examining all year 5 students using a viva format and based on the whole contents of each student's portfolios. The EVE is based in another medical school geographically remote from Edinburgh and therefore all transactions are via post or electronic communication until the EVE comes to Edinburgh for the exam and follow-up meetings.
Description	The assessment officer provides the EVE, once they have been confirmed for the role, with EEMeC access with particular access rights to the portfolio. Shortly thereafter a list of students (identified by matriculation number only) is provided to the EVE along with instructions for accessing the portfolio items. The EVE logs on and looks through some of the items in each student's portfolio to get a feel for the kind of work they have been doing. They have access to the Electronic Contents Page, which provides a guide to which PVTs have been covered in each item of work. A few weeks later, and shortly before they travel to Edinburgh, they get their secretary to print off the overview essays and a few other items for each of their examinees. The EVE is then able to read them and take notes at leisure on their train journey down to Edinburgh. In advance of the examiners being allocated students and in preparation for the viva, the students have each completed an online coversheet for their portfolio indicating which of the portfolio vertical themes have been addressed in each of their portfolio entries. The student submits three copies of this contents page along with a paper copy of their portfolio (the paper copy is a copy of very single item held on MEP). The EVE has the paper copy of the portfolio with the contents page in their exam room at the exam venue or can arrange to view this in advance. In the exam room there are also mark sheets and two folders of additional information to aid the marker (PVT specific guidance marking sheets and reading material on each PVT). Following a briefing the viva examination takes place and is observed by the EVE – only if this means External Examiner but as stated they often participate. These are then rapidly uploaded into the EEMeC assessment engine as a contributing component to the finals calculations for graduation When all aspects of the Year 5 Final Examinations are over there is an Exam Board to confirm the marks. Retests and resits may follow.
Transactions	Assessment officer creates EEMeC portfolio account for EVE and sends it to

	them by email. EVE logs on and accesses portfolio case reports, EVE's secretary prints off a number of reports, EVE is provided with documentation and coversheets from EEMeC and continues to access the EEMeC portfolio during the examination period, year 5 secretary uploads viva marks to assessment engine
Exceptions	EVE does not 'like' the Internet and gets secretary to do all access. No computer during exam process

Validation Notes: Use case reflects changes made by both validators. Validators = 2

ID	UC16
Title	MTO member (MTOM) working on information normalisation and objective-mapping in EEMeC
Players	MTOM, MTO colleagues, EEMeC developers
Assumptions	MTOM has various access and editing rights in EEMeC. The MTER has been tasked, along with the EEMeC team, with normalising information structures in EEMeC and with setting up means to structure the objectives within the course into a common system.
Description	The MTOM logs on to EEMeC and works through a section of information provision using the search and annotation facilities to identify those pages in the system that address the same topic. The MTOM then reviews the content of each page, using the node-based content management system to amend and simplify pages as appropriate, while recording a more in-depth edit list for the EEMeC team to action. When this part of the work has been completed the MTOM sends an email to the EEMeC help desk requesting that some nodes be deleted and links to the deleted nodes be redirected to the edited master nodes, and some node links be rearranged. The EEMeC team action the MTOM's request. Next, the MTOM checks the latest version of the course objective-mapping tool by registering a couple of fake objectives. As a result, she notes changes that are needed to two of the controlled vocabularies in the system and suggestions regarding altering the interface and workflow. The MTOM phones the EEMeC developer directly involved in this project and they discuss these changes while the developer makes them in real time and the MTOM reviews them live. When they have come to agreement, they set the tool to go live and the developer clears the fake objectives in advance of a full roll out. The MTOM now emails several of their colleagues to try the new system with real objectives and to feed back any problems or suggestions they may have as a result. The MTOM now logs off.
Transactions	The MTOM logs in and interacts with various information and tools, collaborative development is carried out with EEMeC developers.
Exceptions	None

Validation Notes:

"I recognise what I read. The notion of "nodes" is a key issue. As far as I am aware, these are only visible and manipulable to Eemec. Other users don't normally know about them, recognise them or manipulate them. However, not all courseware developers remember this, and I have been asked for node details by CWDs"

Validators = 1

ID	UC17
Title	Guest user has a look around EEMeC
Players	EEMeC guest academic (GA), GA's peers, EEMeC developer, DULT
Assumptions	Guest access is granted on occasion to academics and developers in other institutions and to members of the professional and regulatory bodies relevant to medicine. This is authorised by the Director of Undergraduate Learning and Teaching (DULT). The GA is working completely remotely from Edinburgh, potentially from another country.
Description	An academic from an overseas medical school has met and spoken with members of the Edinburgh medical education community at a conference and now wishes to look at EEMeC. They contact the DULT who gives permission and cc's the email to the EEMeC helpdesk. An EEMeC developer creates a new staff account through their EEMeC interface and assigns guest privileges to that new account. Part of the process generates an email pro-forma, which the developer adapts before sending off to the guest academic (GA). The GA, on receiving the email, follows the URL provided and logs in with their new username and password. Before they gain access to EEMeC they are presented with a page outlining the University's computer regulations with the option to agree or disagree to abide by them. If they were to disagree they would not get access to EEMeC. However the GA agrees and is then presented with their My 'EEMeC page'. A guest account has fairly restricted access so there are less links provided than for an active participant in the course. However the GA has nothing to compare with and accepts their login as normal. They follow a number of links and explore the system. They are able to see the majority of the systems static content such as study guides and lecture materials and can also access CAL materials and can view student discussion boards (but cannot participate). The GA uses the search facility to interrogate the system as to where specific themes are addressed in the course and they call in a couple of local colleagues when looking at areas which specifically map on to their own areas of interest and expertise. They also look back through the EEMeC archive to see how these areas of the course have adapted over time and how they compare with their own local practices. Although they are tempted to download and use some of the PowerPoint presentations and other teaching materials for themselves they decide that this is unethical and do not download them for future use. Satisfied now the GA logs off. When they decide to have another look a few months later they find that their account has lapsed. They do not request further access.
Transactions	GA requests access, DULT authorises and EEMeC developer sets up and communicates with GA. GA logs in agrees to UoE computing regulations and looks around system, GA shows EEMeC to other academic colleagues.
Exceptions	None

ID	UC18
Title	EEMeC developer morning tasks
Players	EEMeC developer, developer colleagues
Assumptions	The EEMeC developer works through the morning's chores before moving to development work. All EEMeC developers get messages sent to the EEMeC help desk email address. Note that the developer tasks identified in any of the other use case scenarios could also be included here. The developer in this use case scenario is responsible for the first response to EEMeC help desk enquiries.
Description	When they come in to the office the developer checks their mail for EEMeC requests. They take action on the following: • A failed portfolio upload is manually converted and fixed • A member of staff is sent a reminder of their login details • A notice is sent to a particular group of students along with a link to a form they need to fill in • A number of files pertaining to various lectures and practicals are uploaded to their appropriate slots • A discussion thread is terminated due to abusive behaviour and the details sent to the year organiser and the students' Directors of Studies • Several members of staff are given extra access rights to parts of EEMeC, and another account is deactivated after their departure from the University • A new EROS CAL is et up along with editing rights plus a couple of stub modules are set up for a group of staff who wish to develop some online teaching materials • A course evaluation is extended by a week due to low returns while another is edited to remove direct personal identifiers before posting the MBChB community When the developer has worked through these chores they set to continue developing a new section of EEMeC that integrates the 'ResManager' system into EEMeC. ResManager is a common College-wide object repository spanning the EEMeC, EEVeC, EEPoP, EROS and MediCAL systems. The developer is writing an EEMeC web-service module that can both provide and receive dynamic data feeds and authentication requests from ResManager. As part of this task the developer works with their colleagues to test the system in different scenarios and to audit its stability and security before it is made commonly available. While the developer is working they continue to receive occasional help desk requests that they action as soon as they are received. After a while the developer logs off so that they can attend a year 3 meeting.
Transactions	The developer logs on and actions user requests using a wide range of tools and information at their disposal. The developer will do most of this through the EEMeC web interface but will also on occasion make changes at the code or database levels of the system.
Exceptions	None

Validation Notes: Use case reflects changes made by validator. Validators = 1

ID	UC19
Title	MBChB graduate checks course and accesses old materials
Players	Graduate, graduate's peers, teaching fellow with PRHO responsibility
Assumptions	Graduate is in PRHO year and has remembered their EEMeC login
Description	A graduate of the Edinburgh MBChB is doing part of their PRHO year at Lochcarron Health Centre in the Highlands. They have just come across a similar case to one they looked at for their year 5 GP portfolio case report. They have not got any of their undergraduate notes with them so they log in to EEMeC with the hope that their account is still active. They can indeed log in and find themselves in the Graduate area of EEMeC. They go first of all to their portfolio and download the case report that they wanted. The graduate now has a laptop and decides to download a few other case reports for future reference and reflection. Returning to their graduate 'My EEMeC' page they see there is a notice from the teaching fellow responsible for PRHO liaison requesting that all recent graduates fill in a short questionnaire. In a generous frame of mind, the graduate follows the link and responds to the questions, which are largely based on ascertaining how relevant aspects of their undergraduate training have been to their PRHO training. Having completed the questionnaire, the graduate returns again to their 'My EEMeC' page and opts, for old times sake, to check the discussion boards. They find that a number of their peers have been leaving and exchanging messages and in particular are arranging a reunion in Edinburgh at the end of the PRHO year. The graduate leaves a confirmatory message regarding the reunion and a couple of others in response to threads from friends. The graduate logs off and proceeds to read the GP portfolio case report in preparation for a surgery they are giving the following morning.
Transactions	Graduate logs in to EEMeC and access information and completes questionnaire
Exceptions	Student has misplaced login

ID	UC20
Title	Medical liaison librarian updates evidence-based medicine (EBM) teaching and general library pages
Players	Medical liaison librarian (MLL), veterinary liaison librarian, EEMeC developer, central librarians, EBM coordinator
Assumptions	The MLL has a wide range of responsibilities including teaching within the EBM vertical theme. She has authored a number of tutorials covering literature searching and databases. The MLL has previously set up these tutorials as self-directed CALs in the EROS system and is now reviewing them following staff and student feedback.
Description	The MLL logs onto EEMeC, clicks on the 'My CALs' link and is authenticated into and transferred to the authoring section of EROS. The MLL adds a question, changes the order of a few others and updates links and images on several other pages. She previews the changes and then returns to EEMeC where she checks the links within the system. Happy that the CAL is now as she wants, she checks the EEMeC library pages for which she has write-access, and makes a few changes. She has previously contacted her equivalent in the veterinary school where a sister system to EEMeC, called EEVeC, is running. They have discussed a set of library resources that have been linked from EEVeC and the MLL would like them in EEMeC too. The MLL phones the EEMeC team and requests that these resources are linked to her library pages in EEMeC. The EEMeC developer duplicates the resource objects from the EEVeC to EEMeC databases and associates them with her appropriate nodes. The MLL when she refreshes the page now sees the added resources. The MLL thanks the developer and logs off EEMeC.
Transactions	MLL logs in to EEMeC follows an authentication path to EROS and makes various changes. MLL uses content management system, phones EEMeC team and EEMeC developer uses content management systems from both EEMeC and EEVeC.
Exceptions	None.

Validation Notes:

"I've deleted the bits containing the Veterinary Liaison Librarian and sharing files with EEVeC because that doesn't really happen yet. I do consult with the VLL about general content and she often looks at the CALs and web pages and suggests improvements, but we don't share resources between EEVeC and EEMeC yet – we do hope to in future. I usually contact the EEMeC team by email. This scenario is a snapshot of revision activities, but of course you will also be aware of my steps taken to set up a new EROS CAL by asking for a new CAL and then once I've finished it, asking for a link to it to be added perhaps to a page for which I don't have editing rights, and that after the assignment of a CAL to a group of students, I contact the EEMeC team to get the students' answers to the quiz questions."

Validators = 1

Use Case Scenarios Glossary

Part of the recommended use case authoring process is to provide a glossary of the terms used in the cases that will not be familiar to a reader unfamiliar with the context of use (Wirfs-Brock and Schwartz 2002):

- ACT Office: the 'additional cost of teaching scheme' provides funding to the NHS in Scotland to offset the costs of hosting students and having NHS staff teach them. The ACT Office in Edinburgh oversees the ACT scheme for its NHS partners. A major part of their role is to evaluate the quality of teaching throughout the MBChB programme. In England and Wales an equivalent scheme operates called 'SIFT'.
- Angoff Standard Setting: a mathematical method for adjusting the spread of marks in an assessment event by adjusting points on a grading scale and redistributing the marks between them. In Edinburgh Angoff points are set for the 50, 60, 90 and 100% points on the grading scale.
- Assessment Officer: an administrator based in the College Office with responsibility for overseeing and managing the logistics of the summative examinations within the MBChB programme.
- ATHENS DA: ATHENS is the JISC-funded authentication service for bibliographic, data and other resource collections. ATHENS devolved authentication (DA) is a web service that allows HE institutions to validate ATHENS logins automatically based on a user's local authentication credentials.
- CAL – acronym for computer assisted learning. The term CAL has become a common term for any form of computer-based teaching materials.
- Clinical Skills Organiser: in the MBChB there are three CSOs with responsibility for running the clinical skills training in the MBChB. They are usually specialist nurse skills trainers.
- College Office: The University of Edinburgh consists of three Colleges and a number of central units. Among its other roles the College Office for Medicine and Veterinary medicine has administrative responsibilities for the MBChB and as such employs a number of undergraduate administrative staff (~10) tasked with both general support and specific tasks such as admissions and assessment.
- Curriculum Designer: the Medical Teaching Organisation employs a number of staff to plan and oversee the MBChB curriculum.
- Director of Studies (DoS): the University of Edinburgh runs a scheme for providing student support in the form of Directors of Studies. A student's DoS is expected to provide both academic and pastoral support and to act as their advocate.
- Director of Undergraduate Learning and Teaching (DULT): the DULT heads up all undergraduate teaching in the College of Medicine and Veterinary Medicine at the University of Edinburgh. The MTO and EEMeC's developers, the Learning Technology Section, both come under the DULT's line management.
- EEMeC help desk: a support service based on email, and to a lesser extent phone, communication. All EEMeC developers receive the eemec@ed.ac.uk email messages.
- EEMeC session backup: the complete EEMeC state at the end of each academic session is made available as an archive copy.
- EROS – 'Edinburgh Reusable Object Sequencer'. This system, which runs externally to and parallel with EEMeC, provides linear sequenced tutorial and self-assessment materials in support of many topics and themes in the MBChB curriculum. Staff can author and deliver sequences via web interfaces and the results of student interactions can be tracked and analysed. EEMeC handles individual EROS sequences as resource objects, dynamically linking them into node pages with which they have been paired in the database. EEMeC and EROS are among a number of systems developed by the same team. Other systems include:

    - EEVeC: a sister VLE to EEMeC for the undergraduate veterinary medicine course at the University of Edinburgh
    - EEPoP: a VLE for the postgraduate community in the College of Medicine and Veterinary medicine.
    - ResManager: a learning object metadata agent for the College's online systems.
- Exam Board: every academic year has its own exam board which discusses, approves and ratifies assessment processes and the results from assessments.
- Intercalated: 90 year 2 MBChB students take an intercalating year which involves sitting an additional BSc Honours degree in one of a number of medical science topics.
- Marksheet: the *pro forma* document for structuring and recording the marking of summative assessments.
- MBChB Portfolio: the sum of all in-course summative assessments aggregated longitudinally and set as the basis of the viva component of the finals exams at the end of year 5.
- MBChB Vertical Themes: these are 11 embedded topics that weave through the curriculum and include ethics, clinical skills, informatics, communication and personal development.
- Medical liaison librarian: all Edinburgh librarians are part of the central University library service. There are subject-specific liaison librarians to link the central service to the needs of the academic subject communities.
- Medical Teaching Organisation (MTO): the unit charged with designing, implementing, regulating and evaluating the MBChB curriculum. The MTO is part of the Directorate of Undergraduate Teaching and Learning.
- Module organiser: the next level of academic staff below year directors, module organisers will organise and run specific modules such as respiratory system in year 3 or general practice in year 5.
- 'My Ed': is the name given to the central University portal for its online services. My Ed provides links to Registry, HR, library and computing services.
- Overview Essays: there are two overview essays, one each in years 4 and 5 that reflect and review the student's portfolio work up to that point.
- PRHO: the 'Pre-Registration House Officer' is the next step for a doctor in training after graduating.
- PubMed: is the leading bibliographic database of biomedical and healthcare related papers and other literature and is therefore a prime component of evidence-based practice in medicine.
- Rotations: there are no optional modules in the MBChB but students do not do them at the same time. Groups of students will rotate through modules within a year; the number of rotations equals the number of principle groupings within a year. The terms 'carousel' and 'attachment' are also used for this kind of serial periodicity.
- SMS: the 'student mail system' is the University-provided email service for all students.
- Student selected components (SSCs) are sections within each year where students may choose projects they can work on. In year 2 SSCs are run as group work with websites being the final output. In year 4 SSCs take the form of individual research projects.
- Virtual simulated patient: as part of the integrated topics part of the MBChB curriculum a number of online patient case scenarios have been developed to assist students with their synthesis of knowledge and experience from different aspects of the programme. Topics covered by VSPs include respiratory medicine, lifecycle and obsterics and alcohol use and abuse.

- Year director: a senior academic who manages and runs a single year of the MBChB curriculum.
- Year secretary – there is one secretary for each of the five years of the MBChB with a number of modules within each year also having some form of administrative support. The year secretary holds a key role within the MBChB as they are responsible for the administration of the whole of their year and they manage logistics, resources and information on behalf of students and staff within their particular year.
- Year student peers – there are approximately 220-240 students at the time of writing in each of the five years of the MBChB programme.

Appendix 6.2: Additional EEMeC Use Case Scenarios

ID	UC21
Title	Errant and Failing Student
Players	Student, student peers, year secretary, student's Director of Studies, senior College Office administrator, head of year 2, Director of Student Affairs, EEMeC developer.
Assumptions	Student is failing their second year and is feeling embittered and angry about this situation.
Description	The year secretary has checked the portfolio and peer marking tools and has contacted the student both by EEMeC notice and by email regarding their failure to submit a number of pieces of work. The student, receiving the email and feeling harassed, logs on to EEMeC and posts several defamatory messages in the discussion boards and completes their peer marking. Other students reading the messages consider them quite inappropriate and submit them as unsuitable via the automatic reporting mechanism. This is received by a senior College administrator who in turn alerts the student's Director of Studies, the year head and the Director of Student Affairs. A meeting is arranged with these three and the student is summoned to attend. Meanwhile the student has also been trying to access parts of EEMeC to which they are not entitled and this has created alerts that are sent to the development team. These attempts are relayed to the student's Director of Studies. At the meeting, the student protests that they had not received certain key notices in EEMeC and that they had not authored the messages. Checking with the EEMeC developer by telephone, the login record to EEMeC for the student is relayed back confirming that they had been in EEMeC while the notice was available and confirming that their account was the one from which the messages were posted. The student decides to temporarily withdraw from the course and their EEMeC access is suspended and they are removed from the year and group lists.
Transactions	Student logs in and posts to discussion boards and uses peer marking tool. Other students using EEMeC report inappropriate messages. EEMeC developers receive alerts regarding attempted illegal accessing of information.
Exceptions	Student fails to login to EEMeC or engage online at all. EEMeC is not informed of the student's departure and their account remains active.

ID	UC22
Title	Confused lecturer
Players	Confused lecturer (CL), year secretary, EEMeC developer
Assumptions	The CL has just undertaken to do some teaching on the MBChB and has been given an EEMeC login but as they are in a peripheral hospital, they have no immediate support network.
Description	The CL has logged in to EEMeC and has clicked on a URL from an email message from their year secretary. However the user hasn't got rights to that particular section yet and is presented with an error page. Thinking the URL is not quite right he changes it and tries again, this time he gets a different debugging error message. Now confused he logs out and carries on with some other work. A minute or two later he receives an email message from an EEMeC developer regarding the error message. The CL replies saying they should have access to the particular area. After another couple of minutes they receive another message from the developer saying he now has access. He logs in again and indeed does get access. He clicks on the link to his personal staff page and clicks to edit his details. When he submits the form an alert comes up saying his email address is not properly formatted. Indeed he has omitted the '@' symbol. He corrects the email address and submits the details successfully. He looks around the VLE and in particular the materials relevant to the teaching he will be undertaking. He also reads the appropriate study guides and assessment regulations. Having satisfied his curiosity he logs out.
Transactions	CL receives email from the year secretary. CL logins in and uses various services. Error pages and messages are sent to the CL. The EEMeC developer exchanges emails with the CL.
Exceptions	EEMeC developer does not respond immediately to the error message. CL does not check email.

ID	UC23
Title	Module secretary
Players	Module secretary (MS), year 5 secretary
Assumptions	The secretary supports a clinical module in year 5 and is working in a clinical department in one of the teaching hospitals.
Description	The MS logs in to EEMeC at the start of the morning in order to perform a number of tasks. First of all they check the student groups currently on attachment and notice that there is an additional student in the EEMeC lists. The MS phones the year 5 secretary and finds that the additional student has been suspended on health grounds. The year 5 secretary agrees she will contact EEMeC to get the lists updated. The MS next inputs marks to the portfolio for markers on her module that do not want to use the online marking themselves. On the one or two occasions she makes a mistake entering data the form alerts her to the problems. Two of the students' essays are showing 'document not found' so she emails the EEMeC team to ask them to look into it. She receives an email back saying the items have been fixed. She next checks through the study guide for the upcoming academic year and checks a couple of URLs. They are both broken and EEMeC gives error messages for them both. The MS emails EEMeC to enquire why they are broken. She logs out and goes for a cup of coffee.
Transactions	The MS logs in and uses various EEMeC services. Email and phone exchanges between MS, the year secretary and the EEMeC team.
Exceptions	None.

Appendix 7.1: Learning Design Questionnaire

This is the generic format ('EEMeC' was substituted for 'the system' for the MBChB) showing response type and mapping to the Learning Architecture Framework. Response types: QA = excellent to awful; SA = strongly agree to strongly disagree; ON = all the time to never; FT = free text; YN = yes/no.

No.	Root	Type	LAF Mapping
1	How effective is the system's engagement with the course in general?	QA	General
2	How useful is the system at engaging you with the course?	QA	
3	The system's support of my engagement with the course is important to me	SA	
4	How effective is the system in general at supporting interactions with students and staff on the course?	QA	Mutuality, Competence, Continuity, Coordination
5	How useful is the system in supporting your interactions with students and staff on the course?	QA	
6	The system's support of my interactions with students and staff is important to me	SA	
7	How effective in general is the system at supporting collaborative activities required by the course?	QA	Mutuality, Competence, Continuity, Exploration
8	How effective is the system at supporting the collaborative activities you are involved in?	QA	
9	The system's support of the courses' collaborative activities is important to me	SA	
10	How effective is the system in general at providing the course information and help required for the course?	QA	Competence, Continuity, Orientation, Convergence, Coordination
11	How useful is the system at providing the course information and help that you require to participate fully in the course?	QA	
12	The system's provision of course information and help is important to me ...	SA	
13	How useful is the system in general at interacting with University services and systems beyond the course?	QA	Mutuality, Reflection, Coordination
14	How useful is the system at supporting your interactions with University services and systems beyond the course?	QA	
15	The system's support of my interactions with University services and systems beyond the course is important to me ...	SA	
16	How effective is the system in general at supporting assessment in the course?	QA	Competence, Continuity, Orientation, Coordination, Jurisdiction
17	How useful is the system at supporting your assessment needs in the course?	QA	
18	The system's support of assessment is important to me ...	SA	
19	How effective is the system at providing the courses' guidelines, rules and regulations?	QA	Competence, Continuity, Convergence, Coordination, Jurisdiction
20	How useful is The system's provision of guidelines, rules and regulations you require?	QA	
21	The provision of guidelines, rules and regulations by the system is important to me ...	SA	

22	How effective are the tools provided by the system?	QA	Mutuality, Competence, Continuity
23	How useful to you are the tools provided by The system?	QA	
24	The provision of tools by the system is important to me ...	SA	
25	How effectively in general does the system support progression through the course?	QA	Continuity, Orientation, Convergence
26	How useful is the system's support of your progression through the course?	QA	
27	The system's support of my progression through the course is important to me ...	SA	
28	How effective in general is the system at supporting out of hours working?	QA	Continuity, Orientation, Reflection
29	How useful is the system at supporting your need to work out of hours?	QA	
30	The system's support of my work out of hours is important to me ...	SA	
31	How effective is the system in general at supporting teaching and learning activities at different locations?	QA	Continuity, Orientation, Reflection
32	How useful is the system at supporting your teaching and learning activities at different locations?	QA	
33	The system's support of my teaching and learning activities at different locations is important to me ...	SA	
34	How effective is the system at providing timetabling and scheduling information?	QA	Continuity, Orientation, Coordination
35	How useful is the system at providing the timetabling and scheduling information you require?	QA	
36	The system's provision of timetabling and scheduling information is important to me ...	SA	
37	How effective is the system in general at providing secondary learning materials?	QA	Competence, Orientation, Exploration
38	How effective is the system at providing you with secondary learning materials?	QA	
39	The system's provision of secondary learning materials is important to me ...	SA	
40	How effective is the system at providing access to materials and resources that help with the reflective aspects of the course?	QA	Competence, Orientation, Reflection, Exploration
41	How useful is the system at providing materials and resources that help you with reflective aspects of the course?	QA	
42	The system's provision of access to materials and resources that help with reflective aspects of the course is important to me ...	SA	
43	To what degree does the system embody the focus, vision and values inherent in the course?	QA	Orientation, Convergence, Coordination, Jurisdiction
44	How useful is the system's embodiment of the focus, vision and values inherent in the ?	QA	
45	The system's embodiment of the focus, vision and values inherent in the course is important to me ...	SA	
46	How effective is the system at supporting the educational practices and methods of the course?	QA	Mutuality, Competence, Convergence,
47	How useful is the system at supporting the educational practices	QA	

	and methods of the course?		Coordination
48	The system's support of the educational practices and methods of the course is important to me ...	SA	
49	How effective is the system at supporting feedback and evaluation within the course?	QA	Mutuality, Continuity, Coordination
50	How useful to you is the system at supporting feedback and evaluation within the course?	QA	
51	The system's support of feedback and evaluation within the course is important to me ...	SA	
52	How effective is the system at tracking student and staff use of The system?	QA	Competence, Continuity, Jurisdiction
53	How useful to you is the system's ability to track student and staff use of The system?	QA	
54	The ability to track student and staff use of the system is important to me ...	SA	
55	Overall I think the system is a very useful system in helping me engage with the course ...	SA	General
56	Overall I think the system is a very valuable system in helping me engage with the course ...	SA	
57	Overall I think the system is a reliable system in helping me engage with the course ...	SA	
58	How often do you use the system?	ON	
59	How responsive to requests for help and/or support is the system?	QA	
60	Are there any aspects of the system that you think should be added to, improved or changed to make the system more useful to you?	FT	

Appendix 7.2: Learning Architecture Framework Triad Analysis for EEMeC

Each of the triads was analysed across the groups and compared to the triad mean and the overall triad mean. These are shown figures 7.4 to 7.22. Note that the maximum score is 4 and the minimum 0. Due to the overall high scores the figures show the top half of the y-axis only.

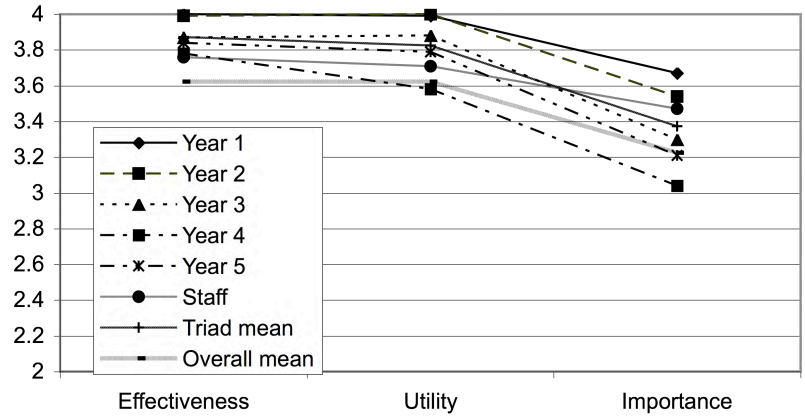

Figure A7.2.1: Questions 1-3: EEMeC's engagement with the MBChB course (triad average SD = 0.17, overall average SD = 0.30.). Interpretation: EEMeC is considered to provide a highly effective and useful service to the MBChB community of practice in engaging it with the course. However, because the course is not predominantly delivered or mediated online, EEMeC is considered to be less important by the community than it is effective or useful. Although there is deviation between cohorts, this is relatively small and indicates a relative consensus response. The staff cohort shows atypically higher importance rating while year 4 shows an atypically low importance rating. Conclusion: EEMeC is successfully mediating members of the MBChB community engagement with the course. There is a gradual decrease in score in later years of the course with the staff cohort scoring somewhere in the middle.

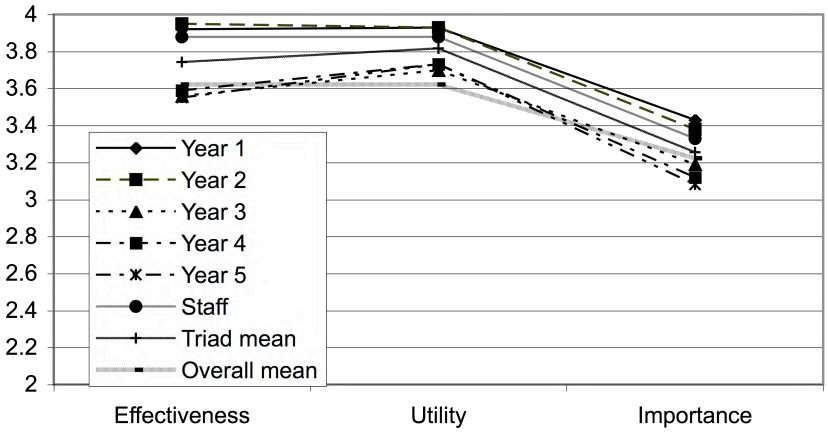

Figure A7.2.2: Questions 4-6: EEMeC's support of interactions with students and staff on the MBChB course (triad question mean SD = 0.15, overall mean triad SD = 0.30). Interpretation: EEMeC's ability to support interactions between members of the MBChB community of practice is rated highly, although, as before, this is not of prime importance to the community. Years 1, 2 and 3 share the same profile of equal effectiveness and utility

whereas years 3, 4 and 5 rate this as particularly useful but relatively slightly less effective. This draws attention to a need for students in later years (on clinical attachments) to have good communication channels, a need which is insufficiently met by EEMeC. Conclusion: EEMeC support of intra-MBChB communication is rated highly although there is room for improvement for the clinical years.

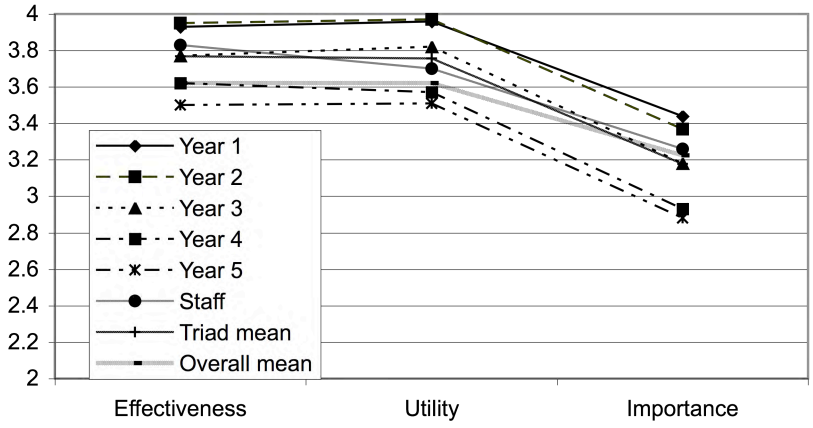

Figure A7.2.3: questions 7-9: supporting collaborative activities (triad question mean SD = 0.20, overall mean triad SD = 0.30). Observation: this triad's responses are slightly higher than the overall mean for effectiveness and utility but score the same for importance. Years 1 and 2 show high and nearly identical responses, year 3 and staff responses are similar although staff score higher for overall effectiveness and lower for utility. Years 4 and 5 show the lowest scores with year 5 slightly lower than year 4. The responses show below mean deviation. Interpretation: EEMeC's ability to support collaborative activities is highly rated by the MBChB community of practice. However this is of significantly lower importance to the community than mean which indicates a perceived lack of need for such functionality. There is general consensus across the community. Conclusion: EEMeC's support of collaborative activities in the MBChB is scored highly but is of relatively low importance to the community.

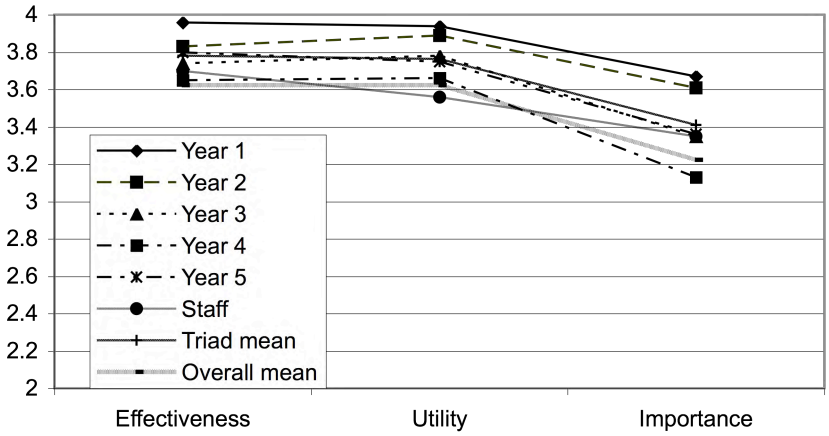

Figure A7.2.4: questions 10-12: providing course information and help (triad question mean SD = 0.15, overall mean triad SD = 0.30). Observation: this triad's responses are higher than the overall mean. The responses show little divergence. Year 2 scores general effectiveness lower than utility. Staff do not follow the trend as they score effectiveness significantly higher than utility. Interpretation: EEMeC's ability to provide course information and help to the MBChB community is rated very highly. However, year 2 finds it a little more useful

personally than they might have expected whereas staff find it less personally useful than they might have expected. There is a good level of consensus across the cohorts. Conclusion: EEMeC is successful at providing information and help to the MBChB community.

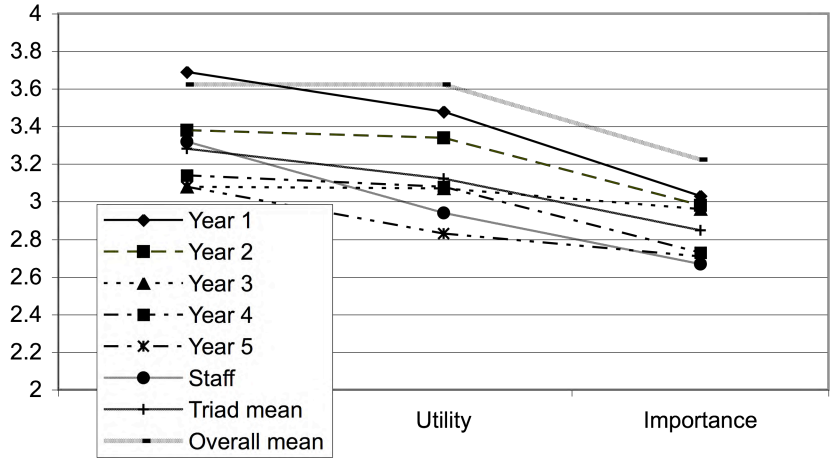

Figure 7.8: questions 13-15: interactions with University services and systems beyond the MBChB course (triad question mean SD = 0.21, overall mean triad SD = 0.30). Observation: this triad's responses are significantly lower than the overall mean. Years 1 and 5 and the staff cohort rate effectiveness higher than utility which smoothes the triad mean to follow the same trend. Years 3 and 5 indicate score relatively higher importance for this triad. The responses show less deviation than mean. Interpretation: EEMeC's ability to support interactions with other University services and systems scores reasonably well although lower than mean. Although there is reasonable consensus, the lower mean scores indicate this is a potential weakness in the system. Conclusion: although reasonably well rated, EEMeC could improve the ability to support community members in their interactions with other systems beyond the MBChB.

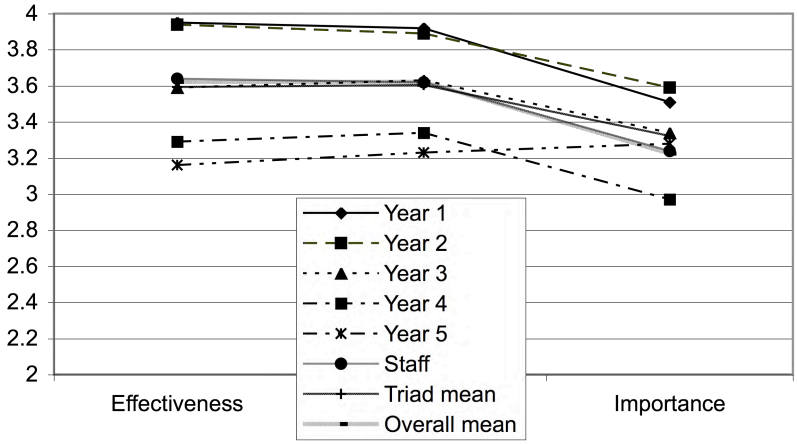

Figure A7.2.5: questions 16-18: assessment needs in the MBChB course (triad question mean SD = 0.27, overall mean triad SD = 0.30). Observation: this triad's responses are about the same as the overall mean and effectiveness and utility are rated almost equally highly, importance slightly less so. Years 1 and 2 score highest, year 3 and Staff match the mean and years 4 and 5 score lowest. For year 5 importance is atypically higher than effectiveness and utility. Interpretation: EEMeC's ability to support assessment is rated highly by the MBChB community. Years 4 and 5 find EEMeC more personally useful in

respect of this function than they perceive it to be in general. And year 5 atypically rates this as more important than either effectiveness or utility. There is an increasing need for assessment support as students move up through the MBChB which is not being addressed in EEMeC in year 5. Conclusion: EEMeC is relatively successful in supporting the MBChB community's assessment activities although this could be improved in later years, particularly year 5.

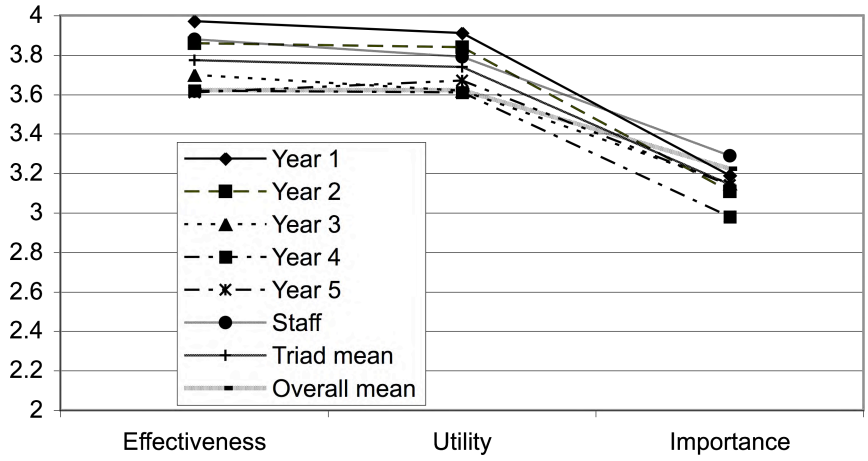

Figure A7.2.6: questions 19-21: provision of guidelines, rules and regulations (triad question mean SD = 0.13, overall mean triad SD = 0.30). Observation: this triad's responses are on mean higher than the overall mean. They show a typical profile with minimal deviation. Year 5 shows a marginally higher score for utility than for effectiveness. Interpretation: EEMeC's ability to provide guidelines, rules and regulations is rated highly by the MBChB community. There is strong consensus across the community. Conclusion: EEMeC is successful at providing guidelines, rules and regulations to the MBChB community.

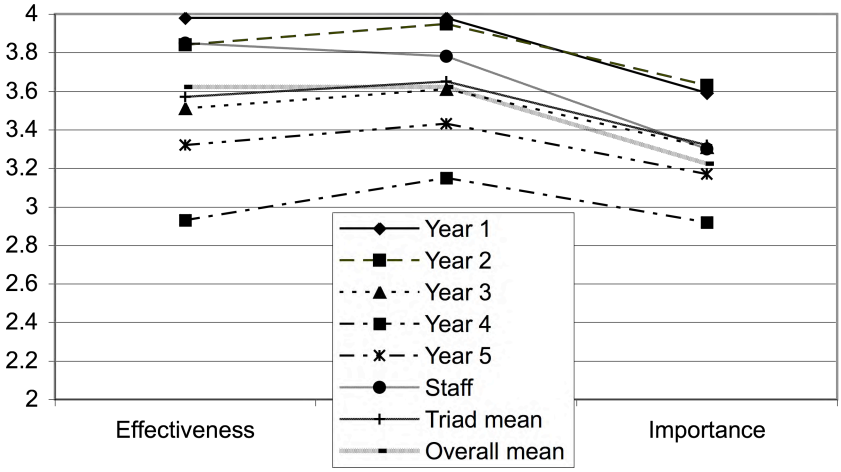

Figure A7.2.7: questions 22-24: tools provided by EEMeC (triad question mean SD = 0.33, overall mean triad SD = 0.30). Observation: this triad's responses are about the same as the overall mean. All cohorts other than year 1 rate utility higher than effectiveness. The responses show a higher than mean deviation with year 4 showing particularly low scores. Later years in the course score significantly lower than in earlier years or the staff cohort. Interpretation: EEMeC's tools are scored highly although there is a relative lack of

consensus on this. Conclusion: EEMeC is successful at providing appropriate tools to the MBChB community although relatively less so in later years.

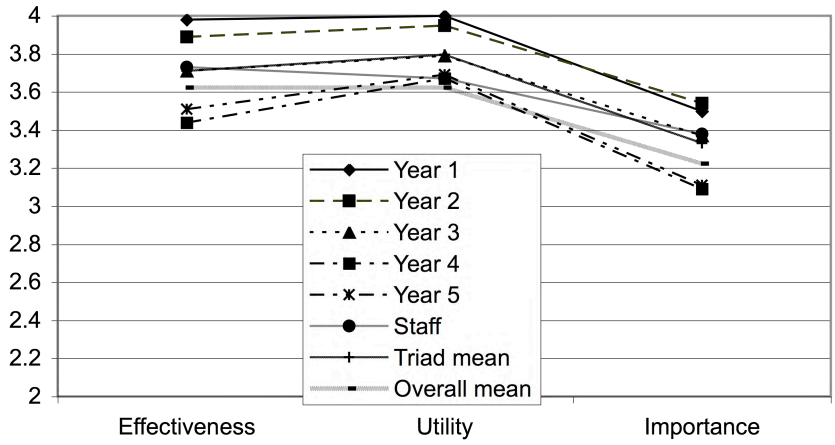

Figure A7.2.8: questions 25-27: supporting progression through the MBChB course (triad question mean SD = 0.18, overall mean triad SD = 0.30). Observation: this triad's responses are mostly higher than the overall mean. Years 1 and 2 show particularly high scores while years 4 and 5 show very similar lower scores with a higher score for utility than for effectiveness. The responses show less than mean deviation. Interpretation: EEMeC's support of progression through the MBChB is well thought of by the MBChB community. This is more effective and useful for earlier years than for later. There is also a perception in later years that EEMeC provides greater direct utility than might be expected. Conclusion: EEMeC is successful at supporting the MBChB community in aspects pertaining to progression through the MBChB course although more attention could be paid to later years and direct support rather than via prospective information.

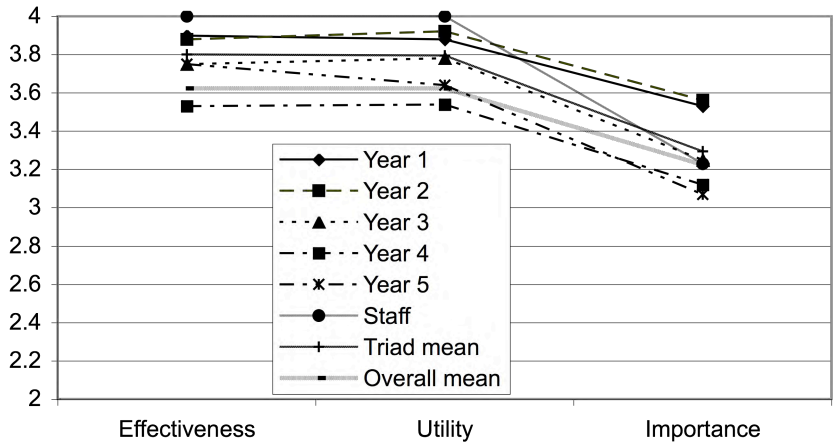

Figure A7.2.9: questions 28-30: supporting out of hours working (triad question mean SD = 0.18, overall mean triad SD = 0.30). Observation: this triad's responses are mostly higher than the overall mean with only year 4 scoring lower. The profile is as before except for the staff and year 5 cohorts. Staff score the highest on effectiveness and utility with an atypically low score for importance. Year 5 scores effectiveness relatively high. The responses show relatively small deviation. Interpretation: EEMeC's support of out-of-hours working is well thought of by the MBChB community. However staff consider this to be atypically unimportant and year 5 show greater expectations than those experienced for this factor.

There is a relatively high consensus for this triad. Conclusion: EEMeC is successful at supporting the MBChB community in out of hours working although this is not an important issue for staff. See server statistics for a 24-hour profile in chapter 4.

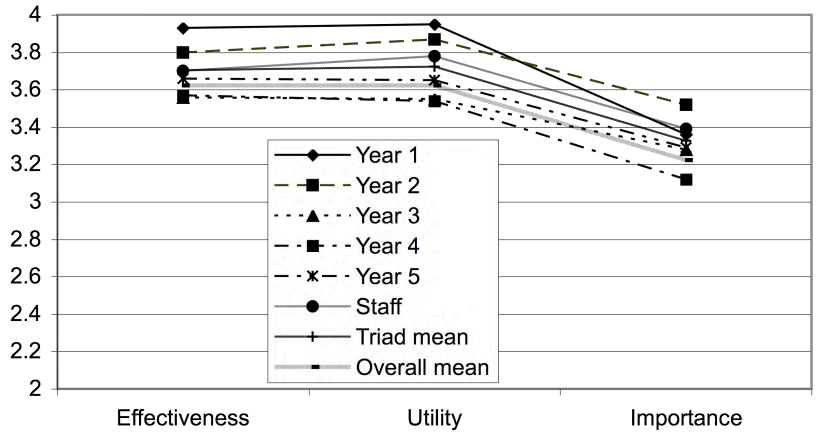

Figure A7.2.10: questions 31-33: supporting teaching and learning activities at different locations (triad question mean SD = 0.15, overall mean triad SD = 0.30). Observation: this triad's responses are mostly higher than the overall mean. This shows the same overall pattern with low deviation except for year 1 scoring atypically low importance. Interpretation: EEMeC's support of teaching and learning at different locations is well thought of by the MBChB community. As year 1 experiences very little variation in their teaching locations this is considered to be unimportant by that cohort. Otherwise there is strong consensus on this factor and a higher than mean score for its importance. Conclusion: EEMeC's support of teaching and learning at different locations is well thought of by the MBChB community

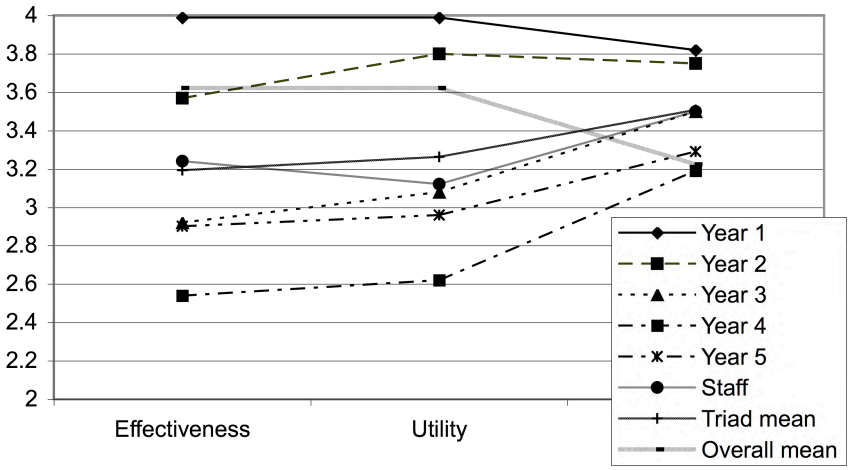

Figure A7.2.11: questions 34-36: providing timetabling and scheduling information (triad question mean SD = 0.43, overall mean triad SD = 0.30). Observation: this triad's responses are mostly lower than the overall mean. Year 1 shows a fairly high score and the most common profile. Year 2, although also scoring high, shows an atypical low score for effectiveness. Staff show higher effectiveness and importance than utility. Years 3, 5 and 4 show progressively lower scores (in that order) with importance rated much higher than the other factors. The responses show a relatively high deviation. Interpretation: EEMeC's provision of timetabling and scheduling information, although scoring reasonably well, shows little consensus between cohorts. Most rated the importance of this factor higher than

EEMeC's effectiveness and utility in this area. Personal utility was generally rated higher than general effectiveness. Conclusion: although not entirely lacking, EEMeC's provision of timetabling and scheduling information to the MBChB community could be significantly better. This appears to be a priority for the community that is currently insufficiently well supported.

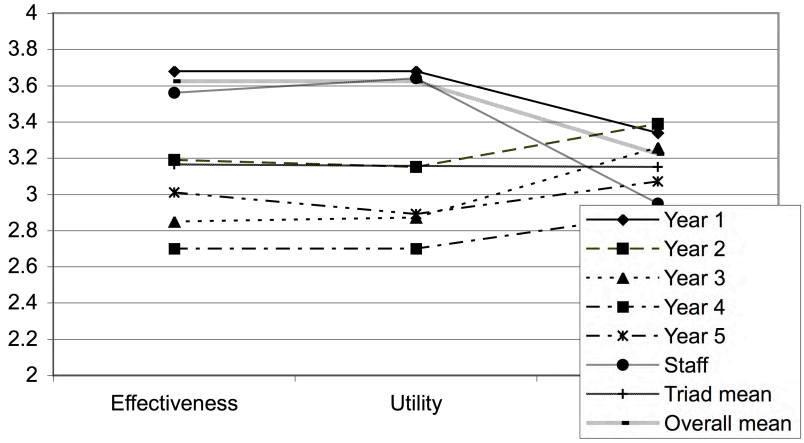

Figure A7.2.12: questions 37-39: providing secondary learning materials (triad question mean SD = 0.34, overall mean triad SD = 0.30). Observation: this triad's responses are mostly lower than the overall mean and show higher than mean deviation. The year 1 and Staff groups score importance lower than effectiveness and utility whereas years 2-5 rated importance higher than effectiveness and utility. Interpretation: EEMeC's provision of secondary learning materials, although reasonable differs significantly between groups, with most rating importance higher than effectiveness and utility in this area. Conclusion: although reasonably well rated, this is an aspect of EEMeC that does not meet the needs of the majority of the MBChB community. Staff should be made aware of the divergence of their views on this matter relative to the student corpus.

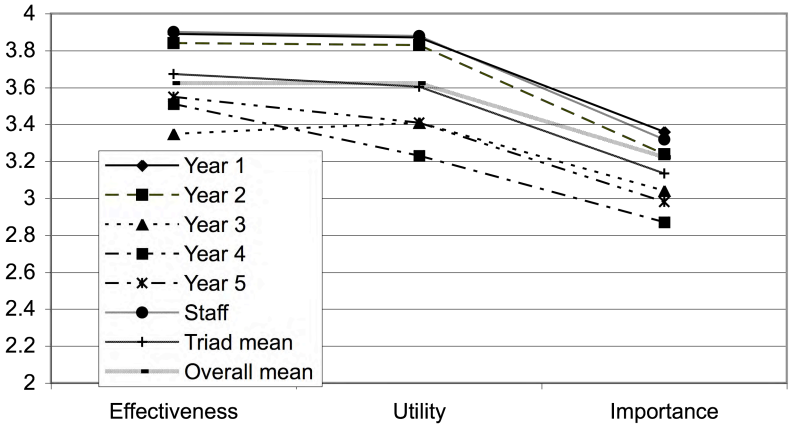

Figure A7.2.13: questions 40-42: providing materials and resources that help with reflective aspects of the MBChB course (triad question mean SD = 0.24, overall mean triad SD = 0.30). Observation: this triad's scores are about the same as the overall mean although with slightly higher effectiveness and lower importance. Staff and years 1 and 2 score highly. Years 4 and 5 rate effectiveness higher than utility or importance, while year 3 rates effectiveness atypically low. The responses show a significant though smaller than mean degree of deviation. Interpretation: EEMeC's provision of reflective materials and resources is highly thought of. Year 3 finds the system more useful than expected while years 4 and 5

find it less useful than expected. The staff cohort atypically score much higher than mean indicating a divergence between their expectations and student experiences. Conclusion: EEMeC's provision of reflective materials and resources is well thought of by the MBChB community although it could be improved. The divergence between the high scores for staff and the students' lower scores should be addressed.

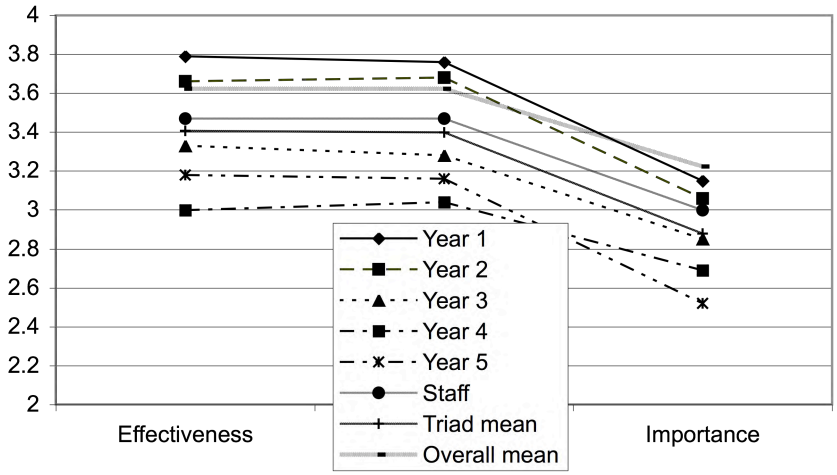

Figure A7.2.14: questions 43-45: embodiment of the focus, vision and values inherent in the MBChB course (triad question mean SD = 0.27, overall mean triad SD = 0.30). Observation: this triad's responses are generally lower than the overall mean with a lower importance weighting than mean. The cohorts show a typical profile except for year 5 which has a particularly low importance score and year 4 which has an atypically high importance score. There is an mean deviation of responses. Interpretation: EEMeC's provision of reflective materials and resources is well thought of although this is not a fully consensual view. Year 5 consider this to be quite unimportant. Conclusion: EEMeC's provision of reflective materials and resources is well thought of by the MBChB community.

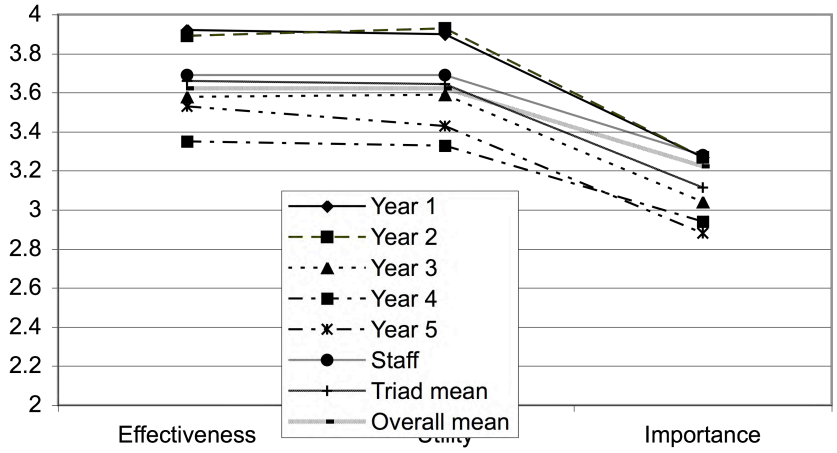

Figure A7.2.15: questions 46-48: supporting the educational practices and methods of the MBChB course (triad question mean SD = 0.22, overall mean triad SD = 0.30). Observation: this triad's responses are about the same as the overall mean. The responses follow typical profiles. There is a lower than mean deviation of scores. Interpretation: EEMeC's support of the educational practices and methods of the MBChB course is well thought of. There is reasonable consensus on this triad. Year 5 shows a slightly higher general effectiveness than personal utility score while year 4 has a slightly higher importance score. Conclusion:

EEMeC's support of the educational practices and methods of the MBChB course is well thought of by the MBChB community.

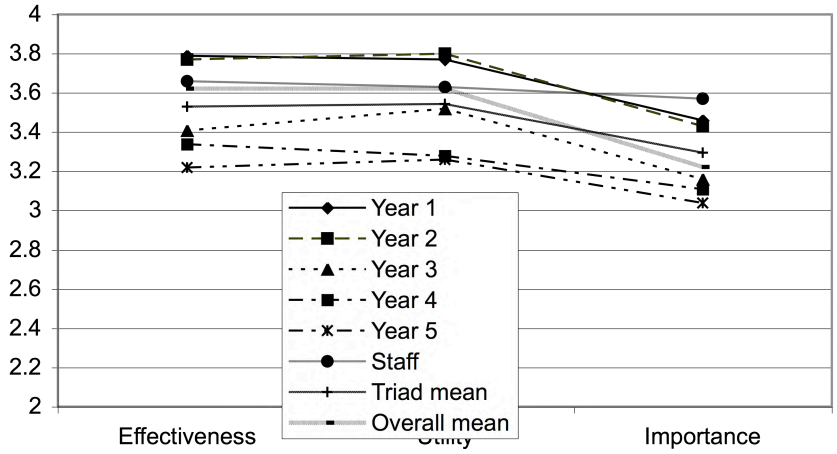

Figure A7.2.16: questions 49-51: supporting feedback and evaluation within the MBChB course (triad question mean SD = 0.23, overall mean triad SD = 0.30). Observation: this triad's responses are about the same as the overall mean. There is an atypically high importance score across this triad. There is a typical y1-2, staff, year 3-5 range of high to low scores but it is worth noting that staff score importance at the same level as effectiveness and utility. The responses show a lower than mean degree of deviation. Interpretation: EEMeC's support of the educational practices and methods of the MBChB course is well thought of, it is of relative importance to the community and there is reasonable consensus about this issue. Staff think this is particularly important. Conclusion: EEMeC's support of the educational practices and methods of the MBChB course is well thought of by the MBChB community.

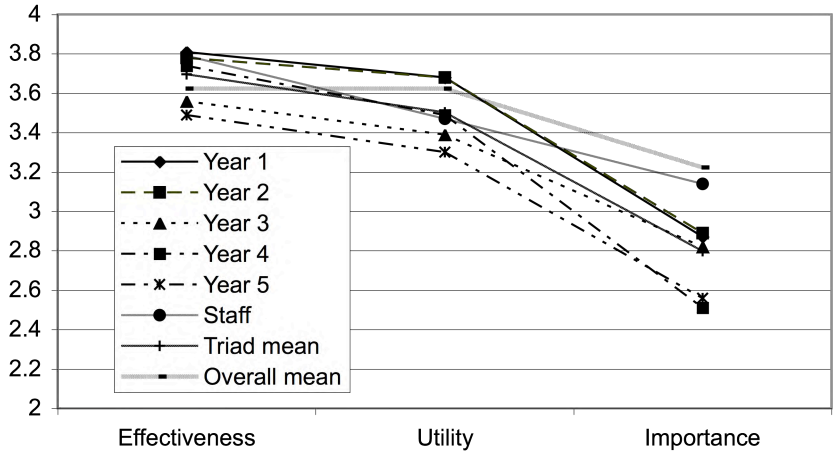

Figure A7.2.17: questions 52-54: ability to track student and staff use of EEMeC (triad question mean SD = 0.17, overall mean triad SD = 0.30). Observation: this triad's responses are generally lower than the overall mean. Effectiveness scores particularly high, and importance very low. Staff show an atypically high importance score. The responses show a low degree of deviation. Interpretation: EEMeC's ability to track student and staff is reasonably well thought of but is of little utility or importance to the user community in general although it is important to staff. Year 4 scores atypically high for effectiveness and utility although it gives the lowest importance score. There is good consensus for this triad

across the community. Conclusion: EEMeC's ability to track student and staff is considered to be effective but not of direct use or importance to the MBChB community.

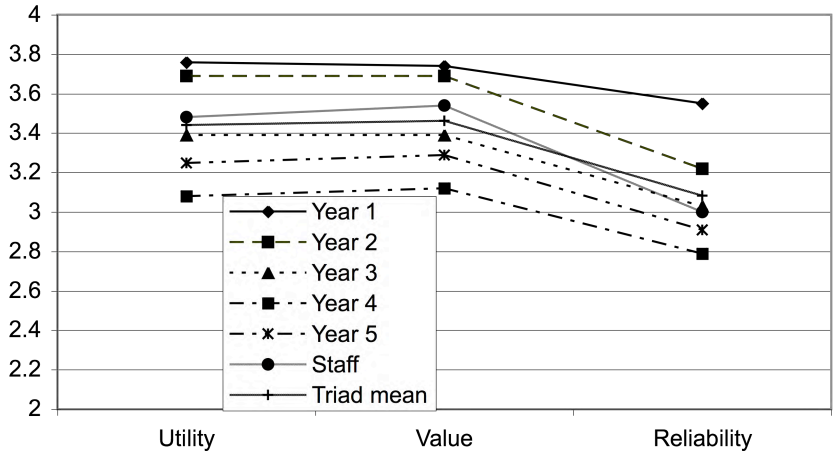

Figure A7.2.18: questions 55-57: overall usefulness, value and reliability (triad question mean SD = 0.26, overall mean triad SD = 0.30). Note that this triad uses a different value set: utility, value and reliability. Observation: Usefulness and value score about the same with reliability slightly lower. Year 1 shows a particularly high reliability score. There is a slight trend towards an increase in value over utility in later years of the course. Scores deviate slightly less than mean. Staff have an atypically low score for reliability. Interpretation: EEMeC's overall usefulness and value is well thought of with reliability slightly less highly rated. There is reasonable consensus. Conclusion: EEMeC's overall usefulness and value is well thought of by the MBChB community with reliability slightly less highly rated. Issues of reliability should be addressed.

Appendix 7.3: LAF for Newcastle NLE

Short-form format of the Learning Architecture questionnaire used for the Newcastle NLE.

No.	Stem
1	I think the NLE in general is effective in supporting the course in general
2	I think the NLE is useful to the course in general
3	I think the NLE is important to the course in general
4	I think the NLE is effective at supporting interactions with students and staff on the course
5	I think the NLE is effective at supporting collaborative activities required by the course such as discussion, group work or peer assessment
6	I think the NLE is effective at providing the information and help needed for the course
7	I think the NLE is effective in supporting interactions with University services and systems beyond the course
8	I think the NLE is effective at supporting course assessments (eg coursework, exams and results)
9	I think the NLE is effective at providing the courses' guidelines, rules and regulations
10	I think the tools provided by the NLE are effective in supporting work in the course
11	I think the NLE is effective in supporting student progression through the course (from term to term and from year to year)
12	I think the NLE is effective at supporting out of hours working (e.g. evenings, weekends or on vacation)
13	I think the NLE is effective at supporting teaching and learning activities at different locations (e.g. at home or in clinics and hospitals)
14	I think the NLE is effective at providing timetabling and scheduling information
15	I think the NLE is effective at providing secondary learning materials (such as articles, journals, online resources, reference materials)
16	I think the NLE is useful at providing materials and resources that helped me with reflective aspects of the course
17	I think the NLE embodies the focus, vision and values inherent in the course
18	I think the NLE is effective at supporting the educational practices and methods of the course
19	I think the NLE is effective at supporting feedback and evaluation within the course
20	I think the NLE is effective at tracking student and staff use of the NLE
21	I think the NLE is a very useful system in helping me engage with the course
22	I think the NLE is a very valuable system in helping me engage with the course
23	I think the NLE is a reliable system in helping me engage with the course

Appendix 7.4: Free Text Responses for EEMeC LAF Evaluation

LAF Questionnaire Number 60

Stem : “Are there any aspects of EEMeC that you think should be added to, improved or changed to make EEMeC more useful to you? If you are prepared to take place in a follow up focus group or interview please include your matriculation number or name here. Many thanks for your input - Rachel Ellaway”

Each evaluation set (EvalID) shows potential responses (population), actual responses (returns), actual responses to the free-text question and the percentage of responses as part of the population and general returns. Comments or any other information identifying an individual have been removed.

Year 1

Population: 207 , returns: 193 , free-text: 40 (19%, 21%) – 3 removed: names only

1. More feedback from pieces of work
2. ability to post messages on other years message boards could be useful
3. N/A
4. Lecture notes should automatically be put on Eemec.
5. I found the respiratory CAL in the integrated topics section very useful because I could access it from my personal computer through EEMeC. I think it would be very useful if the other CAL packages were added to EEMeC - I certainly know I would definitely use them if they were. At present, I have to go to a public university computer lab to use them and it can be difficult to concentrate there.
6. Notes for certain lectures come up too late - especially those we do not receive handouts for.
7. I think that certain things are difficult to find, the layout could be clearly and lecture notes should be put up before the lecture as the whole point of them is to write your own annotations next to the printed sheets. how can we do this if we don't have access to the notes until the day after the lecture. i also think that this evaluation was longer than necessary.
8. It would be great if it was possible for tutors to read some on the acedemic threads more often and put people right when they are confused rather than just relying on other students who don't really understand either. I realise that it probably isn't part of their job and they don't have time
9. more of the notes should be available online from lectures given. as we understand it, many lecturers are reluctant to do this, but it is impossible to make notes on a lecture and listen to the additional material at the same time. when asked to post slides/notes, some lecturers refer to books and other materials. surely the slides that they have used contain all of the relevant information that we require without having to dredge through a text book? last term we had huge problems with lecturers not giving hand outs and posting slides late, or telling us not to make notes during lectures only to never produce notes at a later date. other than this, the eemec site is extremely useful and much appreciated
10. have a section specifically for feedback targeted at the staff so our opinions could be instantly accessed

11. Number 22: Search engine is not helpful as it does not find relevant pages. It can also be difficult to locate teaching packages and lecture notes. Number 52-54: I do not understand what is meant by 'ability to track student and staff use of Eemec'.
12. I think EEMeC is excellent and a very useful source of information.
13. if possible the assessment section (now limited to 2nd years i think) should be opened to all years because its hard to keep track of all the assessments that we have had. Also, if all of the terms assessments (essays, CBLs etc) hand-in dates and weighting to the overall mark could be put together on 1 page it would be very usefull-last term i founf it very hard to keep track of all thins information. Thank you and keep up the good work-
14. more of the lctures should be uploaded onto eemec and withtin a week of the lectre being given
15. I think it would be useful to have links from eemec to other uni services such as accomodation etc.
16. Staff should read discussion boards mpre
17. In holidays it would be helpful to have the following term timetable. I don't know at what time or where we start on Tuesday!!
18. Maybe making it easier to find lecture notes, or documents relating to several parts of course, which are often hidden
19. lecture slides more quickly posted on eemec.
20. I think that EEMEC is a really good system which allows students to remain in contact with each other as well as with members of staff. I think it is a very valuble service and the fact that it can be accessed from anywhere means you can keep in touch even if you are not at University.
21. maybe add more journal artcles, and put lecture notes up on eemec soon after the lecture is over- or is that the responsibilty of the lecturers?
22. Put the lecture notes in the same place so that they are easy to find: last term this varied from module to module
23. The Respiratory CAL put on EEMeC was particularly useful, it would be good to have more of these
24. It would be better if the lecture notes are put up on Eemec as soon as the lecture finishes and not wait until a few days later. I hope that one day I will be able to read books in the reserve section of the Medical Library through Eemec.
25. perhaps more staff input during exam time to look at the academic discussion i think that the evaluations should have more questions requiring written answers (although i appreciate this is difficult with 230 students)as you cannot always get across what you really think about whats being evaluated.
26. I'd be nice if staff checked and replied to Eemec a bit more often. It would be helpful if changes to the timetable could be made at least a day in advance, or if a notice popped up when a change was made - in case you don't always check your timetable. It would be great if the chat thing was up and running, and if you could upload photos etc. (I've got some of the ball that I'd like the rest of the year to see!) But otherwise I'm very impressed with the system, and it doesn't crash too often!
27. An index might be useful. It can be very difficult to find what you're looking for sometimes. eg. a separate shortcut on the homepage taking you directly to 'LECTURE NOTES' would be incredibly useful. It is almost impossible to find them - they are literally buried!!
28. Eemec is very good but sorry this is kind of a general complaint I've filled in quite a few of these questionaires now and they are all far far to long please could they be shortened it's not like we don't have better stuff to do.

29. This evaluation form is far too long
30. Eemec is extremely useful but the length and repetitive nature of the evaluation is unnecessary. Its also extremely inconvenient when the evaluation pops up numerous times during the same log in. If you're in a rush its really annoying.
31. no, it's great. thanks.
32. Some of the threads present on Eemec are irrelevant to the course, and makes me feel like it's a waste of time reading them. Maybe stricter regulation of posts should be made.
33. Reliability can be a problem - sometimes it is unresponsive for days/hours. Although this is probably beyond EEMeC control, it can still be frustrating. Also, would it be possible to perhaps remind lecturers more that if notes are posted on EEMeC, it helps if they are in a printable format (e.g. powerpoint so we can print 6 slides to a page, or Microsoft Word so we can edit what we want.) Acrobat reader for instance is not a very flexible system for editing the notes to a printable form.
34. Not prepared to be in focus group. I think this questionnaire was far too long as each question was asked three times in slightly different ways. Should not have had difference between first two of each one as seemd exactly the same and third version was only just different.
35. Probably not the fault of eemec, but lecture notes that lecturers promise will be put on eemec are rarely there. Having them uploaded a week before exams, if at all, is not particularly useful.
36. only one thing - why is the H and S timetable not up on eemec this term?
37. I think the timetables should only show what you require to attend (especially with health and society) not simply list all the possible tutorials that you could have to attend.

Year 2

Population: 187 , returns: 170 , free-text: 61 (33%, 36%) – 9 removed: 7 empty responses and 3 duplicates

1. Make individual timetables more accurate - there have been numerous mistakes over the past few terms
2. Perhaps more obvious or more extensive links to useful research sites, like in the library site would be useful. Thats all i can really think of - just the more relevant links to other University sites (like say the library one) that would be useful to our course.... although I dont really have much extensive knowledge of what these sites would be... but any help in online research would be gratefully received! Cheers
3. including previous exam results (year 1) and any resit results that apply. printable copies of the personal timetables.
4. would be helpful if the timetable didn't keep changing throughout the term
5. timetable schedule needs to be more reliable
6. there was some confusion in term 2 over timetabling, think this needs improved although it may not have been the fault of the eemec team.
7. Overall Eemec is great. Things which could be even better are 1) signposting important information (it can sometimes be quite difficult to find) 2)Timetable reliability. Although this is generally good occasional glitches (a fairly common ocurence at the start of term one this year, although it hasn't been as bad since) It would also be great if intercalated students weren't denied access to Eemec. Intercalated years can be socially isolating at the best of times, and it would be great if intercalated students were allowed access to, say, the non-academic discussion board for their original year group so that they didn't feel as out of touch.

8. I think ACT evaluation in general is good, but this particular questionnaire is absolutely useless. Since it is the holidays I have had time to fill in all 60 questions; had this been in term time there would have been no hope of a response from me. But, as you can see from my strongly positive answers I think EEMEC is a very useful system.
9. Any alterations to important information such as timetables should be clearly indicated.
10. Better monitoring of discussion pages including appropriate nature of discussion and staff awareness of queries would be useful. Also timetabling on EEMEC, particularly giving adequate time and personal warnings when timetables have been updated is vital.
11. the evaluations are too long and done too frequently
12. provision of timetables and places of events should be checked for accuracy BEFORE being put up on eemec, and if necessary to change a notice should be CLEARLY place on the board
13. I think it would be useful to be able to select a few notices and display these on an individual noticeboard until deleted. Instead of having to search through all the past notices for one containing information needed at a particular time.
14. This is probably more a lecturer issue - but if notes are going up on eemec it would be useful to have them either before the lecture or later on that day. But otherwise eemec is very useful.
15. more detailed feedback, minimising mistakes in timetable information.
16. Reliablility of availability (system crashes) and timetable information not always great- but I think both are improving now. The discussion boards would benefit from being able to use spaces- being able to have paragraphs can really help to make a long response readable. Also being able to quote other people's questions can help to focus the discussions rather when lots of people are answering lots of different questions (especially at exam times)
17. cant think of anything, eemec is great.
18. Timetables need to be kept the same. I missed some things last term because their time/ location was altered!
19. timetables are terrible - they're often incorrect and we're not informed of last minute changes. I feel this is the only major drawback. Access to Pathcals from home is great and I feel it really helps improve overall communication.
20. About this evaluation: There should be an option between 'good' and 'poor' eg reasonable or neutral. On Question 13 I answered awful but that is not too say that I feel it should be changed.
21. EEMeC has been wrong so many times in the past abou important things that I really find it impossible to trust, and I don't like to rely on it. I try to get information from elsewhere rather than use EEMeC if possible. I think in principle EEMeC is generally a goood idea, and would be great if it worked.
22. It's lovely
23. Timetables should be given on paper as well because Eemec is prone to mistakes with timetables, and if Eemec can't be accessed for any reason, it is always useful to have a paper copy.
24. Becuase it is our only means for timetable information i think that a huge effort should be made to make eemec more reliable, the time when the system was down made things really difficult. [when was it down??]
25. more lecture slides would be very useful
26. Sometimes I find it difficult to find things. I find it hard to answer questionnaires in a meaningful way when they are so long.

27. more journals available? im not sue if this is the responsibility of eemec
28. can't get from My eemec to the normal eemec homepage. should be an easier link.
29. There should be a middle ground in these evaluations ie 'OK' rather than nothing between 'good' and 'poor'
30. I've already filled out this very long form twice before and am not happy about that. It couldn't find the page as i sent it from an outside computer. otherwise eemec is normally excellent
31. An area which recorded all results from past exams and assessments would be useful, rather than just this year's exams as they appear in the 'My Results' section at the moment.
32. Having all 1st year results in the 'My Results ' section would be very useful. Ensuring that all information put on EEMeC e.g exam results, timetable information is accurate
33. These questionnaires are too long.
34. If the timetable on Eemec is to be made the sole authority on timetabling for the medical course, I think extra effort should be made that it is accurate in advance and not just that morning. Otherwise I fond Eemec very useful and helpful
35. what's the exam timetable at the end of term. The timetable is just blank.
36. no further comments
37. no its spot on
38. sometimes the timetable is inacurate but otherwaise I think it is excellent
39. this questionaire is far far far tooooo long.. and it is numbing to answering it would be much easier to do if you sent it to us in chunks to fill inmaybe one per week with 10 questions than all 60 at once...
40. be more careful in getting timetabling right
41. if lecturers are going to put their notes up on eemec it would help if they went on sooner than they sometimes do
42. lecture notes are sometimes difficult to find; it could be useful for lecturers to speak to eemec and then indicate where their material will be on eemec. it would also be great if timetables could go up as soon as possible and before the beginning of term (as was the case for this, but not for previous terms) to facilitate travel arrangements. eemec is fairly comprehensive and for help with certain services, such as secondary materials or library services, other resources are available. it may thus be better to focus on perfecting the vital services of eemec rather than to 'get lost' in non-necessary other services. overall i would like to say thank you and congratulations, eemec's great! :)
43. these questionnaires are too long.
44. a search page for when you need to find out about a specific aspect of your course in your year as it is difficult to find things quickly.
45. How long does this questionnaire want to be?
46. this questionnaire is way too long, and was very tedious.
47. term dates should be published on the site as everyone needs to know them and would prevent them having to be tracked down every time.
48. a little more reliability in timetabling - but perhaps that's more to do with faculty... A few less unimportant notices on the opening page would help focus attention on the ones that are important (i.e. save the essay prize things for putting on discussion boards).
49. more coordination on timetable ocassionally needed. I know its often not really your problem but if a lecturer says his/her slides are going up, it would be nice if it happened.

This is extra important when they tell us "dont bother writing this down it'll all go up on eemec"

50. You should have a happy medium answer between good and poor on this. The timetable HAS to be more reliable
51. our only timetable is available on eemec and is v often incorrect altho this isn't the fault of eemec the issue does need to be addressed

Year 3, Group W

Population: 66 , returns: 43 , free-text: 14 (21%, 33%). 1 removed: 1 blank, 1 duplicate

1. maybe slightly more reliable at times timetable information and available further in advance.
2. perhaps better and more accurate timeteble information, and notices being psosted up more in advance
3. please please please can teaching staff give us more than 24 hours notice if they are going to change teaching venues or times via EEMeC. because staff assume that we check EEMeC twice a day we are then forced to check EEMeC twice a day for any last minute changes, at great cost to our time, especially since many of us do not have internet access at home.
4. Rachel, make your questionnaires a bit shorter - you may as well ignore the answers you get to the second half, medics only have so long an attention span.
5. although i ticked "good" for eemec's effectiveness at giving our timetables , this is VERY variable, it would be much better to have our timetables regularly checked and put up as much in advance as possible, especially as eemec is often the only source of timetable. new information added to eemec should also be checked for accuracy - it is very inconvenient to be told wrong information, especially when it is only amended minutes before we are expected be somewhere/someplace. otherwise i am v satisfied with eemec
6. responses to requests for help/support very disappointing
7. eemec is good but this questionaire is terrible
8. I do understand and agree with the need for evaluation of EEMeC however, I think this evaluation form was 'over kill!'. I think in future you should be more selective of questions asked to reduce the number and thus not make filling it in seem like a chore! Many of the questions were difficult to read!
9. It would be very useful to add the examiation and clinical skills videos to reduce queues to use them around exam times.
10. This questonaire is rediculous. It could be far shorter and user-friendly. The diference between the usefullness and effectiveness is not clear cut and each question on "Importance to me" is complicated by the reality that some services would be important to me if they worked whereas they are unimportant to me because they don't work. do you get what I'm saying. Also, many questions are repeated. Overall, I feel that the repetition and complexity of this feedback form has frustrated me and has made me do all that I can to rattle through it and be less thoutfull about my answers. all the best
11. More consistency in where to find stuff such as lecture handouts and CALS, which seem to be in different places in different modules. More organised module supporting materials. Specifically the rheumatology Cals on eemec were quite hidden!
12. If you put a request on EEMec nothing happens, you only use it to find e-mail addresses and then get in touch directly if you actually want a reply. Teling us eemec gave out all the timetabling information given does not help students after they have arrived at the wrong hospital several hours late and have just been shouted at. There should be better

interaction between staff and eemec personel to avoid these problems. Saying don't blame us is not very helpful, how else are students supposed to find out where to go in the paperless medical school?

Year 3, Group X

Population: 63 , returns: 31 , free-text: 12 (19%, 39%)

1. would help a lot to have personal timetables like last year. more correspondence with clinical staff as many don't know that much about eemec. it would be useful if doctors could put alternations to meetings up on the board instead of having to go through students in the group.
2. the results page is not in use. Overall Eemec is excellent form of communication especially when timetables change and for giving exam results.
3. That questionnaire was far too long
4. Too many of these feedback questionaires like this one. .They are often unnecessary and are annoying
5. More medical database information
6. The timetableing information is often not there when we need it or is werong but I understand that it's not always Eemec's fault.
7. WOuld it be possible to make the timetable compatible with handheld PDAs somehow (e.g. Palm OS)? That would be imensely useful! this questionnaire is far too lengthy and the questions too ambiguous. You lose iterest halfway through - I believe a handful only should have been selected. Overall eemec is an excellent effort - however, all people hae individualised timetables, and hence the timetable function (which has the potential to be the most important feature) is not really applicable - could clinicians perhaps be asked to submit individual timetables to eemec for each studnet group
8. this questionnaire is silly. i didn't understand the point in repeating every question twice. In fact i know exactly what you are getting at but the difference is too subtle for most to care to think about it. also, questions 52, 53 and 54 don't make sense to me. YOU should care about how much people use eemes. not me. as far as i am concerned, clinicians do not use eemec at all and i want to see every single lecture we get up on eemec. that does not happen at all. otherwise i hardly ever find useful things in eemec and hence don't use it. Also, I was recently looking for what kind of vertical themes and other things we need to learn for our third year osce and i had such a hard time going through all the horribly organised links trying to compile what might be an exhaustive list of skills required for the OSCE that i was totally put off eemec and realised that eemec is just a cheap excuse for not being organised, aspects such scheduling things in the beginning of the year like they used to be done and being lazy. If eemec is meant to be a substitute for timetables, then it should be at least as effective. at the moment it is not. the only other thing about eemec are the discussion boards. I like them but only in terms of being able to reaching out to the entire medical student body. otherwise it is just a moaning platform for annoying people like myself.
9. I am looking forward to the results section of eemec to be active for my year.
10. no
11. all lecture notes should be put on eemec
12. This is a really bad questionnnaire. Too wordy and repetitive. I would recommend that you ignore the results as i doubt that anyone has filled it in properly! Sorry. Otherwise eemec hasn't been bad. Would be good to have contact details of all tutors on it. Also, we are often promised lecture notes on eemec that never appear.

Year 3, Group Y

Population: 63 , returns: 34 , free-text: 9 (14%, 26%)

1. It may be difficult to do, but there should be more careful monitoring of what goes up on the academic discussion board - some of it is extremely offensive at times and it is not enough that students qualify their postings by prefixing then with phrases such as 'no offence, but...'
2. 1. Personal EEMeC timetables need to correlate with the ones we receive as handouts for each rotation. At present neither gives all the timetable information necessary - and sometimes they do not agree on times or else clash! 2. If exam results are to be posted purely on an individual basis on EEMeC then it is vital that there is information on how well the rest of the class have done and your individual position in the class, otherwise you just don't know how you are doing, since marks and grades can vary a lot between modules. 3. On occasion a notice about a cancelled lecture has been put on EEMeC that same day. As a result a lot of people who haven't had the chance to check EEMeC that day turn up for the cancelled lecture. I think care should be taken not to rely on this aspect of EEMeC too much - it needs to have better back up e.g. a note on the lecture theatre door. 4. I appreciate EEMeC and find it useful but it would be better if it was more consistent. E.g some lecture notes are provided but others are not, some lectures appear on the timetable, others do not etc.
3. I am really sorry, and I hate not to be constructive, but this questionnaire is so long winded and repetitive that I really could not fill it in properly.
4. please disregard all the answers in this questionnaire. I don't particularly like being forced to do these assessments to stop them coming up, and having done this one and then have it fail to be submitted i can't be bothered to do it again.
5. The timetables are not very good. I am doing respiratory just now, and the only thing I ever have on my timetable is psychiatry. Other than that it is useful generally.
6. Hmmm, I think this questionnaire could be improved for one thing. I don't think I see EEMec as being quite such an all-encompassing companion in the course as you do (and as the questions seem to imply). It is a very useful tool; particularly the noticeboard and messageboards and timetables, but "How useful is EEMeC's embodiment of the focus, vision and values inherent in the MBChB course?" and things are getting a little bit carried away I think.
7. the personal timetable can be misleading
8. The biggest problems with eemec are with regards to timetabling where 2 places often display different times, locations etc leading to confusion. The other problem is that changes are often made at the last minute and as many people do not have internet access at home they do not find out about this. Finally, greater effort should be made next year to allow returning BSc students access to eemec straight away as I could not get onto the system for over 2 and a half weeks which was very frustrating as it was the only place our timetables were published!
9. in 1st/2nd year, Eemec was excellent, during the clinical years, it could be made to be more effective as I often don't really use or check it enough since it doesn't have timetable information on it.

Year 3, Group Z

Population: 66 , returns: 35 , free-text: 10 (15%, 29%)

1. I think that Eemec at the moment is very basic but has provided a good framework to improve on. The good and useful things to me are the timetable, the message boards, and the sections on locations. Off the top of my head, I think things which would be helpful would be 1. an improvement in the location section as some places are not covered, with maps of all the areas, 2. Ensuring that all the contact details for all course

organising members of staff are on the site, 3. Ensuring a way for medical students of one year to be able to find out information about other years of the course easily eg. next years holidays etc. 4. To provide useful links to medical resources eg. medline and medical electronic journals. This would be very useful.

2. all timetables should be on eemec. Only certain rotations had timetables on EEMEC.
3. more detailed timetable information
4. Be able to access results.
5. Less questions, and don't ask what is essentially the same question three times.
6. this questionnaire is far too long and so i have lost interest
7. The questionnaires are way too long. Also, importantly, messages on the noticeboard on the left of "my eemec" page should be dated.
8. time-tables etc are an excellent idea but very rarely work. I'm sure when everything is up and running correctly things will be better
9. More information available on personal timetables and information on courses should be available earlier eg at least 2 weeks before it starts.
10. Could all or at least most lectures be made available in Eemec? That will be a great help. Messages should turn grey only when accessed. Sometimes, I just access Eemec to look at the timetable and if messages turn grey I might not notice a new one. Thanks.

Year 4, Group A

Population: x , returns: x , free-text: 15 (x%) – data incomplete

1. The personalised timetable is a complete waste of time as it is never up to date, if any details are provided on it at all.
2. portfolio marks and exam marks to be posted on eemec.
3. the timetable is never up to date, so cant really be relied on. In general, most things on eemec are repeats of what we already have in our handbooks, which is why I havent said eemec is very useful. The only thing I really use eemec for in all honesty is the discussion boards which are often useful/informative/funny, and if the people who designed eemec read these they might get a better idea of what we think of the educational aspects of eeemec
4. The timetable doesn't seem to exist any more, although when it did it was very useful, especially in the weeks before we start new attachments
5. Please don't make these questionnaires so long.
6. far too long questionnaire - do not have the time to fill this in accurately - should be way shorter and you may get more real comments!
7. access to assessment results more quickly and also an archive of previous results.
8. discussion boards that are anonymous should BE anonymous. The time table should be accurate for each individual.
9. The personalised timetable and results sections would be really useful but never seem to work. I think it's a bit of a shame that the non-academic discussion board got censored. It was much more fun before and encouraged people to log on!
10. i think it is a wonderful idea. however, in 4th year, it's less useful compared to 3rd year. there is practically nothing of our timetable. the only use is the notices, contacting medical faculty and Director of Study. Submitting portfolio is always a problem.
11. All these questions seem the same

12. ACT evaluations ask far too many questions. Streamlining of these would be better for us and provide better data - the more questions (especially when many are so similar e.g. see questions 55 and 56 of this act!!) the less thought goes into answering each one.
13. This questionnaire is a joke. Do you really need 60 questions to establish the value of Eemec? You could very easily have accrued the same information with 2 qualitiative questions: What are the best and worst things about Eemec? What would you like to be changed? I suspect the reason that you have not done this is because it is easier for you to let a computer programme calculate the percentage of each answer rather than to sit down, read the written comments that people have made and think about what they signify. Furthermore, I am certain that had you done this, you would realise that the only aspect of Eemec that people are unhappy about is the way in which these tedious questionnaires are imposed on use with such predictability.
14. Don't put timetable info on eemec (unless it is for a last minute change to a previously organised calss). It becomes confusing as it is always unreliable and incomplete.
15. No but this assessment is ridiculously long

Year 4, Group B

Population: 78 , returns: 55 , free-text: 22 (28%, 40%). 2 removed as empty returns.

1. Better info about timetabling. Maps would be good, especially for peripherals. More access to other learning resources built in + linked.
2. The timetabling would be useful, except that very few rotations have a timetable which they can place on it, and if they do, they do not utilize the service making it redundent. I do however feel that this is a ridululously long evaluation, by the end of which you are feeling totally demoralised.
3. eemec needs to be comprehensive and true if it is to be of use. All students I know use it thoroughly, & it is often very useful; but unfortunately clinical staff are often unaware of it, or have difficulty accessing it.
4. Feedback on portfolios put up quickly to help with future work. Photographs of the faculty members/staff to help create more of a community feel. At the moment faculty and eemec is a faceless organisation. Change the layout - it is very dull!
5. Someitime the paper timetable varried from eemec Now there seems to be no timetable eemec is useful
6. this survey is way too long! the usefulness of eemec is limited by computer/internet access; notices should be put up in good time, because not everyone has access to a computer every day. overall, eemec has been a great help, but has sometimes been difficult to use, because the relevant information is often not in the most intuitive place, e.g. core teaching week timetables might be better placed under 'my timetable'
7. Timetable information before modules begin would be good and some attempt at personalised schedules overall PS this is a pretty monumental feedback form - slightly offputting in length!
8. i refuse to waste my time filling out a questionnaire of 59 questions asking essentially the same thing. if you want students to fill it out seriously may i suggest you re-write it in simple english with no more than 20 key questions.
9. useful for obtaining up to date information on the course and for communication. i think that perhaps each module could have a series of links to online resources regarding that specialty that could be used for learning.
10. I think it has become a big sprawling mess and is very hard to navigate in alogical way, i am thinking of trying to find learning objectives for the overview essay and locating

reporting arrangements and timetables which are put in different places depending on the module it seems.

11. Good concept. but let down by the material posted on it.
12. this questionnaire is FAR too long, ambiguous and repetitive. feedback and results need to be available more quickly. other than that, eemec is fantastic and under appreciated - keep up the good work!
13. if we continuously have to fill in these feedback forms, could the designers of the forms please make them SHORTER.... SIXTY questions for this one alone (some of which I feel are repeats) takes TOO LONG. Shorter forms would be more useful and reflective, as by question ten I started to skim read the questions and I'm sure most people will just scroll down putting agree and good to all the questions to get rid of this thing popping up everytime. You should have the option not to feedback if you want-perhaps just giving an overall feedback assessement e.g. overall, would you rate Eeemec as 'good, average, poor etc.' Overall I think it is good by the way.
14. the whole thing is dated and doesnt work well... there are many free community portal style software packages available which knock eemec for six! Try finding something you want... needle in a haystack!
15. Yes. There is often some discrepenacy as to when we are told by faculty that results will be made available on eemec and when they actually are available. This led last term to quite a lot of frustration for the O and g group and it would have been better to just let us wait rather than make promises day after day that were not achieveable. Otherwise its a very useful service.
16. I think Eemec is a wonderful resource and does a lot things such as providing course information, discussion boards, news and updates, access to DOS, etc. very well indeed. It has amazing scope, and areas such as the timetable and online reporting of portfolios need to be utilised all the time, or not at all, as the inconsistency of use leads students to question its validity. There is an awful lot of good information on Eemec, and when searching for resources for my overview essay, I came across several areas that I had not accessed before, because parts of the site are not readily apparent for the casual user. Furthermore, ACT evaluations may be more useful if there was a space beside each question where a student could, if he/she wished, make specific comment on that issue, and having to fill in a location to submit forms does not seem very relevant. I think what you have done with Eemec is very very good, though, and would bve happy to discuss anything with you further.
17. It would be great if the doctors got used to using it so we could be done with chasing notice boards to find out when our next tutorial is.
18. This ACT form was horrific - vague, incomprehensible questions that repeat themselves - what will our answers actually mean?? Eemec v useful - but timetable info should be more prompt. Sunday nights are NOT the time to issue info for Monday mornings!! Layout not good: often difficult to find / access course info - partic highlighted when attempting to find learning objectives for Overview - why can't we access Year1 / 2 resources??
19. Where I have responded with N/A it is because I don't understand the question.
20. timetabling is very very unreliable, and information such as exam results is never up when it is claimed to be. fewer of these evaluation forms. why is each questions asked 3 times in this evaluation??

Year 4, Group C

Population: 73 , returns: 61 , free-text: 20 (27%, 33%)

1. Eemec could be improved by better individual timetables, which since the start of 4th year are usually left blank, and if portfolio or exam marks could be put on eemec that

would also be helpful, but i would still prefer feedback on paper so that it can be kept more easily

2. Rarely up to date, feedback on coursework always inadequate, we should annotated marking on scripts rather than excel like spreadsheets of marks. Timetable never applied. Online results through special link and not "my results" Location of eemec not applicable, can't put this in the box below!
3. locations shouldnt have to be put in for evaluation forms for eemec!
4. Difficulty opening some documents containing crucial information (e.g. whether you are meant to be on a peripheral attachment on the 1st day of term)from non-university computers And i don't understand some of your Q in this survey!
5. The timetable, which strikes me as one of the most important parts of EEMec, is totally unreliable. It has the potential to be incredibly helpful, but is useless at the moment.
6. What I particularly dislike about eemec is the evaluations which consistently pop up. 60 questions?! Some of us do have to do work as well. While I appreciate that feedback is important, this is simply going to put people off.
7. OK - eemec for me still does not work. And a lot of the stuff above is negative. But - I still like eemec, and it is a good way of communicating with others. Links to jourmasl etc would be nice from here. Who on earth wrote this questionnaire?
8. i filled this all in, and it wouldn't accept it so i'm afraid it's your loss that i can't be bothered to do it again. too many repetitive questions.
9. In the "appropriate locations" box for evaluation of placements, several key locations aren't always there, i.e any of the General Practice addresses. This I assume must make GP evaluation very difficult. Secondly, there is always some confusion as to who we should report errors to on EMEC. For example a dermatology timetable went up a few weeks ago with the wrong names on it. I wasn't sure whether to contact EMEC directly or the secretary of Dermatology (in the end I did the latter and the problem was resolved). In a way I think you would get much faster feedback (and thus less general panic!) if students knew the correct protocol of who to contact if they have problems with certain areas of EMEC. I.e. if a portfolio uploads incorrectly who should we contact, if we have the wrong timetable, who then. Having had a few years starting off without EMEC I can assure you that is considerably better than the occasional emails we had in first year. The ability to use the Discussion Boards for example, are extremely useful to students, especially if we have worries we want to put up anonymously.
10. timetable section is effectively useless as it is never filled in.
11. The issue of up to date timetables should be addressed. Eemec is a fantastic tool to access timetables and course information but most of the time the information just isn't there!
12. The personalised timetable is not always available.
13. This evaluation sheet was badly writen and too long. It is difficult to feel enthusiastic about filling in a form where the choice of response to questions on how useful things are, are excellent, good etc etc.
14. these questions are far too repetetive and i think 60 is a little excessive. Eemec is useful for communication between students and staff. It can fail however eg the electronic timetable
15. EEMec started off well, providing individual timetables and all the info we needed at the beginning of 3rd year. The usefulness decreased throughout the year with no more timetables and less info, or the wrong info, now in 4th year for much of the time the individual timetable has not even been active, and has nothing on it anyway, EEMec is now only useful to see what everyone is moaning about on the discussion boards, and occasionally to get important notices from faculty on the noticeboard.....

16. These questioaires should be changed you ask three different things in one question and expect an answer encompassing all of them as is illustrated by questions 4 and 5. Student to student interaction is good but student to staff is not. So i Suggest that these questionaires themselves are overhauled as often replies cannot either be "boxed" as agree or disagree there should also be a middle choice provided.
17. I think the idea of eemec is a brilliant one and especially in the latter years of the course (I'm in fourth year) it is a fantastic way of keeping in touch with students in different places and on different rotations. The discussion boards are very well-done and widely used. However, although the principles behind course information, assessment and feedback are admirable, I just don't think that they work as well as they should. I realise that a lot of it is ot eemec's fault but what is the point of submitting work electronically if we also have to hand in 2 paper copies elsewhere? I think a greater effort needs to be made to involve clinicians in eemec and actually get our work marked on line with feedback. The idea of a personal timetable is also excellent but since about half way through last year has not been operational. It would be good if you needed to check where you needed to be from home. Also the fact that the feedback formd come up time and time again is very annoying. Not being able to choose the right location from the list below is also very annoying..
18. Like, umm, most of it? It is an incredibly powerful teaching aid, but to be honest, it is largely wasted. The official timetable tool is often available too late to be of any real use, sometimes misses out on important information regarding one-off teaching sessions which aren't part of the 'major' teaching (ie, first aid sessions etc) and is completely pointless when you get into the clinical sessions because timetable information is not provided!!! These ACT questionaires are pretty pathetic too - how many times have I tried to find the hospital I actually did an attachment in and found it not to be there? It's all very well having a common list of attachment locations for all the ACT forms, but this isn't very pointful when half the esoteric locations aren't listed. I may have had some esoteric attachments, but I can't believe I am alone... And as to this questionnaire, I draw your attention to Question 2 - How useful is EEMeC at involvement you with the MBChB course? - ok, a minor grammar problem, but it suggests to me that this was assembled a bit too quickly. Then, why are there only explicitly positive or explicity negative answers? Why isn't "Ok" or similar an option? And what do you mean by " is important to me?". Frankly, I think EEMEC could be fantastic, and could be an incredibly useful resource, and I would like to see it become so, and so it is VERY important to me that it works properly, but frankly, this has not been achieved yet, and so am I supposed to say how much it matters to me in it's current incarnation (ie, not that much) or how much it would ideally mean to me (a hell of a lot)? In terms of general comment, navigation is often an absolute nightmare. Far too much information is not where one would reasonably expect it, ie directly linked into 'Year 4 Courses' or some such, but is squirreled away in some minor link of a backwater page which you cannot even get to from the major web pages that you would expect it to be linked to. Information is also incredibly patchy, with some attachments having excellent resources on EEMEC with really useful links while others have nothing more than a para or two of hyperbole and no useful links. While I realise this is probably outwith your control, since I guess much of the information must be provided by third parties to you, I think something urgently needs to be done about this if EEMEC is going to realise it's full potential. Plus, after finding bugger all information on a regular basis, you tend to stop bothering to check all the different module pages and so I have found that I missed out on some useful resources because I never bothered to check out the module sites until a little too late. And don't even mention 'vertical themes' to me... I haven't found the discussion boards too pointful for supporting group work because, for the most part, these weren't up and running in their present incarnation when I was actually doing the bulk of this kind of work in years one and two. However, I can see how they could be extremely useful, and so I think they are definitely a good thing. Anyway, EEMEC still has a lot of potential, and I would hope it gets the chance to fulfil some or all of it. After this broadside, it would not surprise me if you didn't want to get further 'feedback' but if you did, my matric no is …

19. E-mail reminders for important timetable changes or assessment changes would be extremely valuable. If you forget to check eemec you can find yourself missing important teaching sessions. It is impossible to get through the medical course without using eemec so people without internet access at home can sometimes miss out on important information over the weekend or in the evenings.
20. I have only ever recieved one useful feedback from portfolios in Eemec. One was just a mark and no comment - not very useful at all. I think the results from exams is very useful and well recieved in Eemec.

.

Year 5, Group D

Population: 40 , returns: 19 , free-text: 8 (20%, 42%)

1. Yes. An online slot for uploading a copy of one's CV. 9814022. Obviously, this would have to be one that could be continuously updated as opposed to portfolio entries which can only be uploaded once.
2. access to results better timetabling information internet links for educational resources
3. I often find information hard to find - maybe a different kind of index page, or a more obvious search facility would be useful? generally i have not found the layout to be as systematic as it would ideally be.
4. More Timetables should be given on Eemec Staff should be encouraged to contact students more through eemec if tutorials etc are to be changed or cancelled.
5. Support excellent - especially with portfolio uploads. Timetables good for first year and probably second, but irrelevant after that - a fixed timetable for clinical attachments is actually detrimental to students spending time doing their own clinical work, encouraging sticking to the fixed times provided, and clinical teaching often changes at very short notice with consultants other more important commitments. Clinical staff are less aware of how to access Eemec to communicate with students. Usefulness in terms of students communicating with each other requires a high and regular use by all students. Content on vertical themes is poor and in some other areas the pages are underdevelopped, especially vertical themes link to several different pages but for some there is not actually any information anywhere, even though it may be stated in study guides that more information is available on Eemec.
6. It would be useful if the timetables on EEMeC were accurate and perhaps EVEN THERE - for the majority of attachments this year no time tables have been available - isn't this what EEMeC was meant to be all about?
7. Online feedback is timeconsuming - tick box forms are much quicker!
8. Individual timetabling in year five has not happened, i found it very useful in year four and it would be great to be able to see my individual timetable for the day/week/module even when i am on the more individual and varied rotations, which has been the case this year. (I know that this is sometimes not eemec's fault as you need the info from the relevant department). The exam results/evaluation have been difficult to access (it keeps on saying the page is still not ready). Also i have had some problems uploading portfolio work in the past and have occasionally had to give it to the year secretary to do because it just would not upload despite following the procedure. I think eemec is very useful and i do use it a lot, but if these minor glitches could be sorted out it would be even better.

Year 5, Group E

Population: 36 , returns: 30 , free-text: 9 (25%, 30%)

1. less unnecessray Noticeboard notices and/or the option of prioritising old messages not to be put into 'other threads' after a certain time. More reliable portfolio uploading (and retrieval)

2. exam results should be available
3. already filled this in.
4. Important postings are occassionally lost in the depths of eemec... perhaps some way of highlighting new and relevant uploads when you log on would be of some use? Emma Deeny, 9812088
5. The mass of announcements that are made on my personal noticeboard that are irelevent to me is far too high. For example, it is inappropriate to receive messages about elective grants after that module has been undertaken. Otherwise, I mainly use the site for announcements, but also use it to check my timetable (ocasionally).
6. Could they include a contents page with a list of all the pages accessible? We are often told that things have been posted, but they are often very difficult to find, unless there is a direct link. Computing access at peripheral locations is often not reliable, we still need the noticeboards at faculty as a backup.
7. A post graduate eemec site! More detailed timetables. Faster results and a record of all exam results with possibly your official ranking in the year to help you keep track of your progress.exam results should be available on eemec (very hard to obtain these whilst on peripheral). - CALs would be a very useful tool to have available on eemec
8. Updating of the marks for casse reports on the portfolio needss addressed. I only have two marks on the page out of the dozen or so cases I have handed in.
9. If course organsisers (on medicine) wish to change the portfolio submission rules they need to put it on the main noticeboard, not some obscure link 1 week before the deadline. No one ever puts any feedback on eemec for me, it would be useeful if they did

Year 5, Group F

Population: 36 , returns: 27 , free-text: 8 (22%, 30%)

1. The timetable doesn't really work in 4th and 5th year anyway so it's no real reflection on eemec. More course info would be good. Excellent having results through one point of contact. Excellent resource on peripherals. Requests for help have always been greeted with immediate and effective response. Thanks eemec!
2. the results section would be a good improvement
3. This is a terrible questionnaire to evaluate eemec Eemec could be and should be useful. I am fully computer litterate but often end up chacing my tail via circular links that go back to whence you came. Information is hidden all over the place. The search engine is rubbish The portfolio is ok. Feedback is terrible but that is the fault of the markers. The potential for eemec is huge, despite many attempts to engage with it further, it is nothing but a glorified chat site with a portfolio storing facility to make up for the incompetancies of faculty office who can't be trusted to file.
4. more information on eemec about what is going to be in finals
5. No more Questionnaires
6. timetabling could be better in final years
7. once you have been to your discussion board, there is no link back to the noticeboard
8. I think the system is improving every year. The staff have been giving me excellent support when I do have a problem. such as uploading the portfolio. However, eemec is not very user friendly, like when finding out timetable is concern.

Year 5, Group G

Population: 33 , returns: 29 , free-text: 8 (24%, 28%)

1. Too many questions!
2. Sorry, but I think that was a really crap questionnaire and any results that you take from it woul dnot be representative. Also often I wanted to anwer neutral but there was not that option
3. sometimes diffcult to access things , often says 'page not available' in which case it is not very useful when abroad or away from university ie elective
4. Umm, try reading through the questions, some of them don't make sense, e.g. question 2. Mainly put good responses because the questions were quite confusing, I got the impression that there were subtle differences in the groups of 3 but I'm in a rush so might not have interpreted them correctly. In general I like EEMeC and find it useful, particularly now that we're away on attachments. It makes sense for faculty to contact us this way. Only shame is that more timetable info isn't available. I realise that this isn't a problem with EEMeC but with the course organisers... please continue to drag them kicking and screaming into the 21st century as EEMeC can be extremely useful.
5. discussion board is the best part. Timetable is not relevent - not practical to use it everyday for that purpose. didn't know allthose resources were available but useful to get course stuff and lectures etc from it
6. *Timetables *Results *Portfolio vertical themes learning objectives I have already filled this form in twice and there has been a problem with submitting it!
7. Course timetabling is not worth looking at on eemec and needs improved. It is nearly impossible to find a list of vertical themes on eemec, something I am always looking for. There have been too many uploading problems for our portfolios over three years. Overall I think there is a lot of potential though, I probably underestimate its value.
8. accurate timetable information - most of the time there is nothing. exam results - for a lot of the modules I have no idea what my final mark was.

Year 5, Group H

Population: 31 , returns: 15 , free-text: 4 (13%, 27%)

1. Provision for PRHOs?
2. this is too long
3. The exam results section should function, rather than cutting and pasting links from the noticeboard. Vertical themes homepages are inconsistent and often contain no content, just send the user in circles. Timetabling should be improved, and things which require advance warning (eg picking up anaethetic workbooks) should be put on the noticeboeard at the appropriate time. For feedbacak:
4. my results section needs improving, timetables updated faster, portfolio marking and notes entered faster should be able to bookmark or save some of the notices posted rather than having to trawl through the archive to look up a notice that was important to you

Staff

Population: 699 , returns: 45 , free-text: 16 (2%, 36%)

1. I have answered not applicable for areas of EEMeC I have not used for example assessment and feedback, however I think this is a useful tool. I also am aware that the problems with timetabling are related to the information not reaching EEMeC and when the relevant people send the relevant information EEMeC is an excellent way of viewing the timetable.

2. Clearer delineation of the purposes of Eemec, for instance is it to provide educational resources, administrative functions, or act as a communication system? It is possible that some of the functions could be provided more efficiently by other means. At the moment it is a very complex system, sometimes inhibitingly so. When errors are made it is very difficult to find out what went wrong. There are always going to be problems with paperless, electronic systems. Even enthusiasts of IT question whether the need for paper forms can be completely eliminated. It is a question of whether the advantages outweigh the disadvantages. Consideration of back-up systems in the event of failure.
3. Interactive Timetables
4. The search function needs to be more refined to be useful. Searches for CAL will pull up anything to do with cliniCAL, ethiCAL, mediCAL etc. More generally however, EEMeC seems to be an excellent "infrastructure" for the information although the accuracy and timeliness of this information is often less good. This is more of an MBChB wide issue than an EEMeC problem.
5. The MBChB programme should adopt a policy of blended learning and Eemec should be at the centre of this.
6. Easier navigation. Some things are really deeply buried and hard to find.
7. More members of staff using EEMeC - they need to see its value (From Simon Riley - I organise SSMs in Y4 and there is not yet full integration between all supervisors - when there is I can then get marking done online!)
8. Dear Rachael. What sadist wrote this questionnaire!
9. Some timetabling issus have in the past been a problem with a few students not having the correct timetable. On the whole a very useful tool.
10. My directees find it difficult to locate their exam marks on Eemac. Because there is so much info available on Eemec finding what one wants can be tricky.
11. I only use EEMeC to find out which students are coming when, and to contact students if necessary after they have returned to Edinburgh. I find this very useful.
12. Please let students look up their own grades over their course history. A vast amount of DoS time is spent ploughing through paperwork finding past grades for students who suddenly find they need them. (If you already do this, please let me know how to use it).
13. short evaluation questionaires wud help!
14. This really doesn't apply to me - at least not yet. Should be using eemec more once the new MSc course is up and running in 2004
15. Filliing this in because I have to. I am a tutor and have not until now involved myself with eemec, so that is why everything has been graded not applicable.
16. This is a terrible questionnaire - there are no neutrals between good and poor or between agree and disagree.

Appendix 8.1: Usability Heuristic Evaluation *pro forma*

Observer	
User	
Date	
Subject	EEMeC

PLEASE READ THESE INSTRUCTIONS BEFORE STARTING:

You are about to rate a system or artefact for its strengths and weaknesses regarding the following factors: visibility of system status, match between system and the real world, user control and freedom, consistency and standards, error prevention, recognition rather than recall, flexibility and efficiency of use, aesthetic and minimalist design, recognising and recovering from errors, and help and documentation.

To do this please spend no less than 15 minutes going through the following tasks (or equivalent ones of your own choosing) and recording your reactions and interpretations in the form overleaf:

- Find the Personal Development Profile form for year 4 and open it
- Open your (or a student's) portfolio and view a report
- Add a notice, a discussion message and an annotation
- Find out what you can about OSCEs
- Find and open a CAL on Neoplasms
- View and edit your personal homepage
- Find your (or a student's) DOS and their email address
- Change your password

The severity of a usability problem is a combination of three factors:

- The frequency with which the problem occurs: Is it common or rare?
- The impact of the problem if it occurs: Will it be easy or difficult for the users to overcome?
- The persistence of the problem: Is it a one-time problem that users can overcome once they know about it or will users repeatedly be bothered by the problem?

Please provide indications as to the frequency, impact and persistence of any problems you encounter and then rate the factor for the system or artefact as a whole using the following scale:

0 = I don't agree that this is a usability problem at all
1 = Cosmetic problem only: need not be fixed unless extra time is available on project
2 = Minor usability problem: fixing this should be given low priority
3 = Major usability problem: important to fix, so should be given high priority
4 = Usability catastrophe: imperative to fix this before product can be released

Please return your completed forms to Rachel Ellaway. Many thanks for your engagement and contributions.

Visibility of system status The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe
Match between system and the real world The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe
User control and freedom Users often choose system functions by mistake and will need a clearly marked emergency exit to leave the unwanted state without having to go through an extended dialogue.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe
Consistency and standards Users should not have to wonder whether different words, situations, or actions mean the same thing.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe
Error prevention Even better than good error messages is a careful design which prevents a problem from occurring in the first place.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe

Recognition rather than recall The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe
Flexibility and efficiency of use Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe
Aesthetic and minimalist design Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe
Recognising and recovering from errors Error messages should be expressed in plain language(no codes), precisely indicate the problem, and constructively suggest a solution.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe
Help and documentation Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, and not be too large.	
	0 = None **1** = Cosmetic **2** = Minor **3** = Major **4** = Catastrophe

Appendix 8.2: Bobby Accessibility Report

http://bobby.watchfire.com/bobby/html/en/index.jsp

Bobby Report

URL tested: http://www.eemec.med.ed.ac.uk/, November 6, 2004 9:38:41 AM CST. Watchfire Bobby Core v4.0.1, WAI Content Accessibility Guidelines 1999/05/05, Support Level: AAA. Note: To ensure that the marked up report is readable, all stylesheets and scripts are removed. The page may not appear as expected.

About this report

This page does not yet meet the requirements for Bobby AAA Approved status. To be Bobby AAA Approved, a page must pass all of the Priority 1,2 and 3 accessibility checkpoints established in W3C Web Content Accessibility Guidelines 1.0. For more information on the report, please read "How to Read the Bobby Report".

Priority 1 Accessibility

None.

Priority 1 User Checks

User checks are triggered by something specific on the page; however, you need to determine manually whether they apply and, if applicable, whether your page meets the requirements. Bobby A Approval requires that all user checks pass. Even if your page does conform to these guidelines they appear in the report. Please review these 7 item(s):

1. If you can't make a page accessible, construct an alternate accessible version.

2. Provide alternative content for each SCRIPT that conveys important information or functionality.

3. If style sheets are ignored or unsupported, are pages still readable and usable?

4. If you use color to convey information, make sure the information is also represented another way. (23 instances) Lines 37, 41, 42, 43, 45, 49, 51, 70, 74, 82, 88, 93, 97, 102, 107, 112, 116, 122

5. If this is a data table (not used for layout only), identify headers for the table rows and columns. (3 instances) Lines 47, 70, 35

6. If an image conveys important information beyond what is in its alternative text, provide an extended description. (4 instances) Lines 41, 49, 51, 70

7. If a table has two or more rows or columns that serve as headers, use structural markup to identify their hierarchy and relationship. (4 instances) Lines 47, 38, 70, 35

The following 2 item(s) are not triggered by any specific feature on your page, but are still important for accessibility and are required for Bobby A Approved status.

8. Identify any changes in the document's language.

9. Use the simplest and most straightforward language that is possible.

Priority 2 Accessibility

This page does not meet the requirements for Bobby AA Approved status. Below is a list of 4 Priority 2 accessibility error(s) found:

1. Use relative sizing and positioning (% values) rather than absolute (pixels). (26 instances) Lines 37, 42, 60, 70, 74, 76, 82, 85, 88, 90, 93, 94, 97, 99, 102, 104, 107, 109, 112, 113, 116, 118, 122

2. Create link phrases that make sense when read out of context. (1 instance) Line 70

3. Use a public text identifier in a DOCTYPE statement. (1 instance) Line 1

4. Provide an explicit label for each form control. (2 instances) Line 70

Priority 2 User Checks

User checks are triggered by something specific on the page; however, you need to determine manually whether they apply and, if applicable, whether your page meets the requirements. Bobby AA Approval requires that all user checks pass. Even if your page does conform to these guidelines they appear in the report. Please review these 10 item(s):

1. Check that the foreground and background colors contrast sufficiently with each other. (24 instances) Lines 33, 37, 41, 42, 43, 45, 49, 51, 70, 74, 82, 88, 93, 97, 102, 107, 112, 116, 122

2. If there are logical groupings of form controls, use FIELDSET with LEGEND on each group. (1 instance) Line 70

3. Avoid use of obsolete language features if possible. (25 instances) Lines 42, 43, 45, 70, 74, 76, 83, 85, 88, 90, 93, 94, 97, 99, 102, 104, 107, 109, 112, 113, 116,118, 122

4. Is the user made aware that there will be pop-up windows or changes in the active window? (8 instances) Lines 41, 43, 45, 74, 84, 88, 93, 116

5. Make sure that labels of all form controls are properly placed.

6. Do not create a blinking effect with animated gif images. (3 instances) Lines 41, 49, 51

7. Make sure header elements are not used only for bold text.

8. If programmatic objects create pop-up windows or change the active window, make sure that the user is aware this is happening. (2 instances) Lines 7, 16

9. Add a descriptive title to links when needed.

10. Mark up any quotations with the Q and BLOCKQUOTE elements.

The following 7 item(s) are not triggered by any specific feature on your page, but are still important for accessibility and are required for Bobby AA Approved status.

11. Make sure that all link phrases make sense when read out of context.

12. Group related elements when possible.

13. Make sure your document validates to formal published grammars.

14. Is there a site map or table of contents, a description of the general layout of the site, the access features used, and how to use them?

15. Is there a clear, consistent navigation structure?

16. Use the latest technology specification available whenever possible.

17. Where it's possible to mark up content (for example mathematical equations) instead of using images, use a markup language (such as MathML).

Priority 3 Accessibility

This page does not meet the requirements for Bobby AAA Approved status. 3 accessibility error(s) found:

1. Provide a summary for tables. (4 instances) Lines 47, 38, 70, 35

2. Identify the language of the text. (1 instance) Line 3

3. Include default, place-holding characters in edit boxes and text areas. (1 instance) Line 70

4. Separate adjacent links with more than whitespace. (1 instance) Line 45

Priority 3 User Checks

User checks are triggered by something specific on the page; however, you need to determine manually whether they apply and, if applicable, whether your page meets the requirements. Bobby AAA Approval requires that all user checks pass. Even if your page does conform to these guidelines they appear in the report. Please review these 8 item(s):

1. Consider furnishing keyboard shortcuts for form elements.

2. If this document is part of a collection, provide metadata that identifies this document's location in the collection.

3. If this is a data table (not used for layout only), provide a caption. (4 instances) Lines 47, 38, 70, 35

4. Consider specifying a logical tab order among form controls, links and objects.

5. Use the ABBR and ACRONYM elements to denote and expand any abbreviations and acronyms that are present.

6. If you have grouped links, is there a link at the beginning to bypass the group?

7. If there are logical groups of links, have they been identified and a link to skip the group provided?

8. Consider adding keyboard shortcuts to frequently used links.

The following 5 item(s) are not triggered by any specific feature on your page, but are still important for accessibility and are required for Bobby AAA Approved status.

9. Is there distinguishing information at the beginning of headings, paragraphs, lists, etc.?

10. If there is a search feature, are there different types of searches for different skill levels and preferences?

11. Are there navigation bars for easy access to the navigation structure?

12. Do you allow users to customize their experience of the web page?

13. Is there a consistent style of presentation between pages?

Appendix 8.3: W3C Accessibility Report

http://validator.w3.org/

No DOCTYPE Found! Falling Back to HTML 4.01 Transitional

A DOCTYPE Declaration is mandatory for most current markup languages and without one it is impossible to reliably validate this document. I am falling back to "HTML 4.01 Transitional" and will attempt to validate the document anyway, but this is very likely to produce spurious error messages for most non-trivial documents. The DOCTYPE Declaration in your document was not recognized. This probably means that the Formal Public Identifier contains a spelling error, or that the Declaration is not using correct syntax. Validation has been performed using a default "fallback" Document Type Definition that closely resembles HTML 4.01 Transitional, but the document will not be Valid until you have corrected the problem with the DOCTYPE Declaration. This page is not Valid HTML 4.01 Transitional! Below are the results of attempting to parse this document with an SGML parser.

1: Line 3, column 0: no document type declaration; implying "<!DOCTYPE HTML SYSTEM>"

<html><head><title>EEMeC MBChB Home</title>

The checked page did not contain a document type ("DOCTYPE") declaration. The Validator has tried to validate with the HTML 4.01 Transitional DTD, but this is quite likely to be incorrect and will generate a large number of incorrect error messages. It is highly recommended that you insert the proper DOCTYPE declaration in your document -- instructions for doing this are given above -- and it is necessary to have this declaration before the page can be declared to be valid.

2: Line 7, column 29: required attribute "TYPE" not specified

<script language="JavaScript">

The attribute given above is required for an element that you've used, but you have omitted it. For instance, in most HTML and XHTML document types the "type" attribute is required on the "script" element and the "alt" attribute is required for the "img" element.

Typical values for type are type="text/css" for <style> and type="text/javascript" for <script>.

3: Line 16, column 29: required attribute "TYPE" not specified

<SCRIPT LANGUAGE="JavaScript">

Line 33, column 97: there is no attribute "LEFTMARGIN"

..."#000066" alink="#0000CC" leftmargin="0" topmargin="0" marginwidth="0" margin

You have used the attribute named above in your document, but the document type you are using does not support that attribute for this element. This error is often caused by incorrect use of the "Strict" document type with a document that uses frames (e.g. you must use the "Transitional" document type to get the "target" attribute), or by using vendor proprietary extensions such as "marginheight" (this is usually fixed by using CSS to achieve the desired effect instead). This error may also result if the element itself is not supported in the document type you are using, as an undefined element will have no supported attributes; in this case, see the element-undefined error message for further information. How to fix: check

the spelling and case of the element and attribute, (Remember XHTML is all lower-case) and/or check that they are both allowed in the chosen document type, and/or use CSS instead of this attribute.

4: Line 33, column 111: there is no attribute "TOPMARGIN"

...k="#0000CC" leftmargin="0" topmargin="0" marginwidth="0" marginheight="0" OnL

5: Line 33, column 127: there is no attribute "MARGINWIDTH"

...margin="0" topmargin="0" marginwidth="0" marginheight="0" OnLoad="placeFocus(

6: Line 33, column 144: there is no attribute "MARGINHEIGHT"

...gin="0" marginwidth="0" marginheight="0" OnLoad="placeFocus()">

7: Line 35, column 70: there is no attribute "HEIGHT"

...="100%" cellspacing="0" cellpadding="6" height="395">

8: Line 70, column 139: value of attribute "ALIGN" cannot be "ABSMIDDLE"; must be one of "TOP", "MIDDLE", "BOTTOM", "LEFT", "RIGHT"

...ted icon' border='0' align='absmiddle'> SSL not established - click here

The value of the attribute is defined to be one of a list of possible values but in the document it contained something that is not allowed for that type of attribute. For instance, the “selected” attribute must be either minimized as “selected” or spelled out in full as “selected="selected"”; a value like “selected="true"” is not allowed.

9: Line 70, column 1479: document type does not allow element "P" here; missing one of "APPLET", "OBJECT", "MAP", "IFRAME", "BUTTON" start-tag

...the site and login when challenged.<p>Lost your password? <a href = ja

The mentioned element is not allowed to appear in the context in which you've placed it; the other mentioned elements are the only ones that are both allowed there and can contain the element mentioned. This might mean that you need a containing element, or possibly that you've forgotten to close a previous element. One possible cause for this message is that you have attempted to put a block-level element (such as "<p>" or "<table>") inside an inline element (such as "<a>", "", or "<font>").

10: Line 70, column 1533: an attribute value must be a literal unless it contains only name characters

...sword? Click here to have you

You have used a character that is not considered a "name character" in an attribute value. Which characters are considered "name characters" varies between the different document types, but a good rule of thumb is that unless the value contains only lower or upper case letters in the range a-z you must put quotation marks around the value. In fact, unless you have extreme file size requirements it is a very very good idea to always put quote marks around your attribute values. It is never wrong to do so, and very often it is absolutely necessary.

Appendix 9.1: A History of EEMeC to July 2000

This account is based on an essay written by the author in July 2000 as a record of how EEMeC had developed to date. Some amendments and extra notes have been added and a degree of and a review of the text has led to a degree of editorial changes.

Introduction

EEMeC - the Edinburgh Electronic Medical Curriculum - is one year old at the time of writing. This report is intended to give an account of EEMeC to date, why and how it started, what have been the significant events and developments during its one year history and discuss how it may develop. Furthermore it will outline the reasons for adopting certain strategies and technologies, the broad thinking behind the project and some of the day-to-day issues that arose and how they ere tackled. The material is based on individual recollections, contemporary documents, records and personal notes and diaries, and interviews with many of those players and participants in this project.

Part 1: Prehistories

Prehistory - Medical Curricula

- Explicitly designed curricula for medical education go back at least as far as the start of the 20th century when Abraham Flexner[i] proposed the division of medical teaching into preclinical and clinical stages. His influence has embedded itself deeply into medical education worldwide and is only recently being questioned due to the changing natures and practices of both medicine and education.
- A medical school's curriculum is driven by a dynamic set of external factors unique to higher education. The General Medical Council (GMC)[ii] is the legally authorised body responsible for undergraduate medical education and the licensing of doctors to practice in the UK. The GMC has regularly issued general guidelines for medical schools and performs regular visits to observe and monitor the quality and quantity of the medical education being delivered. The National Health Service (NHS) also drives the educational process both from the perspective of delivering the clinical environment for the teaching and from the perspective of defining what doctors are required in which areas. The Higher Education funding bodies (SHEFC[iii] in Scotland) are concerned with the creation and following of standards and benchmarks in higher education (essentially quantitative issues). Political issues such as central funding for health, administrative and organisational changes and the forming and following of public opinion also have a significant impact. The Royal Colleges[iv] with their historical subject divisions also cast an influence on what is acceptable and what is not. In addition to these there is a loose national federation of medical schools and the constant moving of staff from institution to institution that cross-fertilises ideas and themes between these institutions.
- The internal drivers of a medical curriculum are many, including the culture(s) of the university; faculties and departments as well as the strong influence individuals have on the processes of curriculum development and delivery. The role of the Deans of the Medical Faculties has been key as the figureheads responsible for identifying and developing all aspects of their faculties' activities and in particular the undergraduate medical teaching offered.

Prehistory - The Edinburgh Medical Curriculum

- The Edinburgh medical curriculum was last significantly reworked in the late 1970s when a three-phase course was introduced[v]. It placed a heavy workload on staff and with the increase in the quantity and complexity of medicine throughout the 80s and into the 90s it had become unwieldy and too demanding both on staff and the students. The old curriculum was increasingly seen as outdated, unresponsive to developments, both in medicine and teaching methods, and largely amateurish, based as it was on outdated departmental divisions. Furthermore it was seen as failing to offer anything particularly special or unique and was lacking in personality. In 1997 the Scottish Higher Education Funding Council's national 'Teaching Quality Assessment' exercise gave Edinburgh's medical teaching the lowest rating of any of the four Scottish schools.
- It wasn't until the appointment of a new Dean in 1993 that curriculum change was tackled substantively, although small adjustments to the course had gone on in the meantime[vi] that had met at least some of the requirements of "Tomorrows Doctors"[vii]. Many if not most medical schools redesigned their courses in response to Tomorrow's Doctors through the mid and late 90s. It was recognised nationally that this placed an extra burden onto medical schools and a scheme called UMCISS[viii] was set up to provide funding to facilitate change.
- In Edinburgh the Faculty started the process to create a new curriculum in 1995 under the aegis of the University Medical Education Committee (UMEC). The appointment of a new Dean in late 1995 increased the impetus for change. The result was a new 5 year medical curriculum, called Vision 2000[ix]. It encompassed a move from regional to systems teaching, a move from delineated departmental/subject areas to a unified 'joined up thinking' view and a move from linear deterministic symptom-cure models to more holistic and problem-based approaches. The increasing complexities and interdisciplinary aspects of medicine were acknowledged and represented in the new curriculum by the embedded "crosscutting themes" (now called 'vertical themes') running through all five years. An portfolio of key examined essays was also placed as a key aspect of the assessment process.
- Alternatives such as moving to an entirely problem-based (or case-based) course was rejected in favour of the systems based model (Liverpool and Glasgow are notable in having decided to follow a problem based curriculum models) due to a largely pragmatic recognition that insufficient resources for supporting such approaches were available. The other aspect that was particular to Edinburgh was the inclusion of a strong academic/research element particularly through the SSMs. In Edinburgh the "teaching in a research rich environment" factor was significantly embedded in the new course structures and encouraged in the student culture.
- The Medical Teaching Organisation was created to oversee the development, design and implementation of this new course and shadowed UMEC in this role. Two senior lecturers were joined by an UMCISS-funded curriculum development officer (PE) to make up the MTO team. This team met weekly with UMEC and the people who would deliver the new course to bring it to fruition. AC took over the MTO in 1998 bringing a strong clinical background to bear on the ongoing development of Vision 2000 particularly into the later clinical stages.
- The new course has had major implications for activities beyond the undergraduate educational sphere. For instance it has shaped the service level agreements with the NHS trust teaching hospitals[x] which set the reciprocal areas of work that each institution provides for the other. It was also central to formulating the academic brief for teaching facilities at the then proposed new Royal Infirmary for Edinburgh (currently nearing completion at Little France), which was the base for the planning and building of these aspects of this new teaching hospital. It was key in wresting the financial control of undergraduate teaching from the monolithic departments and centralised it in the MTO. It was therefore able to effectively compete generally for funding with this broader faculty base and it obtained a central teaching budget through the MTO. The new curriculum, through the MTO, also catalysed the administrative basis of teaching, which was further

mirrored in the faculty reorganisation into larger departments within research divisions. There was for the first time a separate teaching division at a planning group level. Teaching organisations have been set up in other academic areas such as Biology (BTO) with a similar remit.

- The new Vision 2000 curriculum began in 1998 with year 1 and progressively rolled out, a year at a time until the first students graduated in the summer of 2003. At the same time students were still moving through the old curriculum until 2002. Students that failed years in the old curriculum were moved into the following year of the new curriculum.

Prehistory – Technology and Teaching

- The nineties saw the inception, growth and maturation of the World Wide Web. The JANET network has been the Internet backbone for UK HE institutions. The uses and functions of networked computing have also expanded rapidly and the Edinburgh University network has expanded to cover the whole University and many of its associated institutions. Many open access computing labs have been set up for students and these facilities have developed both in quality and quantity.
- A Faculty website was set up in June 1998 by external consultants as a solely administrative resource reflecting the Faculty Office view of the Faculty and its activities. The responsibility for developing and maintaining this site has remained with the Faculty Office although by necessity at a very basic level. A new more comprehensive site was built and launched in 2001.
- During 1997 discussions on the Faculty website, the MTO's curriculum development officer PE and the author collaborated to develop ideas of an electronic curriculum. Although this was not included in the Faculty site. the author created a small website for PE in the autumn of 1998 to address some of the practical issues arising from initiating the new curriculum. This site was designed to support the academic and administrative staff (situated across many sites in the University and the teaching hospitals) involved in the development and implementation of this new course. This site consisted of the content, plans and structure as well as the proposed personnel for Vision 2000 and was the only constantly updated easily accessed source available (at least for those connected to the Internet) about the new curriculum available at that time.
- Throughout this period HE funding underwent effective 1% cuts year on year with numbers of lecturing, demonstration and technical staff being cut back and savings and efficiencies driving much of what could be done with the available resources. Nationally various funding sources and projects were run to support the adoption of technology for teaching during the nineties (notably the CTI centres, TLTP and JISC projects - the CLIVE project for instance was the result of a successful bid from Veterinary Medicine). However the Medical Faculty missed the opportunities available for developing its educational ICT facilities. Despite a few keen individuals pursuing the creation of their own computer based teaching materials - notably in Public Health Sciences, Pathology and Anatomy - there was no coordinated use or support of computing in teaching in the medical Faculty.
- In 1998 a major restructuring of the Medical Faculty was undertaken. This was a change from its historical constitution of a large number of subject-based departments to a new structure based on research divisions and a single teaching division (postgraduate teaching remained the responsibility of the Lister Institute and the Postgraduate Dean). The teaching division contained the various Teaching Organisations (MTO, VTO and BTO although the latter is also part of the Science Faculty) and a new body called the Learning Technology Section. This section integrated existing IT support and the pre-existing Medical Illustration Department and it later appointed staff to create a courseware development section. It was formally established with the appointment of its first director in February 1999.

Part 2: An Electronic Curriculum

- The first LTS project initiated by the Director was to draw up plans for a “Virtual Medical School” to support medical teaching at Edinburgh and to give a general context for the diverse streams already existing, and yet to come. Plans were developed for the ideal form, content and behaviour of such a system relative to Vision 2000, building on work the author had previously done with PE. A site design and logical structure were built to initiate this new project. The designs were deliberately clean and simple with the principles of speed and clarity as drivers while also trying to communicate confidence and style, to make the process of extracting information by a user as quick and easy as possible. It was also at this time that the author came up with the name of Edinburgh Electronic Medical Curriculum and its acronym of ‘EEMeC’, which deliberately mirrors the same pattern of capitals and lower case letters as the MBChB.
- In July 1999 the Courseware Development section in the LTS had taken off with the appointment of three new developers, one of whom, PD, came with considerable educational web experience gained through work with the EuroMET Project in the Department of Meteorology. PD was therefore a logical addition to the nascent EEMeC project.
- In August 1999 a major meeting was called with representatives of all of the areas of the Faculty involved with teaching and running the MBChB. EEMeC designs were presented alongside materials from CTI (Computers in Teaching Initiative), TLTP (Teaching and Learning Technology Project), JISC (Joint Information Systems Committee), and CLIVE (Computer aided Learning in Veterinary Education). There were some misgivings expressed regarding the resourcing of the project, the effect of ongoing problems of access to computers for the students and the concerns that this would involve moving inadvertently to some kind of a distance-learning model. There were also concerns raised regarding the University requirement to provide core course materials free to students and therefore not obliging them to print them off at their own expense. A potential long term advantage presented was the gradual movement to a database driven system that could eventually provide a single source solution whether it be print, web or whatever else was required. It was agreed at this initial meeting that the paper based course booklets for the new curriculum (about to start its first 2nd year) and the related paper based materials would be converted to the web and the processes, responses and ramifications observed, evaluated and reported on to assess whether it was a worthwhile exercise and worth extending for all concerned. The texts for these books were to be delivered on disc in Microsoft Word form (as they were presented to the printers) as soon as they were ready before the start of term in October.
- The author and PD set to and established generic structures for the course book materials so that the content (from a linear paper document model) was broken down logically and consistently to the web providing the student user quick and intuitive access to the material they sought. The previous year’s books were used as current material would not be ready until a week or two before the start of term. As the term started, and the author moved back to other tasks in support of Medical Illustration work, PD was left to continue with the project mostly single handed except for planning and consultation meetings. Although the development of EEMeC has been pretty much continuous its first year has reasonably fallen into three periods corresponding with the three academic terms of the past year:

Session 1, Term 1 (September-December 1999)

- The first significant part of the creation of EEMeC was the conversion of the paper-orientated course books from Microsoft Word format to HTML for the web. Word-

HTML formatting was (and continues to be) a messy and time-consuming process that involved manually checking and often fixing every part of a converted document.

- EEMeC was initially built using HTML frames with a new frameset generated for each page (thus allowing user bookmarking). A certain amount of work was needed to reformat the course books to identify the nodes and place the content in context to them. The main tool used was Macromedia Dreamweaver in which page templates were generated. Four templates defined most of EEMeC, providing enough flexibility to meet subtle differences between modules within the course (particularly noticeable between the more academic and more practical modules) and avoiding imposing too rigid a structure on the materials. The templates proved invaluable as EEMeC grew rapidly meaning that large numbers of pages needed to be updated at once (in Dreamweaver altering the template updates all of the pages created from it).
- Attention next turned to the acquisition and conversion of content for the system. Up until then publishing deadlines for studyguides were based around getting the books printed and delivered for the start of teaching in October 1999. Because of the labour-intensive nature of converting these guides to HTML (especially this first time) more time was needed to convert and set up their web equivalents. To that end PD had to push to get the material in good time and even then was toiling to get the material live in time. An early way of identifying how it all fitted together (particularly for PD who had no prior knowledge of the MBChB structure) was using the MTO's year maps converted from PowerPoint and used as the jump off point to a whole year's set of parallel modules. This was particularly useful in establishing common formatting methods for the two main themes of Biomedical Sciences and Health and Society, the former running a series of discrete modules the other presenting multiple themes on a week-by-week basis.
- The individual pages were created by copy-pasting from Word to Dreamweaver and then establishing appropriate directory structures and links. Further work was then needed to fix issues such as the formatting and problems arising from images converted to web formats. Other problems included setting appropriate and consistent font face and size settings (which differed between the different paper documents) and removing spurious list and indenting tags.
- As a result of presenting the material in this way for the first time some adjustments were made to the categories and structure of EEMeC, especially the structure of the Health and Society material. The Health and Society course leader took a particular interest in the possibilities that this new project offered him and used it to revisit his materials in the light of how they had been converted to an electronic medium. In particular this consisted of providing extra lecture and tutorial materials, which provoked a very positive student response. In particular the CSPPD and Year 2 materials were delivered especially late and only just scraped in for the start of term. The whole conversion process from Word to web took about four weeks through September and October, this not counting the development and planning work beforehand and the rewriting and adjusting afterwards.
- EEMeC was deliberately not set up on the Medical Faculty's web server as all those concerned felt it offered far too little flexibility and it required the use of Microsoft FrontPage an inappropriate tool for such a large and complex project (based on personal experiences of using it and a number of alternatives. The first option taken was to host it on a UNIX Apache server run by a computing officer (SY) (who was then affiliated to the LTS) from his office in the LTS building in George Square. PD and SY collaborated to allow PD to use the site FTP tools in Dreamweaver to upload material to a directory logically linked to this server. Despite UNIX allowing long file names, PD and the author had already decided to use the strict DOS 8:3 naming system which has also proved to be a fortuitous planning decision. Various academics already expressed concerns that their material was open to copying due to the general access of the web so SY set up a security layer (using a CGI PERL

script) so that all of a module's content was password protected. The passwords were created and disseminated by SY in the context of his running of the IT skills course in the CSPPD component of the MBChB. The security layer was set so that the top levels showing the general concepts and structure of the course could be browsed by any interested party (other academics, potential students etc) without needing a login. The pages at which the security was attached also allowed users to bookmark to these key points although not individual pages. The issue of providing public access versus protecting content remained a thorny issue that was addressed in later years. The UNIX server proved to be underpowered to meet the traffic that the students rapidly imposed on it (at this stage just from MBChB years 1 and 2). By November 1999 it was running very slowly and unresponsively for much of the day. The problem was noted but no solution was immediately available.

- A review meeting with the MTO in mid November gave a favourable response to the work to date on the site but two further requirements were made of the development team. First was the need for integration of the Vertical Themes into the Year-based structure, the other was the integration of the pre-existing web site for the CSPPD Vertical Theme into the EEMeC mainstream. Vertical Themes are a key component of the new MBChB and one that was particularly hard to represent. This provided a particular challenge to the EEMeC team as to how they should be implemented. A pre-existing CSPPD site had been set up by SY for last year's first Vision 2000 year and therefore developed separately from EEMeC. It was decided that it should be a subset of the larger site within a Vertical Theme area in EEMeC as that was its position in the course itself. The EEMeC team were to look at ways of integrating the vertical themes and the CSPPD site as soon as was practical.
- In the early summer of 1999 SY and the author had looked at the possibilities of exploiting the opportunities offered by the Allaire Cold Fusion web database service offered for free though the University's central computing services. PD followed this up through the autumn and winter, developing skills and migrating at least some of the EEMeC content to a database delivery format. The issues surrounding the mass conversion of static Word documents to a database solution were still without solution however and at the end of term PD was again chasing up the content for the following term's studyguides, which again were only just ready in time mostly due to the late delivery of their materials.
- Shortly before Christmas the development team had their first meeting with the year 2 student representatives. The response to EEMeC was mixed due to the majority of them not knowing what it was, where it was or what it was for. Although it had been mentioned to them at the start of term, it was very far from clear from their perspective what it was for or how they could use it. The team resolved from this point to take a stronger role in the promotion and dissemination of the EEMeC project. The students strongly expressed their frustration with the lack of access to computers especially in the Greenfield Suite which they perceived as the medical lab but which was heavily used by non-medical students at all hours. Problems associated with using some of the CALs were also noted but the general idea of computer based learning and support materials was enthusiastically received. Because few of them had actually seen the site the team arranged to meet again in January to allow them time to consider it before giving us any specific feedback.

Session 1, Term 2 (January – March 2000)

- In early January the team met the second year student reps again. Their review of EEMeC was very favourable and they were particularly keen to see integrative tools such as a tailored timetable and other support information such as the locations of the lecture theatres, seminar rooms and other teaching venues. The frustrations of the previous meeting were revisited in particular the lack of computers and the lack of briefing on the existence and role of EEMeC.

- After the term 2 studyguides were converted, PD set to creating up a resource outside of EEMeC consisting of banks of self-assessment MCQs running on the Cold Fusion service mentioned earlier (this would eventually become EROS). Although separate the site's design shared common features with EEMeC, and the Vets (through the CLIVE team) had also expressed an interest and had requested a version of EEMeC for the veterinary undergraduate programme.
- The two main issues at this time were obtaining ongoing resourcing for EEMeC and addressing the problems caused by the inadequacy of the UNIX server. In February 2000, with an LTS reorganisation, the author moved out from Medical Illustration into the LTS mainstream with responsibilities that included setting up and running a new dedicated EEMeC web server and specific responsibilities for EEMeC. A new Microsoft Windows 2000 server was purchased by LTS and set up by LTS IT Services and the author. EEMeC was moved relatively easily to the new Windows 2000 server at the start of March 2000.
- With the move to the new server, EEMeC's security was recreated and strengthened by using an ASP[xi] script attached to each of the relevant frameset nodes. The two user accounts and their generic logins were retained from the UNIX build. The move also marked the point at which server logs began to be kept.
- The problem of managing and streamlining the workflow of converting submitted materials (mostly in Microsoft Word) was addressed by working with secretarial staff to develop templates and disseminate skills and good practice to them and through them to the documents' authors. LTS, the year secretaries and representatives from Faculty Office and the MTO met in February to discuss the issues of staff development and deadlines and timescales to allow both the paper and web publishing results to be improved (a clearly stated requirement was that EEMeC was not to increase the workload on course administrators). As part of this workflow project the author introduced cascading style sheets (CSS) to EEMeC in March and April. She also reviewed the site design and standardised its appearance of the site.
- The SCWEIMS[xii] system was first announced by MALTS[xiii] as a portal for the whole university at this time, and the EEMeC and SCWEIMS teams met to discuss how the two systems might be linked. SCWEIMS' goal was to create a web based student space that tied in with registry and specific courses to provide an integrated student-centred experience. MALTS also introduced two 'off the shelf' VLE tools, WebCT[xiv] and the Singapore VLE system[xv], at this time. There were pressures to adopt these tools but after evaluation and investigation they were considered unable to meet the complex needs of the MBChB or match the features already being delivered by EEMeC.
- The Faculty Group put forward a grant application to appoint a developer for 18 months to work specifically on the EEMeC project. Members of the Veterinary Faculty questioning the bid complicated this, as they had decided to abandon an EEMeC clone and were instead intending to use the IVLE. Although they put pressure on medicine to do the same, the case for EEMeC was stronger and the bid went forward.
- In response to student feedback, links between EEMeC and the Medical Faculty website were established.

Session 1, Term 3 (April-June 2000)

- The secretarial staff-training event ran in April involving participants in the process of designing the templates and defining the document styles. These templates were used for the first time in converting the term 3 materials and proved to meet their goal of speeding up and streamlining the conversion process. The event also created the spin-off benefit of bringing together staff, who are otherwise isolated, and creating a forum for discussing many of the related issues facing them as

MBChB support staff. This creation of a nascent community with direct benefits to EEMeC and the course in general was an unforeseen but definitely welcome result.

- In response to the need to express the vertical themes within EEMeC, a system was developed for integrating the horizontal and vertical themes into the site by colour coding (blue for years, orange for vertical themes) and icon coding the links between the strands (blue square for years, orange diamond for vertical) and establishing clear systems for presenting the two together. Using this system the existing CSPPD site was converted and integrated into EEMeC and place-holding pages for all of the other vertical themes established awaiting further content (the vertical themes begin to 'flesh out' from year 3 onwards). As the majority of the course has yet to run, the full potential of representing the vertical themes within the course has yet to be realised. Even at this early stage it is already proving to be a powerful tool for representing the specific way that parts of the course mesh together to all concerned and in particular to those who are still developing the 4th and 5th years and who need to refer to what has gone before and what is happening 'now'.
- There were also three other major new features added during this term. First was a series of maps and descriptions of the venues in which the course was delivered. The second was an interactive timetable where students could see what they are doing on any given day or days, collating together all of the various strands and modules which run in parallel but are timetabled separately. This was the only place that presented this information in this form to the students. The third development was the streamlining of the browsing and navigation process, in particular by adding an 'explorer' page allowing direct access to all of the extent themes and modules in EEMeC.
- The quantity of supplementary lecture and tutorial materials presented for mounting during the terms has steadily increased as has its variety. A particular challenge was the conversion of four academic articles from print to PDF format for the Health and Society strand. Other material has included mock exam questions, exam results commentaries, solutions to workbook tasks and pointers to the Erskine Medical Library's electronic reserve collections. A meeting with Marshall Dozier of the EML led to ambitious plans for combining resources and developing some of EEMeC's library activities.
- A meeting between the leader of the Health and Society strand and the year 1 and 2 student representatives provided a further opportunity to garner student feedback. This followed the same pattern as earlier student meetings - "give us more of everything" (computers, information, resources, time etc), "... except don't make us pay for printing".
- Rather than asking users to contact individual members of staff (who may be absent or not the appropriate person to deal with a request) a 'helpdesk' email alias account of eemec@ed.ac.uk was set up that forwarded help requests to all members of the EEMeC team. A 'help' button was added to the EEMeC page templates that linked to this email address.

EEMeC at the end of its first year

EEMeC has developed far further than had been envisaged at the inception meeting in August 1999. With features such as the interactive timetables, supporting an evolving personalised student experience of EEMeC and a far enhanced and up to date set of course materials than before have made it an extremely valuable resource for the undergraduate medical student and hopefully for those teaching them.

External issues such as lack of computer accessibility and internal ones such as failing to get the full and correct message to the students early enough in the year have caused problems, as has the scarcity of resources. At the time of writing the Learning Technology Section has just finished its negotiations for creating a dedicated computer lab for medical

and veterinary students in the Greenfield Suite for the start of the 2000/2001 session. The new teaching block at the Western General Hospital (including its own computer lab) will also open in September 2000. Both of these projects should at least go to solving the 'bums on seats' issue for some time to come. So far it has been solely created and managed by the author and PD and despite being committed to the project we have many duties and responsibilities beyond it. We were turned down for the Teaching Support grant bid (all of the funds went to MALTS) but we have recently received funding from the Dean's own funds and we are now seeking a new developer to join the project as we look forward to a whole new set of material for EEMeC session 2 and a brand new year 3.

A major development is that session 1 is to be archived (and subsequent sessions when completed) to allow the students who have used it at that stage in the course continue to be able to access their specific materials even after the current versions of the content have evolved and changed. This is a doubly important resource firstly since the course is still being significantly developed and altered as it runs so few modules or components will be exactly the same year on year. Secondly we need to be able to show what was taught and provided to any given student both for external assessment and verification and for legal reasons. The exact methods for managing this archiving are still being developed but will rely on the delivery of the student identification system, which is also being developed for the personalised student timetable.

A small but valid point raised by all of meetings with the students was the difficulty of remembering the URL. Originally the UNIX box was registered as mvmlts.med.ed.ac.uk/ eemec. The Win2000 box took this identity and was also www.lts.mvm.ed.ac.uk/eemec. In June we established the more logical www.eemec.med.ed.ac.uk and we are in the process of disseminating this through all of the documentation and links. We also intend to be more pro-active at the start of the new student year in promoting and disseminating the EEMeC message as we feel we best understand it and can best explain and 'sell' it to the student bodies. PD has also had meetings with the year 3 and 5 organisers to this end and continues to do so.

A significant development in the course between years 2 and 3 is the move from essentially preclinical to clinical teaching and a move therefore from the central medical school to being taught in the hospitals themselves. The student cohort therefore becomes dissipated across Edinburgh and beyond and is working in an environment without access to externally networked computers. We are working to address these problems in two areas. First is the provision of new networked machines in peripheral hospitals, a pilot project in St. John's in Livingston has just successfully been completed by Nick Timmins and his staff and the previously mentioned new teaching block at the Western General, both of these will provide many more access points to networked resources and in particular to EEMeC. We are also in discussions with the NHS about lowering their firewalls to allow educational traffic to flow between the two systems or at the very least making CD-ROM copies of resources such as EEMeC available for delivery on the NHS intranet systems. Apart from the problems the students face in accessing e-mail and web materials there is of course the problem that teaching clinicians similarly isolated in the NHS intranet are unable to see and partake in the advantages of EEMeC such as being aware of what everyone else is doing, what the students have been taught previously and what indeed they should be teaching them now! There are further spin-offs for instance a development of EEMeC delivered into the hospitals could support the PRHO year and onwards extending into CPD areas and providing qualified ex students with access back to what they had been taught. A lot of ideas are possible at this stage and are being actively considered.

Another theme that has recently arisen is the Project Portfolio in the new MBChB where students have to complete a series of assignments, which build together into a portfolio of work eventually used for amongst other things their vivas. We have been approached to deliver an online electronic system of handling these portfolios and are currently in the early stages of developing the parameters and brief that is required to do this.

The "Computer Skills and Medical Informatics" (CSMI) component of the CSPPD vertical theme will be principally delivered through EEMeC from September 2000 onwards.

The Technologies used in developing and delivering EEMeC

We use Macromedia Dreamweaver 3 for page development as well as hand coding and tweaking. Graphics are prepared in Adobe Illustrator, Adobe Photoshop, Macromedia Fireworks and Macromedia Flash. The database technologies used are principally Allaire Cold Fusion with a little ASP all connecting to various Microsoft Access databases. The server is a Windows 2000 server running IIS5. The site is developed both on Windows NT4 and Mac OS workstations for delivery principally to IE4 and Communicator 4 in the UCS public lab NT4 environment.

Future Developments

Discussion and chat areas are to be introduced in the upcoming session (in response to student and staff requests for these kind of facilities) using initially the specific FrontPage tools that integrate with IIS to provide the supporting technology. We hope to use the WebBoard service promised by MALTS as and when it becomes available. The capabilities of synchronous (chat) and asynchronous (discussion) communication facilities are recognised but it is to be seen whether the students will actually use them (websites the author has previously created have had very limited use or no use at all of similar facilities).

The net access problem facing students moving into a hospital environment for the clinical teaching has already been noted but as more and more of the clinical part of the new curriculum rolls out, the pressure to tackle this problem grows ever stronger. Either the NHS firewalls will come down or we will provide static CD-ROM copies. Either what we will have to deliver EEMeC in some form to students and staff in the teaching hospitals.

The provision of a more sophisticated login process which will allow us to identify a student has already been noted in this document. The abilities it gives us are more widespread than controlling access and generating timetables though. We could track students as they use the site (or note their absence) and could eventually provide assessment and other educational exercises that require a secure and individual experience of EEMeC. We may also acquire the student information directly from SCWEIMS (as students will login to it directly from public labs) and use this as an alternative to authenticate EEMeC users. We are awaiting discussions with MALTS and a delivered version of SCWEIMS before we can make any guarantees over this point.

Database driven systems are the backbone of large websites and EEMeC is already running some areas and facilities using database technologies. We hope in the next year or so that we can move all of the content to a database solution and use this to generate paper-based content too. This will depend on our abilities to manipulate content in Microsoft Word and practical developments in XML support. The potential for a database driven site to tailor and flexibly ‘adapt’ to a student’s needs to become an exceptionally powerful research and flexible learning tool is a goal we are already working towards. The development to date has been very pragmatic though and we will test and evaluate at each stage to guarantee the value of the services we provide.

Coursebooks are going to become more interactive with exercises being carried out directly from the EEMeC pages. An early example will be the Library Hunt carried out in the Erskine Medical Library.

The scope of EEMeC will develop as the new curriculum rolls out to its full five years. It is also likely to develop in the specifically medical student support areas such as for their Directors of Studies (DOS) and in the extension of materials to support the pre-registration house officer year (PRHO Year 6 - postgraduate) and beyond into full medical practice. Continuing professional development (CPD) is an important national issue (lifelong learning) and extremely important for medical professionals who are working in fields that develop and change constantly.

The value of the site in acting as a reference tool for teaching staff at all stages of the course is expected to develop tremendously and may be the only single source of information of what is or has specifically been done. This is of particular relevance to tutors in the later stages of the course when they can see what and when the students coming to them have learnt materials that underpin the teaching they will give. This is even more important on a medical course when the clinical teaching staff is distributed across several teaching hospitals and in a clinical culture rather than an academic one. PD's meetings with the 5th year tutors have already raised the importance of this factor.

The national environment for medical education will also have an ongoing effect. The current government is committed to providing trained doctors at a far higher rate than at present and this will change the environment of national medical training and this cannot but impact on the Edinburgh medical course. Other developments such as a national online preclinical medical course driven by the Open University have already been announced and EEMeC cannot sit in isolation from these developments.

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[i] Abraham Flexner's "Medical Education in the United States and Canada (A Report to The Carnegie Foundation for the Advancement of Teaching, Bulletin Number Four" (1910), the so-called 'Flexner Report', is a landmark in medical education. Flexner undertook a survey of US medical schools and made a number of recommendations, in particular the establishment of preclinical and clinical phases of training that have been picked and applied in virtually every medical school in the world during the twentieth century.

[ii] The General Medical Council (GMC) in their own words: *"high standards of medical education are needed for GMC registration. It is our duty, under the law, to ensure doctors who qualify in the UK are trained to the standards set out in "Tomorrow's Doctors". We do this by visiting and inspecting courses and examinations, and can take action where standards are not maintained. We have no jurisdiction over medical students until they qualify and register with us, but we produce guidance for medical schools about student health and conduct. We also set standards for the training of house officers in "The New Doctor", and of senior house officers in "The Early Years". We have also produced supplementary guidance on The doctor as teacher, for all doctors who contribute to the education and training of other doctors, medical students and non-medical healthcare professionals; and on Teamworking. We work with the medical royal colleges and other training bodies to promote high standards of postgraduate and continuing medical education"* from the GMC website at http://www.gmc-uk.org, accessed June 2000.

[iii] SHEFC: "the Scottish Higher Education Funding Council (SHEFC) was established in June 1992 under the Further and Higher Education (Scotland) Act to provide financial support for teaching, research and associated activities in Scottish higher education institutions. There are currently 18 such institutions funded by SHEFC … The Council is a non-departmental public body responsible to the Scottish Executive through the Scottish Executive Enterprise and Lifelong Learning Department. The Council's main functions are: to distribute funds to support teaching and research in higher education institutions; to secure that provision is made for assessing the quality of higher education supported by the Council; and to provide Scottish Ministers with information and advice relating to all aspects of higher education in Scotland, including the financial needs of the sector" from the SHEFC website at http://www.shefc.ac.uk accessed June 2000 - the other UK bodies are HEFCE for England, HEFCW for Wales and DENI for Northern Ireland. SHEFC is due to merge with its Further Education equivalent in 2005.

[iv] In Edinburgh there are two medical colleges: The Royal College of Surgeons of Edinburgh (http://www.rcsed.ac.uk) and The Royal College of Physicians of Edinburgh (http://www.rcpe.ac.uk/). There are also Colleges in London and Glasgow in these disciplines and in London only for other disciplines such as Obstetrics, Psychiatry and General Practice.

[v] The ‘old’ medical course ran in three phases - the first phase covered years 1 and 2 and was a preclinical and science phase. The second phase ran in year 3 and was an introduction to clinical practice. The third phase ran in years 4 and 5 and consisted of a ‘carousel’ of clinical attachments.

[vi] *“Since the late 1970’s Edinburgh has been actively developing curricular components of the MBChB programme as evidenced by: problem Based Learning Projects (PBLP) introduced in the 1980’s, Introductory Clinical Skills programme (1989), Special Study Modules (SSM’s) introduced in 1993, Integrated course in Neuroscience and Endocrinology (1993), Revising the curricular emphasis and teaching methods in Anatomy (1995), Community Attachments - Talking with Families (1997). During this ‘quiet evolution’ of the last twenty years the Edinburgh curriculum was also sensitive to external pressures for change from the GMC, the Royal Colleges, government agencies and national trends in higher and continuing professional education.”* from “The Making of Tomorrows Doctors”, a booklet for prospective students published by the Faculty of Medicine in 1997.

[vii] “Tomorrow’s Doctors: Recommendations on Undergraduate Teaching” was published in 1993 by the Education Committee of the General Medical Council of the United Kingdom. A second set of recommendations under the title of Tomorrow’s Doctors 2 was released in 2003.

[viii] UMCISS - the Undergraduate Medical Curriculum Implementation Support Strategy - was created by Kenneth Calman during his tenure as Chief Medical Officer for England and Wales. It provided £50k to each medical school to implement new medical curricula particularly in response to “Tomorrows Doctors”.

[ix] Vision 2000: “The course can be described as a 'core and options' programme. The core course has an integrated approach arranged in modules and themes. The modules occur as a series of components that fit within each year. Each module builds on previous experience and forms a foundation for the modules that follow. The overarching themes have a five-year perspective and focus on personal and professional issues that underpin the development of a competent, medical practitioner. The options occur as special study modules, intercalated Honours and elective which offer choice and an opportunity to study a topic in depth” from an MTO briefing document 1997

[x] There were major changes within the NHS during the 1990s as unitary health boards were split into NHS Trusts. This change was marked in part by the requirement for Service Level Agreements (SLAs) between these new Trusts and the Medical School as to who was responsible for what and how much commitment each party made to the other’s work, which inevitably included teaching.

[xi] ASP stands for active server pages, a server scripting technology for Microsoft webservers and based on either VBScript or JavaScript

[xii] SCWEIMS - Student Centric Web-based Educational and Informational Management System – two year collaboration between the universities of Abertay, Edinburgh (via MALTS), Paisley and Queen Margaret University College to provide all students in each institution with integrated Web-based access to many (perhaps ultimately all) electronic services offered by their universities. This was one of the SHEFC funded SCOTCIT projects.

[xiii] MALTS: the Media and Learning Technology Service for the University was set up by amalgamating the audio-visual and video production sections of Morray House and the existing UoE facilities when the two institutions joined together in 1999. An e-Learning Unit was added at the same time.

[xiv] WebCT (Web Course Tools): “WebCT is a tool that facilitates the creation of sophisticated web-based educational environments. It does this in three ways: 1. It provides an interface allowing the design of the presentation of the course (colour schemes, layout, etc.); 2. It provides a set of educational tools to facilitate learning, communication and collaboration.3. It provides a set of administrative tools to assist the instructor in the process of management

and continuous improvement of the course." from WebCT website (http://about.webct.com/prod/).

[xv] Singapore VLE "We have recently installed a virtual learning environment that has been developed by and used successfully at the University of Singapore over the last two years. In Singapore the system has approximately 50% of its courses on-line and delivers to a student body of around 24,000 people. At Edinburgh we are currently examining this as an experimental facility, but with the hope that it may be used with courses from this autumn (2000) onwards." from MALTS website (http://www.malts.ed.ac.uk)

Appendix 9.2: A History of EEMeC from 2000 to 2004

The following is a historical account of the development and adoption of EEMeC and is based on contemporary notes taken by its principle designer, interviews with key players (particular with respect to the prehistory section), documents such as minutes of meetings and email messages and by reviewing archived versions of EEMeC itself. It is split for convenience and clarity into quarter (calendar) years. The way that the different years in the MBChB run across a calendar year are shown in figure A9.2.1. Each note in this account has been numbered for reference purposes. This document has been checked and verified by three other members of staff involved in EEMeC other than the author.

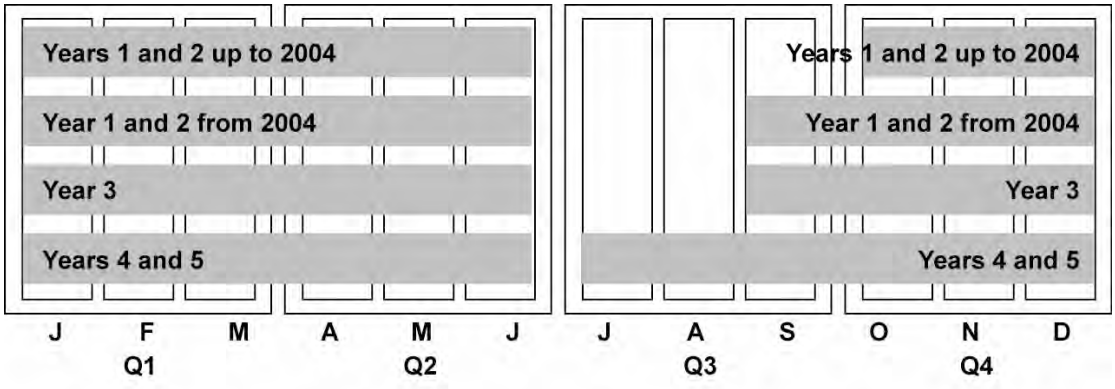

Figure A9.2.1: year quarters and the pattern of the five MBChB years.

Academic Year 2000-2001

July-September 2000

1. The use of generic student and staff passwords provided only very limited security and as EEMeC developed more and more personalised features such as the timetable a more robust security model was needed. Therefore individual logins were created for all EEMeC users. Student usernames were their (numerical) matriculation numbers and staff usernames were an aggregation of their first initial and their surname. Passwords were still generic at this time. Logins were recorded in an Access database.
2. Asynchronous discussion boards were added by using Microsoft FrontPage components. A different board for each of the three academic years served by EEMeC were set up. Synchronous chat functionality was also developed at this time using Macromedia Director and Macromedia multimedia server technologies.
3. The increasing profile of EEMeC in the MBChB meant that access to the decision making process was needed to both disseminate the system and receive feedback and instruction as to how it might be developed. Requests were made to the MTO and individual academics for opportunities to engage with the MBChB which led in turn to EEMeC representatives being invited to each of the year planning meetings.
4. The new session began in September, including year 3 for the first time. An introductory EEMeC session was held with the third year students and their individual login details distributed to them at the new Medical Education Centre at the Western General Hospital.
5. PE was given the task of EEMeC liaison with the MTO.

October-December 2000

6. Introductory sessions were run for the first time at the start of years 1 and 2. EEMeC skills were incorporated in the Computing Skills and Medical Informatics vertical theme practical sessions in year 1.
7. Teaching materials were added to support the library hunt, library skills and bibliographic database teaching undertaken by the Medical Liaison Librarian for students in years 1 and 3.
8. The electronic reserve of copyrighted journal articles for the year 1 Health and Society strand was moved from the library server to the EEMeC server and the security model changed to allow for off-site access – something the library were unable to do.
9. Funded by an 18-month Faculty grant an additional EEMeC developer (Steve Fox: SF) joined the team (of 2) and was set to managing the day-to-day requests for information to be added or changed in EEMeC and further developing the personal timetable system.
10. The EEMeC service was down for half of a Saturday and all of a Sunday in December. Students raised the alarm (saying "EEMEC is becoming pretty focal for medical students") and the service was restored early on the Monday morning

January-March 2001

11. Following unsatisfactory performance of both the UCS Cold Fusion service and the local Access databases the decision was taken to move to a local Microsoft SQL Server Database service. The software was purchased and installed on the EEMeC server and staff development (through experiment and research rather than explicit training) and migration planning begun.
12. Further discussion about SCWEIMS integration took place. SCWEIMS was being disconnected from its SCOTCIT roots and was being set up as a specifically Edinburgh-focused service.
13. A postgraduate version of EEMeC for the pre-registration house officers (PRHOs) that were attached to the University was discussed for the first time with the Postgraduate Dean but no action was taken.
14. The MBChB portfolio had started with the new curriculum in 1998 but it was increasingly obvious to those running it that it was unsustainable as a paper-based exercise. A student's portfolio was supposed to be a collection of 25+ items of coursework that built up over the five years of their studies. Already by year 3 items were being lost or not being returned by markers. As the finals viva was based on a discussion of a student's portfolio the problem was serious and the MBChB heads requested an 'electronic filing cabinet' for their work to be stored in. The MBChB Electronic Portfolio was initially developed separately from the rest of EEMeC as the database architecture was still being worked out. The system was built ion a second server that allowed students to upload a document and have it converted to PDF format and stored for them indefinitely. At the same time a record was made of when they uploaded the document and a transcript presented to nominated staff as well as the students of their submissions with the ability to download any item at will. Funding of £8000 was granted by Faculty to support this development.
15. Peer assessment was adopted first in year 2 and then in year 1 as a means of involving students in the assessment process and to encourage more reflective learning practices. A system was set up in EEMeC that allowed students to anonymously input a grade and some feedback about each other's performance

within a group project. The feedback and grades were added to the tutors marks and grades and returned to the individual students.

16. Although problems had been experienced with inaccurate timetable information being supplied (and changes to timetables not being supplied) this reached a crisis point in January with students being misdirected and attending events at the wrong time or in the wrong place. Provision of accurate timetable information gained much higher priority thereafter.

April-June 2001

17. The transition to the SQL Server databases from the Cold Fusion service and the local Access databases took place and the old databases were decommissioned. With the migration to SQL Server and the integration of the various databases the electronic portfolio was also integrated within EEMeC.
18. One of the original EEMeC developers, Peter Douglas, left to pursue his developing digital repository company. CDLV joined the team to replace him.
19. The 'My EEMeC' was introduced at this time as a replacement for the 'EEMeC Explorer' page. As individual users could now be authenticated and identified and more and more users were added with each year a more personalised and targeted means of presenting EEMeC features relative to an individual's profile was needed. 'My EEMeC' was set up as the page that a user was taken to after they logged in. For students it gave links to the pages and resources appropriate to their stage in the MBChB and for staff it gave links to specific staff tools and functions.
20. The student noticeboards were also set up at this time. This was a response to the problems of bulk-emailing students. There had been a number of problems with bulk email lists culminating in lists being hacked and spurious messages being sent. Registry thereafter banned bulk email to students across the University and as a result MBChB teachers and administrators needed an alternative for reaching the student body. The EEMeC noticeboard allowed nominated staff to send communications to the whole MBChB, individual years, year groups, sub-groups and individual students. Messages could be timed to start and end on certain days and thereafter be lodged in a message archive. The messages were set to appear on the left hand side of the new 'My EEMeC' page.
21. Also during this time the EEMeC specific discussion boards were developed. Students liked the opportunity to discuss issues in EEMeC but found the FrontPage-based discussion very clunky and hard to use. SF looked at a number of existing online discussion systems and developed one that used the best ideas from them all. A board was set up for every year. There had also been problems with students posting messages in other year's boards; this was blocked in the new system as students could only post to boards for which they had year membership. All users were able to view all discussion boards however.
22. Dynamic electronic exam results were piloted for year 2. Students could only see their own data and histograms of their performance against the rest of the class. Past exam papers and commentaries on the way certain questions and sections had been addressed were also added.

Academic Year 2001-2002

July-September 2001

23. The new academic session began at the start of July with the inclusion of year 4. As years 1 and 2 only finished at the end of June the turnaround between sessions became a problem due both to the short time available to make the transition and requirements for year 4 to be set up early and years 1 and 2 to continue into July. A fixed session rollover point was established at which time the new academic year was set as commencing across all of EEMeC. Student users could only be in one academic year at a time and session variable markers were set up throughout the system to track which session various activities and group membership belonged to.
24. Individual passwords were introduced to increase the security of EEMeC and to facilitate greater personalisation. This meant that 1000+ users needed to be given their new passwords. As each year group started in this academic session (year 4 in July, year 3 in September and years 1 and 2 in October) the introductory sessions included giving out login details to each individual student and staff users were emailed their details.
25. The first dynamic EEMeC archive was set up so that users could view what they had done and used in previous sessions. A complete copy of the database and the code was set up as a session directory within EEMeC.
26. With the rollover all the year material was scrubbed awaiting new materials. This caused problems however as links such as to vertical theme pages and to lecture materials were also lost.
27. Timetables had the ability to add personal events for students added.
28. The SQL Server was hacked by an unknown party masquerading as coming from the Netherlands and it was used as a staging point for moving video files. The break in was detected and the server removed from the network within hours and the security fixed and strengthened and returned to service the same day.
29. The GMC paid an inspection visit in the summer and EEMeC was demonstrated to them as part of their tour of the MBChB. The demonstration went down well and EEMeC was praised in their report.
30. Following various attempts to set up an online medical school (for instance from the UK's Open University) a project called IVIMEDS (International Virtual Medical School) and running out of Dundee was funded by SHEFC to undertake a pilot feasibility study.
31. A major change in the Faculty Office took place at this time with the departure of its two most senior administrators. Both individuals had been highly sceptical about EEMeC, viewing it as a project of the MTO and Learning Technology Section only. As a result administrative functions and involvement in EEMeC were relatively underdeveloped and unused by administrative staff (other than the year secretaries).

October-December 2001

32. In the Year 2 Options module students created group project websites. These had previously been managed from an external site set to EEMeC but were now integrated. In addition to the information and support given the EEMeC version allowed students to upload their materials and to integrate them with their portfolio.
33. A 'Course organisers' Guide' had been planned by the MTO to help all the many clinicians and scientists cope with the demands of teaching and organising teaching in the new programme. It was decided that the best place for this was online as part of EEMeC and therefore was started with Leeanne Ramdin (LR) from the MTO as the principal leader of this project.
34. The portfolio was adapted to take four extra items for year 2. Although this was accommodated relatively easily there were concerns expressed by the MTO over the adaptability of the portfolio and EEMeC in general, to the inevitable and ongoing

changes that were yet to come. The portfolio also had online marking and administrative audit tools added at this time.

35. The company that had built MESMIS, the administrative system used in Dundee medical school, made a pitch to the Faculty to be adopted in place of or alongside EEMeC. On reviewing the system the administrators thought it might be useful but it was rejected overall as lacking the features and the adaptability already established locally in EEMeC.

36. A spate of discussion board abuse based on impersonation of other users and aggressive and insulting behaviour in year 1 was identified. The tracked postings showed that they were coming from just two students and they were dealt with under the conditions of the medical students' code of conduct. It was at this stage that the code of conduct was linked to online activity as well as face-to-face activity. As a result of the incident the ability for students to enter a posting 'from' name was removed.

37. The sister system to EEMeC for the undergraduate veterinary medicine course called 'EEVeC' was launched to year 1 students at the start of their academic year in October. This was partly funded by SHEFC 'knowledge transfer' money.

38. The senior Faculty administrators were replaced, with RS having direct responsibility for the administration of undergraduate teaching.

39. Two year 2 tutors (Sandy Reid (SR) and Ted Duvall (ED)) scheduled EEMeC chat and discussion sessions for their students to discuss and explore issues and problems they had with the course. Despite the immediacy of the synchronous chat it is found to be rather overwhelming for all concerned and asynchronous discussion is selected as the tool of choice.

40. A student contacts page was introduced with links to the Medical Students Council and names and links for the student representatives in each year.

January-March 2002

41. A series of 100 or so pathology tutorial CALs had been developed by SR over the previous decade but they were now aging and in need of improvement. They were also incompatible with the web. Funding was obtained from pathology to redevelop these 'PathCAL' programs for web-delivery. A generic system called 'CALEng' was developed (later to be renamed EROS) to facilitate this process.

42. The provision of (some) simple electronic exam results was extended to years 1,3 and 4 in the MBChB.

43. RS and the author developed a service level agreement between the LTS, MTO and the Faculty Office regarding the responsibilities of each party and the form and timing of information flow required between these parties to make the system work smoothly. The SLA was agreed between LTS, MTO and Faculty Office in February. However it lacked 'teeth' and many of its terms were never actually implemented. A copy of this SLA is provided as Appendix 9.3 to this thesis.

44. A by-product of the SLA was the establishment of an EEMeC management structure consisting of an Executive with responsibility for strategic management and a User Group responsible for feedback and input on operational issues. The former was a restricted number of senior staff, the latter open to students and a wide selection of staff from across the MBChB. The Executive met for the first time in February and the User Group in March 2002. Before this EEMeC had been loosely managed via a series of ad hoc meetings between the developers and Faculty management and staff. Day-to-day management remained with the author. For interest the first user group agenda items included issues pertaining to: assessment, timetables, notices, evaluation, portfolio, and discussion boards.

45. One of the first requests from user group was for the discussion boards to have a self-reporting mechanism added so that students could report any message that they felt was inappropriate or offensive for consideration of senior Faculty staff. This put the onus of policing on to the students both from what constituted inappropriate behaviour and from a logistical point of view as the discussion was heavily used and hard for members of staff to keep under observation. This was deployed in March 2002.

46. Due to the number of requests for information on EEMeC that would not be given direct access to the system

April-June 2002

47. Options for developing an electronic student record (ESR) in EEMeC were discussed with RS and discussions opened with Registry regarding this. The Faculty was relatively devolved from Registry in that much of the student administration, in particular assessment, was run from Faculty Office. During discussions with Registry it turned out that previous Faculty administrators had commissioned (and paid MIS for) the development of systems for managing allocations to student groups and for tracking students on clinical rotations. These systems had been built but remained unused and already out of date due to changes in the curriculum (the tools were built to the old curriculum specification). No one currently working in the Faculty knew about these systems and Registry were asked to decommissioned them forthwith.

48. The ACT scheme in Scotland is about managing 'additional contribution for teaching', a funding scheme for the NHS to offset the cost of having students on teaching placements in their wards and clinics). As part of that effort an ACT Office was run in the medical school with the task to collect evaluation data on the quality of the teaching provided in the various teaching hospitals used by Edinburgh. The evaluation process was run by paper questionnaires being completed at the end of rotations and then optical mark processed to create spreadsheets and reports. This process was time consuming, costly and suffered from poor returns. Students had requested an online alternative and at this time the ACT Officer commissioned EEMeC to start building such a system.

49. As part of the preparation for the new year 5 an online logbook was built for the surgery and general medicine modules. However this system has never been used, as course organisers wanted students to carry their logbooks with them and therefore stayed with a paper-based version.

50. Problems with the detailed and fluid nature of clinical timetables were raised and discussed at length, as was the time it took to prepare and format information for the EEMeC timetabling system. It was agreed that in order to simplify the process only large week and rotation blocks would be entered.

Academic Year 2002-2003

July-September 2002

51. Node architecture was introduced across EEMeC for content management; see appendix 9.4 for a contemporary position paper for this development from the author. This development allowed the system's content and topology to be abstracted from physical pages to the database and thereby it became far more manageable, adaptable, extensible and reflexive to user and developer needs. Because the content was all now in the database the number of html pages that needed to be maintained was reduced from thousands to one rendering page. This

development also afforded cross-system searching and annotation and these functions were both added at this time.

52. The rollover between sessions was again problematic as materials needed to be set up for year 5 as well as year 4 for the start of July, which left just a few days to reset the content and user data between academic sessions.

53. CALEng was further developed so that it could run other CAL materials as well as PathCAL. A respiratory physiologist, Pat Warren (PW), began working on developing 'George', a virtual respiratory patient based on a series of self-directed teaching modules run through EEMeC. This employed 'learning object' concepts derived from work in the international learning technology community and specifically from the author's involvement in the JISC's X4L research programme.

54. A downside of the move to the move to a node architecture meant that many if not most of the URLs within EEMeC changed (e.g. from /year1/index.asp to /node.asp?id=y1000000) which left many study guides with misleading link information. It also confused a number of staff users as the change was not well disseminated to the user community.

55. The evaluation engine commissioned by the ACT office was introduced at this time. The system allowed ACT personnel to create and schedule course evaluations, which would then pop-up when students logged in (for whom the particular evaluation was targeted) until completed. The system could also store all submitted data and render it in the form of reports. The introduction of the system saved a lot of staff effort and time, much paper and it increased response rates from ~40% to 80%.

56. The New Royal Infirmary and its new medical school (the Chancellor Building) opened over the summer. This marked the start of the move of clinical and associated university staff from the old infirmary in the city centre (and adjacent to the medical school) to the new site on the edge of the city. During the opening ceremony EEMeC was presented to the visiting VIPs including the Duke of Edinburgh (the University's Chancellor).

57. A system to assist with room booking and management was proposed under aegis of the Teaching Facilities Steering Group. It was to be built as an EEMeC module and work was begun on this immediately.

58. An additional member of the EEMeC team, Michael Begg (MB), was recruited at this time.

October-December 2002

59. Support and course information was added for the 90 year 2 students who go on to take a BSc honours degree as an Intercalated year before going on to year 3. Previously these students effectively disappeared from the MBChB and from EEMeC too. Problems were found (and persist to this day) for the many students from Science and Engineering that took the same BSc courses but who had no meaningful role in the MBChB and therefore did not have access to EEMeC.

60. Work on the course organisers' guide (COG) had been stalled for some time and with the departure of LR it was put on semi-permanent hold. This left (and still leaves) a lot of unfinished material in EEMeC.

61. As part of the putative ESR project with the Faculty Office, an allocations tool for putting students into various groupings was completed but Faculty Office declined its use – no reason for this was given.

62. Following various meetings with staff and students the EEMeC noticeboards became the default mode of communication with students. Email and written communication was reserved for special occasions such as awards or disciplinary

issues but for all other communication with students the noticeboard was the medium used by all staff participants in the MBChB.

63. EEMeC was submitted for the European Academic Software Awards. Although getting through to the second round it was subsequently knocked out as evaluators reported problems and misunderstandings arising from not being able to see how it worked in context.

64. The Edinburgh Student Portal (ESP, the successor to SCWEIMS) was launched. EEMeC integration was at a very low level; a link to ESP was established from My EEMeC and a link to EEMeC for students from the College.

January-March 2003

65. PW's 'George' virtual patient was launched to year 1 students for the first time in a series of scheduled teaching sessions where students worked through modules in pairs and then followed up with individual study. Because 'George' aged in real time modules on performing lab tests and later receiving the results were time released and coordinated with messages to the student noticeboard to announce them.

66. A dedicated assessments officer was appointed in Faculty Office, Lindsay Dalziel (LD), and planning started for a full-blown assessment engine to manage the information flow in the assessment processes right across the MBChB began.

67. The EEMeC User Group met again in February 2003 – the minutes of this meeting are recorded in appendix 9.5.

68. A moratorium on significant EEMeC developments was called by several course managers to allow users to 'catch up' and consolidate the system and how it was used.

69. Room booking was launched to University and NHS Trust staff covering teaching spaces in the (new) Royal Infirmary and Western General Hospitals.

70. Major problems were experienced with the Portfolio server due to bad formatting in submitted coursework causing the PDF conversion tool to slow to a crawl. The number of items being submitted and the coincidence of different year and group submission deadlines exacerbated this. A request that deadlines be staggered was rejected as unworkable on the ground.

71. A system for allowing year 2 students to apply for an intercalated honours year was introduced.

April-June 2003

72. Relations between the EEMeC team and Faculty Office weakened again during this time. Although the reasons for this are still not completely clear and political expediency prevents further exploration, it appears to have been a mix of a will to greater control and autonomy for the administrators and a loss of confidence in EEMeC by certain members of staff. Whatever the reasons were the discussions regarding a student record component for EEMeC came to an abrupt end and plans for a new administration system, separate from EEMeC, began. This took the form of commissioning a systems analysis of the information flows in the MBChB, a task from which EEMeC staff were excluded.

73. The author's participation in the JISC-funded DEVIL project (Dynamically Enhancing VLEs with Information from the Library) led to the implementation of a simple search gateway with the University library. This was the first external system with which EEMeC had any substantial degree of interoperability. This development also marked the first use of XML technologies in EEMeC.

74. At the second EEMeC executive meeting the year 3-5 timetables were suspended as a response to the patchy timetable information provided on EEMeC for these years. This was caused by the inability and/or unwillingness of clinical tutors and administrators in the teaching hospitals and other peripheral venues to provide timetable details to the centre for entering into EEMeC. This change was driven by Faculty Office as they argued that no information was better than just some information. Students and some staff protested at this change but a commitment was given that it would just be a temporary change.
75. Because of problems giving Trust staff access to EEMeC the room booking system was moved outside of EEMeC. At the same time the University Estates and Buildings department made a strong push to have the system abandoned in favour of their central 'EBIS' system. However as EBIS was unable to either meet the needs of the Faculty and Trust users nor match the Faculty's system for functionality or adaptability the request was rejected.
76. The author was appointed as the e-Learning Unit Manager, which placed all of the EEMeC team under her line management. This also marked a relative distancing of the author from the day-to-day running of EEMeC. Specific project work such as the Assessment Engine remained in her general responsibility.
77. The first cohort of Vision 2000 students graduated in the summer. Access was set up for them but this fact failed to be transmitted to the year and very few graduate students have ever accessed the system.
78. EEMeC presentations were added to the University Open Day displays made to prospective medical students from this summer. This marked a degree of normalisation of EEMeC as a normal component of the students' learning environment.
79. Problems were caused when year 4 students passed exam papers they had sat in year 2 to the current year 2 students who sat many of the same questions in their exam. The material had been made available via EEMeC although it was human agency that had passed these on.

Academic Year 2003-2004

July-September 2003

80. The University went through a major reorganisation, moving from eight Faculties to three Colleges. As part of the reorganisation LTS and the MTO became part of Directorate of Undergraduate Learning and Teaching, due to a quirk of the reorganisation the Directorate was not placed in a School, which has become a problem since.
81. A number of year 3 students raise concerns they had regarding fellow students who were able to cheat in the OSCE in June. The novelty of this was that the medium through which this happened was the EEMeC noticeboards.
82. The CALEng system was renamed EROS (Edinburgh Reusable Object Sequencer) and a series of web-based authoring tools were developed to allow staff to create and edit CAL materials.
83. A set of tools and resources were set up to support the 20 or so students who get direct entry to year 3 joiners. As they join a cohort of students that have been working in the Edinburgh for two years or more they need quite a lot of support to get up to speed with the Edinburgh culture and approach to teaching and learning.

84. Following a contact at a conference ATHENS Devolved Authentication was introduced to EEMeC. ATHENS is the UK tertiary education authentication mechanism, funded by JISC, that acts as a gateway for users to get access to commercial and otherwise controlled bibliographic data, journals and datasets. ATHENS DA in EEMeC allows users to get an automatic ATHENS authentication after logging in to the VLE.

85. The Assessment Engine came into use, initially just for year 5 assessment management. The later than expected delivery of the system was caused by its users being unable to supply detailed requirements or to test beta versions of the tools before using them in real settings (due to pressures of work and there being a very many confounding and interacting factors involved). For instance the functionality specification changed radically over the summer requiring a major rebuild. Accordingly, although it has been successful overall, its use has been marked by a series of problems as implementation issues are exposed and fixed in real time.

86. The synchronous chat function was removed due to lack of use. A number of students had reported using it but finding no one else 'in there' with them had given up. Only one scheduled chat session had run (in 2001) and it therefore had failed to become a useful system tool.

87. Both of the EEMeC servers were upgraded and rebuilt over the summer. This was undertaken as a result of enlarging the hard disc capacity and increasing the system memory. The rebuild increased server performance significantly.

88. Students taking a pre-medicine (~6 students a year) course were separated out from year 1 students and given their own student view of EEMeC.

October-December 2003

89. A system, initially for the cardiovascular module in year 3, was developed that allowed students to sign up for optional clinical observation sessions. This proved very popular and was extended to other modules in year 3.

90. The ability for staff to edit node pages was introduced allowing individual staff to be given rights to individual pages or groups of pages. This was used by the MTO's EEMeC liaison officer to restructure information on the portfolio and by the medical librarians to keep their pages up to date.

91. Additional functionality was added to a number of tools and function such as the peer assessment tools, the Assessment Engine and the Evaluation Engine.

92. Following the accidental death of a medical student, the EEMeC discussion boards are temporarily used as a book of condolence.

January-March 2004

93. The management and presentation of CAL materials had become relatively scrappy and ineffective compared to the rest of EEMeC. To address these problems a new learning object repository was developed called 'ResManager'. This system sat outside EEMeC and its sister systems and kept a registry of learning materials and associated metadata on behalf of them all. This data was made available via an XML gateway that allowed a single learning object database and associated tools to be streamed into any subscribing system. The system used full IEEE Learning Object Metadata (see http://ltsc.ieee.org/wg12/) and used a compressed version running through an RSS (see http://web.resource.org/rss/1.0/spec) stream to make the gateway run effectively.

94. In order to increase the security of the system certificate-based authentication was introduced which allowed secure sockets layer (SSL see

http://en.wikipedia.org/wiki/Secure_Sockets_Layer) encrypted communication between client and server. In order to minimise the user impact a Globalsign certificate was used (rather than a locally generated University one) and secure authentication was kept optional so that users (for instance on hospital networks) could still get access.

95. A collaborative year 2 genetics project between Edinburgh and Gifu University in Japan was run through a micro-VLE based on EEMeC. This system called 'Gelatin' (Gifu & Edinburgh; Learning Activities Through Interactive Networking), proved to be fairly successful but problems were experienced where Edinburgh students retreated to EEMeC to conduct their online work thereby excluding the Japanese students who had no equivalent system of their own.
96. An EEMeC Executive meeting was held in March where College Office announced they had commissioned a systems analysis from MIS (the Management Information Services group in the University) and a new system, to be called ' MIDAS' (based on the idea of the golden copy), was to be designed and built, also by MIS. A strong case was made that this functionality should be in EEMeC to retain the strength of a single-system approach but was rejected as MIS were seen as more reliable and professional than the EEMeC team and politically closer to the centre (which was considered a significant advantage).
97. A new University Principal had been appointed in 2003 and one of his earlier actions was to establish an e-Learning Fund to which staff could bid for money to support the development of existing or new teaching and learning opportunities. The fund was to be made available in five tranches. In the first round successful bids included a well-woman equivalent of 'George', called 'Hannah', for teaching reproductive health and medicine; an equivalent system to EEMeC for the College's postgraduate community, called 'EEPoP'; and an adaptation of the EEMeC platform for distance education in the School of Law, called 'eScript'.
98. Through participation in the Scottish Deans' Medical Curriculum Group (SDMCG, see www.scottishdoctor.org), links were established so that authenticated EEMeC users could also get authenticated access to the SDMCG site.
99. Ongoing increases in EEMeC traffic had brought the service to its knees on several occasions. Analysis of server performance logs linked the problem to slow database connections. At the time the SQL Server database server and the web server were on the same machine. In order that the server capacity was maintained a new high-performance server was purchased and the main databases, including EEMeC, migrated across to this server.

April-June 2004

100. EROS staff-development workshops were run for the first time with nearly 30 participants. These were a mix of existing and new EROS users.
101. The ability for year secretaries to upload timetables directly to EEMeC was developed and trialled at some length in order to establish all of the required error checking. This development also enabled secretaries to add, cancel or reschedule events directly in the system and when any such changes were made, to have them flagged as changed to the students.
102. The EEMeC User Group met in June 2004 – see appendix 9.6 for the minutes of this meeting.
103. The appointment of a new IT Services Manager in LTS marked a closer relationship between e-Learning and IT Services and in particular much greater support and involvement in the EEMeC server platform.
104. As part of the MIS development of the MIDAS system a meeting was held between the MIS developers and the EEMeC development team. It was apparent that the

developers had an unrealistic view of the way information flowed and its quality in the MBChB environment. The case was made to them that the functionality was better developed in EEMeC and the lead developer agreed (he has since left) but they had been commissioned to develop a separate system and that was what they were going to do.

105. The second cohort of Vision 2000 students graduated in July. The Assessment Engine was used extensively to support the finals process and indeed helped to expose a number of errors in the previous processes and data used.

106. The University established its 'Knowledge Management Strategy' at this time. E-learning was a key aspect of this and an early draft stated that the University would move to a single VLE; WebCT. This was challenged and the strategy was altered to acknowledge the multiplicity of VLE systems in the University. This was a typical illustration of an ongoing problem of central services disregarding EEMeC and failing to provide the equivalent support and attention as centrally-provided systems received.

Academic Year 2004-2005

July-September 2004

107. A second tranche of the Principal's e-Learning Funding was announced with two major EEMeC-related projects receiving funding: OSCA was a project to develop online components of the Objective Standard Clinical Examination (OSCE) exams in years 2-5; OPAL was a project to develop a curriculum-mapping set of tools based on learning objectives in both EEMeC and EEVeC.

108. CDLV, one of the main EEMeC developers left and was replaced by Chris Downie (CD).

109. A 'what you see is what you get' (WYSIWYG) editor was introduced to the node editor page. This allowed for much faster conversion of Word documents such as study guides and it also allowed general staff users who had no HTML editing experience to be able to create and manage more adventurous layouts.

110. A successor project to DEVIL, called 'D+', led to an expanded searchable link not just to Edinburgh's library but to the libraries of other universities and other bibliographic sources such as the DRN and the Wellcome Library.

111. SHEFC announced a funding round for 'transformational e-learning projects'. EEMeC's managers put together a bid combining the five Scottish medical schools, the two vet schools, the two dental schools and a number of other healthcare-related schools in universities across Scotland.

112. As Edinburgh had joined IVIMEDS and a 'first generation' system was now available attempts were made to obtain access to the system so that interoperability and integration tests might be performed. This access was not forthcoming however.

113. A common web authentication service for the University was finally agreed and set up by computing services (after many months debate and research). This system was called 'EASE' and discussions were begun to move EEMeC into the EASE authentication zone. However EASE requires users to have a university universal user name (UUN). For EEMeC with its many hundreds of NHS staff users this was a problem and any move to using EASE was delayed until the system for registering these non-university staff (called VRS and run by MIS) was integrated with EASE.

114. The patchy and sometimes conflicting provision of staff details and contact information was tackled by the introduction of a staff profile page for all EEMeC staff users. Each page contained a photograph, contact details and areas of responsibility and academic interest. The pages were set to act as a single link point for any time a member of staff is mentioned or referenced elsewhere in the system.

October-December 2004

115. The University moved from a three-term academic year to one based on two semesters from this academic session. The start of the year was moved to mid-September meaning that years 1-3 started at the same time. This led to a bottleneck of work, which in turn meant delays in getting material online, compounded by each of the individual years failing to get its material to EEMeC on time. Only years 1 and 2 of the MBChB were directly affected by the change and many aspects of EEMeC had to be changed. This was at the presentation level when references to terms needed to be changed to semesters, at the organisational level where the structure of the modules and strands had been significantly changed, and at the programming level where codes, identifiers and other structures that were specifically keyed to the old structures also needed to be changed. The relatively abstract structure of EEMeC meant that these tasks proved less arduous than they seemed at the outset.

116. The MBChB underwent an internal audit called a 'teaching programme review' (TPR) in November. EEMeC was commended as follows: "the EEMeC facility for students in it's provision of a virtual learning environment enabling them to engage in all aspects of the educational experience was commended as being one of the leaders in the field". EEMeC and its sister VLEs (EEVeC and EEPoP) were the College's nominees for the UK-wide Queen's Award for Excellence in Higher Education.

117. The system for managing the year 2 options projects (renamed SSC2a and SSC2b) was extensively rebuilt so that tutors could create and manage their own project pages, students could book places in a project and the tutor would then have a running set of information and contacts for their project groups. A mistake setting the date meant that many students who tried to book project slots after midnight on the day the bookings opened were unable to do so and complained accordingly. The system proved very effective overall and was duly set up to cover the year 1 SSC projects as well.

118. A second meeting was held with the new MIDAS developer (the first one had left in the summer). The planned remit of MIDAS had changed significantly since the last meeting and there were a number of areas where it was planned to duplicate or possibly displace EEMeC activity and functions.

119. A new EEMeC developer, Johann Bryant (JB), started in September.

120. Work began with the World Health Organisation to help them build a learning platform for their Health Academy Project. The planned system was to combine EEMeC and EROS technologies.

121. The postgraduate version of EEMeC called 'EEPoP' was launched.

122. Year 4 and 5 students stage a protest against portfolio overview essays, using the discussion boards as a medium for organising and announcing their protest. Although dismissed by some as rabble rousing, others see it as students exercising legitimate concerns and using appropriate means to do so.

123. Following a competitor bid from IVIMEDS to the SHEFC funding round neither bid was funded. Edinburgh leaves IVIMEDS at the end of the year.

Appendix 9.3: EEMeC Service Level Agreement
February 2002

Introduction

In order to put the management of the MBChB information system EEMeC onto a more formal basis the parties involved in its development and deployment agree to the following for the academic year 2002-2003.

Parties to this Agreement

- Medical Teaching Organisation - this includes core MTO Staff and Year Leaders
- Undergraduate Support Team - this includes all those involved in undergraduate administration and support including, for this purpose, the ACT Office
- Learning Technology Section – this includes the EEMeC development team

EEMeC

For the purposes of this agreement EEMeC (the Edinburgh Electronic Medical Curriculum) is the managed learning environment (MLE) for the undergraduate medical course of MBChB at the University of Edinburgh. It is a web-based system available worldwide but limited to authenticated user/password access. It supports all 5 years of the course and both staff and students wherever the MBChB is delivered. There are 1225 registered users at the time of writing and this will rise to over 1500 by the academic session starting in July 2002. It consists of a mixture of hard-coded web pages and dynamic data driven from a core SQL Server database. The software development, project management and hosting is currently run by Learning Technology Section staff.

Terms of Agreement

All signatories will act with due diligence to maintain the service as laid out below:

Signatories are
xxx – MTO
xxx – LTS/EEMeC
xxx – Undergraduate Support Team

Learning Technology Section

The Learning technology section will:

- Host the EEMeC system and maintain a 24-7 level of access to it
- maintain the server hardware and software
- take a daily backup onsite plus a weekly one kept offsite
- place delivered content on the site in an accurate and timely way
- manage the site logic and database
- develop and extend the system by software development, providing staff training and other dissemination activities as appropriate
- engage with other systems and VLE practitioners both internally and externally to ensure levels of transparency and interoperability are maintained
- participate in course planning meetings and procedures to ensure informed use of EEMeC and appropriate knowledge of the processes EEMeC supports
- evaluate and research the uses and issues surrounding EEMeC to be used for QA, audit and focused future development of the system
- create and manage user accounts for MBChB and UoE personnel on demand and for external users after getting clearance from the A-D Teaching (xxx)
- provide direct access to the system on request from authorised UoE officers
- keep system information secure eg passwords and data
- work with the other parties to ensure the system's compliance with the Data Protection Act and maintain secure and diligent practices

Medical Teaching Organisation

The Medical Teaching Organisation will:

- provide all information in a well formatted and meaningful way and seek to normalise practice across the whole course
- manage directly their control over EEMeC tools eg Noticeboard, Portfolio etc
- disseminate timely and accurate information on EEMeC to the course's participants, including information in the study guides and as part of presentations to staff and students
- engage with the LTS development team to actively develop the system to meet the course's evolving needs and foci
- ensure a member of the EEMeC development team is invited to all course coordination and development meetings
- engage in staff development and governance activities as appropriate
- keep system information secure eg passwords and data
- work with the other parties to ensure the system's compliance with the Data Protection Act and maintain secure and diligent practices

Undergraduate Support Team

The Undergraduate Support Team will:

- provide all information in a well formatted and meaningful way and seek to normalise practice across the whole course
- student listings: definitive membership of any particular academic year/session therefore factoring those who join or leave the course, resit a year or take an intercalated year. These will be provided by the Registry.

Any updates and changes to be sent directly to both EEMeC and appropriate year secretary.

- provide all study guides at the point they are authorised for publication. The guides will be sent to the EEMeC team both electronically in MS Word format (created using the EEMeC template) and on paper
- provide all timetabling information as far in advance of the events as possible to ensure time is given to mount it on EEMeC and be seen by the students. It will be provided in Excel format using the template and associated guidelines devised by the EEMeC team
- provide all changes in the appropriate format
- student allocations: these are the allocations of students to groups, rotations and attachments that determine their specific timetable. To be provided in Excel format two weeks in advance of the start of the course. Any updates and changes to be sent directly to both EEMeC and appropriate year secretary.
- identify key personnel to authorise and monitor the quality and accuracy of information sent to EEMeC
- engage in staff development and governance activities as appropriate
- keep system information secure eg passwords and data
- work with the other parties to ensure the system's compliance with the Data Protection Act and maintain secure and diligent practices

Note: when preparing spreadsheets with a matric number with leading zeros make sure the column is formatted as text so that the zeros are not deleted as it resolves to a number.

New Developments – Planning and Communication

Timetable

Development proposals should be submitted (by MTO, Year Teams, UG Support Team) to Ruth Stewart, Assistant Secretary and Rachel Ellaway, Leader of EEMeC Team by **SEPTEMBER 01**.

Resource information will be provided by EEMeC (ie man hours, additional costs etc) by **SEPTEMBER 15**.

The proposals will be considered and prioritised by the Curriculum Executive by **OCTOBER 30.**

EEMeC will produce a year plan (1 July – 30 June) of development activity by **NOVEMBER/DECEMBER**

This timetable is the same as that already in place for the consideration of general CAL development bids. It should be noted that development work will take place in the initial year and the software be ready for use in the following year – eg development work carried out from July 02 to June 03 would result in the product being available in July 03.

Communication Channels

It should be noted that the above is the channel for the communication for the final proposal. It is expected, and indeed positively encouraged, that the teams will discuss proposals both within the team and with other teams prior to submission.

EEMeC/MTO/UG SUPPORT USER GROUP

A user group will be formed and will meet twice each term. Agenda items should be sent to the Chairperson one week in advance of the meeting. The chair will rotate between Ruth Stewart and Rachel Ellaway.

Membership

EEMeC Team
Assistant Secretary
Senior Administrative Officer
MTO (3 reps)
Year Team rep from each of Years 1-5
Student reps (3) (MSC – 1, Years 1+2 – 1, Years 3-5 – 1)

The report of the meetings of this group will go to the MBChB Committee and where appropriate to the Curriculum Executive and the CTRAG.

Appendix 9.4: A Nodal Learning Environment Architecture

Rachel Ellaway May 2002

This is a first version of a new learning environment architecture, based on a series of interlinked nodes, described in a database rather as explicit (HTML) code and configurable to rep

sent anything that is required of a system; events, objects, concepts, outcomes, assessments, people, places, or hybrid combinations of any of these.

Origination

The proposed approach has arisen from two broad needs:

The first has been the need to find solutions to problems in the long-term management of EEMeC, the purpose-built VLE for Edinburgh's undergraduate medical and veterinary courses. Because the courses are rapidly and ceaselessly evolving entities, each academic session is archived at its end and the new session's content and architecture created afresh. This means that there are no legacy structures or materials coming the new iteration's content and form. However, as these courses are heavily integrated (in particular using interlinking 'vertical themes' which are well represented using hypertext) there are a number of links between pages lost at this stage which are hard to re-code without a significant time input from both developers and course organisers. In particular these are links outside a particular course hierarchy that represent the integrated holist view of medicine and education but that are not intuitive from the form of the course or its organiser. There is also a major need to make the system more searchable and describable using various dimensions of metadata to allow its rich content to be fully exploited by its users. There are also issues of time spent in maintenance and management of the system and its assets. Upcoming issues such as a need to map the course against learning outcomes and other relatively abstract descriptors also raise problems of implementation.

The other broad need is that for a semantically and constructively alignable VLE. Semantically aligned where the meanings of the various parts and collections of the system are semantically related and equivalent to the real things and concepts they represent. Constructively aligned where the system can be and is purposively aligned to a course's intrinsic objectives, structure, processes and outcomes. Current VLE systems offer various ranges of generic (and most often modular) architectures and tools, each with an inherent heuristical model and approach to teaching and learning, with little flexibility or true representational abilities.

To break out of this software orthodoxy and to create a reconfigurable and abstract, yet simple and easy to build, VLE system that can solve the needs of 'real' complex HE processes, a nodal system architecture is proposed and explored in this document.

Principles

Any learning support system can be broken into three areas; semantic architecture, resources and interfaces with users and other systems. This separates the part of the system which is directly representational of the course from the parts that provide interaction and information management and again from those that manage input and output to and from the system.

The core aspect is the semantic architecture. This is an information architecture whose structure and description is a direct representation of real structures, relationships and processes that the system is supporting and working alongside. It can be defined by a matrix of NODES each with a NODE ID as well as other descriptors and properties. There are sets of NODE_NODE pairs which represent the links between one node and another. This pairing

has a NODE SYMMETRY which identifies if the links are one way (hierarchical) or two-way (reciprocal). The nodes can also have RESOURCES related to them by a series of NODE_RESOURCE pairs. This gives the following base database architecture:

Using a server-side web technology such as MS active server pages, Cold Fusion or PHP, a generic (in this case ASP) NODE document can be fed a 'GET' string NodeID such as "node.asp?ID=03RU202V". The page requests all of the information for that node from the database such as security restrictions, node title, node abstract, start and end dates/times, page type, node type, skin and other relevant information. All of the node-node links can then be processed as can the node-resource links. This information can then be rendered into an XML or an html page for the user to interact with. Thus an entire 'web site' could consist of a single page acting as the gateway and rendering mechanism for the database system representation.

Node-node links are stored independently from the node information and node-resource links remain independent of both the resources and nodes concerned. This gives a truly reconfigurable system where nodes can be associated and aggregated in any combination of ways. Furthermore as any node can represent anything, many different realities and perspectives can be assembled dependent on the needs of the authors and users rather than as any inherent characteristic of the system.

As more base tables are added, although greater complexity can be supported and represented, the querying and delivery of the information becomes significantly harder.

Practicalities

Node IDs can be structured to carry semantic meanings. For instance in year 2, module 3 in term 2's aims and objectives may be described as 020302AO or in year 4 rotation 3 (obstetrics) attachment GUM's lecture program may be described as Y4 OG GU LE, the syntax being relevant to the course environment in question (these examples are drawn from the Edinburgh MBChB course).

The collected nodal architecture describes the shape and form of the course it is supporting. It can be downloaded in XML for instance using an IMS or EML sequencing syntax. Equally a course architecture could be uploaded from this format to the database and thus forming for instance an 'instant' VLE.

Users of the system can easily create new nodes and node-node pairs simply by providing formatted data in a spreadsheet template and uploading that into the database.

Users can easily create new resources and node_resource pairs by uploading objects such as images, documents etc and providing form-driven information for those resources and their nodal associations. This level and form of user and community ownership and control is important in establishing and maintaining a sense and actuality of community ownership and focus on end-user needs and procedures.

Node Types and Concepts

Because any node can represent whatever the situation requires the semantics of a node can be very wide in scope and deep in representative information:

- Hierarchical Level or Taxon: in a course architecture these could be program - year-term steps, in a taxonomy they can represent the taxons in a taxon path, in a community they can represent the various groupings of individuals. It is important however to note that there is nothing intrinsically hierarchical about a node. Such relationships with other nodes are defined elsewhere in the NODE_NODE table. This sidesteps problems and issues caused when stacking files into folders and subfolders a process which creates a single top-down structural hierarchy. A NODE_NODE definition can go up, down or any way, being more a set of complex interactions rather than a strict hierarchy.

- Event: a lecture, seminar or examination (assessment event) or an event group such as a clinical rotation
- Object: although access to an object itself is a RESOURCE table lookup, meta-information about an object can be stored at an Object Node especially when a RESOURCE entry is semantically problematic or the object is an intrinsic part of the system architecture. This can also represent an entry in a thesaurus, a person or role.
- Abstract: abstract structures such as educational aims and objectives and outcomes, attitudes and performances can also be defined.
- Activity: activities such as problems (especially in problem based learning), tasks, instructions, etc also includes assessment activities (as opposed to events). and sequenced learning activities (equivalent to 'traditional' forms of CAL).
- Mind mapping and other hybrid mixing of media and concepts to represent complex realities.

Resource Types and Concepts

A resource has a number of characteristics:

- it is a terminal branch of the nodal structure, either as an object or as an interface to another system or part of the system environment.
- it has a 'real world' path to an actual 'thing' or a virtual path to another electronic object, node architecture or tool or it can simply represent qualified information applicable to one or more nodes such as for an individual user's annotations to a node.
- it can pass arguments within the path to the resource and as such is the interface between a nodal system and wider system infrastructures.
- If it is a real world object (including electronic files such as documents, images and other discrete files) then information such as its MIME type, size etc can be held or even acquired dynamically from the operating system.
- It can represent and pass arguments to other nodal sub-systems, for instance a VLE may hold a nodal representation of the course it supports, another one representing a taxonomy or metadata scheme and yet another representing the course's epistemology.

Infrastructure and Environment

The node-resource architecture is a powerful and adaptable mechanism for representing real world systems and practice. However, to allow this representative approach to provide interaction with its environment, tools such as messaging, discussion, scheduling, assessment and other appropriate forms must be available. These can be referenced as RESOURCES from NODES.

The infrastructure can provide:

- rendering tools including database connection and logic
- interaction and management tools such as logins, communication and scheduling
- a common interfacing standard between components (including the nodal architecture) such as user information and other 'session variables'

Database Architecture

Base NODE table:

NodeID - unique ID for a node, should be semantically related to its identity (see ID section).

NodeName - simple base name for the node, in rendering the node this can be set as the <title> and the display title.

NodeOwnerID - can identify who is responsible for the content of a node picking up on a UserID from the wider system - default should be 'public' ie no specific ownership.

NodeStart - can identify if a node has a specific start time/date, allows nodes to be preset, for instance for time structured tasks. Note: this could break a node path.

NodeEnd - can identify if a node has a specific end time/date, allows nodes to time out if expected content expires or if part of task scheduling. Note: this could break a node path.

NodeTypeID - refers to a lookup NODETYPE table where Type IDs and their definitions are defined. Allows for controlled lists.

NodeAbstract - description of a node or its content (in marked-up html or XML)

SkinID - rendering instructions

SubjectMetadata and CourseMetadata - descriptors (preferably from reserved lists) about the node. If a faceted structure is taken these could be combined, if a more explicit approach is taken then separate fields for different conceptual metadata groups will be required.

NodeSecurity - controls over who (individually or by group membership) can access the node.

Base RESOURCE table:

ResID - unique resource ID, may or may not have semantic meaning depending on expected or imposed relationships between resources

ResName - plain text name for the resource

ResURI - universal resource indicator path to object

ResTypeID - refers to a lookup RESOURCETYPE table where Type IDs and their definitions are defined. Allows for controlled lists.

ResStart - can identify if a resource has a specific start time/date, allows resources to be preset, for instance for time structured tasks. Note: this would not break a node path as a reserved resource link would not be rendered and as resources are effectively terminal branches the path is not broken.

ResEnd - can identify if a resource has a specific end time/date, allows resources to be preset, for instance for time structured tasks. Note: this would not break a node path as a reserved resource link would not be rendered and as resources are effectively terminal branches the path is not broken.

ResMIMEID - MIME Type lookup

ResAbstract - full text or marked up description of the object for rendering purposes

SkinID - rendering instructions

SubjectMetadata and CourseMetadata - descriptors (preferably from reserved lists) about the resource. If a faceted structure is taken these could be combined, if a more explicit approach is taken then separate fields for different conceptual metadata groups will be required.

ResOwnerID - specified owner of a resource as lookup of UserIDs, if not specifically owned then default to 'public'

ResScopeID - specified recipient of a resource as lookup of UserIDs, if not specifically

focused then default to ‘public’

ResSize - size in bytes of the resource (nb could be automated using for instance the FileSystemObject COM control)

Many-many NODE_NODE join table:

NodeID1 - primary node (from)

NodeID2 - secondary node (to)

Symmetry - defines whether one-way (N1 to N2 only) or two-way (both N1 to N2 and N2 to N1)

Many-many NODE_RESOURCE table:

NodeID - linked node

ResID - linked resource

Look-up NODETYPE table: NodeTypeID and NodeTypeName

Look-up RESOURCETYPE table: ResTypeID and ResTypeName

Look-up MIMETYPE table: MIMETypeID and MIMETypeName

Look-up USERS table: UserID and UserType (or alternative groupings)

Semantic IDs

The IDs can carry semantic information about the node or resource they belong to. For EEMeC/EEVeC an 8-character Node ID is proposed containing 4 2-character sub keys:

Pedagogy keys : CN = contacts, AO=aims and objectives, AS=assessment, TE=teaching etc

Sequencing keys : Y1=year 1, Y2=year 2, Y3=year 3, Y4=year 4, Y5=year 5, VT=vertical theme, T1= term 1, T2=term 2 etc,

Topic keys : RE=respiratory, LM=locomotor, AM=acute medicine etc

Identity keys : IC=intercalated, EU=staff, GS=guest etc

Rendering

1: To HTML for web browsers - this is the primary form considered by the author. A server side rendering technology such as MS Active Server Pages can be used to render nodes through a web connection, processing metadata, content and functionality for the user.

2: To XML for transfer and advanced browsers and technology layers such as Flash.

3: to plain text for reports and audit

Specific Applications

- Resources can include personal annotations to nodes. By using ResOwnerID and setting ‘public’ as a default, personal annotations to nodes can be supported. An ‘add annotation’ button on every rendered page which pulls up a web form allowing text to be entered and saved as a resource associated with a specific node and a specific user.

- Users can submit internodal links. By pasting the NodeIDs from the URL into a simple spreadsheet (N1/N2/Symmetry) and submitting them to the database, new links can be created without any explicit coding. If a NODE_NODE field for PairOwnerID is introduced these can be personalised, defaulting to 'public'.
- System architectures are made explicit. The structure and hierarchy of the represented system is explicitly represented in the 4 base tables. These could be either the public definitions or the various personal ones. Thus mind-mapping and workspaces for defining these aspects can be made explicit. Furthermore it would be possible to download or upload an 'architecture' file in an appropriate IMS or EML format, making transfer and repurposing more straightforward.
- Architecture can persist independent of changes in node content or definition. Node and resource content can be updated (for instance between academic sessions or applications) and even refined while maintaining the underlying structure intact. Equally the structure can be reconfigured independently from the node or resource content. This is equivalent to database NORMALISATION.
- Nodes and resources can have semantic value, moving to a more 'semantic web' approach to system representation. By using semantic node and resource IDs and by appropriate metadata approaches, the structure or system can be a 'semantic web' (see 'semantic IDs' section).
- Systems can consist of many nodal sub-systems. Node and resources sub-systems can describe different aspects of a broader system and be joined together by RESOURCE links and references. However each sub-system must be semantically self-contained and self-defining.
- An open standards 'object orientated' approach is required for software integration. Tools that serve and facilitate a nodal system can be either built as intregral resources or employed on a plug-and-play basis. All that is required is that the environmental and request variables are sent between objects in the appropriate form. Developers could for instance continue to use a favourite timetabling, discussion or assessment tool. Upgrading components to acquire new functions or to meet changing course needs would be a relatively simple affair and would not require a whole system to be discarded in favour of another.

Conclusion

A nodal approach to complex system representation and support is a powerful and highly adaptable way to meet and address the issues associated with these systems.

Only four base database tables are needed to define the system. Only one rendering mechanism is required to transform this into a web site.

Nodes can hold semantic meaning

Appendix 9.5: EEMeC Users Group, February 2003

1. Minutes of the previous meeting 15-05-02 – these were accepted with two amendments:
    - point 2: the current position of the course organisers' guide (COG) is on hold following the departure of DR.
    - Point 8: the issue of portfolio markers only seeing matriculation numbers rather than names continues to be debated. Markers often have lists of names to work through whereas the MeP only provides matric numbers in the interests of semi-anonymous marking
2. Matters arising:
    a. Links with external systems: negotiations are ongoing with registry to exchange student records data, ESP to exchange logins and EUL/EUCS to instantiate single-sign-on (SSO) to ATHENS services. There is no inception date for any of these at this time.
    b. The assessment engine for holding, displaying and analysing assessments for the MBChB is underway and is due to be ready for July 2003. The development of the assessment engine is being overseen by the Assessment Implementation Group (AIG)
    c. The node-based content management system was rolled out over the summer of 2002 and has proved to be very successful. However since the system is now searchable it is important that the decision to only create PDF versions of study guides must be reversed and study guides entered into appropriate node containers to allow search consistency across the course as a whole.
3. Timetables: due to the patchy use of the personal timetable system in years 3 and 5 and virtually no use in year 4 it has been proposed that personal timetables are suspended for years 3-5 until appropriate information flows can be implemented. 'Flat' PDF timetables would be provided instead:

    PJ and JB indicated that students in years 3-5 would welcome this change but only if a temporary one as there is significant utility in a working personal timetable system

    RHE raised the issue that timetable information absence could be problematic when auditing FTEs and contact time, PE agreed there could be serious repercussions if this information was not stored and made available somewhere.

    RS pointed out that there were 2 issues – immediate timetables and retrospective audit information

    KW, PJ and JB pointed out that this should only be a temporary position as there is significant utility in a working personal timetable system

4. Discussion Boards:

a. There have been strong protests on year 4 discussion boards as to the exact form of anonymity granted to students. The position is that students can choose to be anonymous to each other but staff users are always shown a users ID (whether staff or student). This had been previously debated and agreed with student representatives and PJ emphasised that the MSC had communicated the point but the message had not got through. The MSC will respond in the appropriate thread. EEMeC will remove the first two characters of the displayed ID for partial anonymity of users. It is important for all users to understand that all posts can be traced to the author independently of the on-screen display.

b. The 'report a message' system was introduced as agree at the last meeting with offending messages being alerted to College Office and the EEMeC team and an email being sent to the message's author. SR asked about the frequency of reported messages, RS replied around a dozen per week. RS further pointed out that it was difficult to decide what constituted seriously inappropriate behaviour and what action should be taken in order to remain fair and consistent. PJ suggested an automatic meeting with the student's DOS or Dr K. MM and J? will be meeting regularly and reviewing reported messages could be part of the remit of these meetings. ACTION EEMeC – to include explicit statement of anonymity on display ad authoring pages.

c. HC pointed out that 'cries for help' need to be picked up. Students should be encouraged to help each other and if problems seem to be coming up then an SOS should be sent to the appropriate module organiser. IM pointed out the utility of specific threads for specific projects such as COP groups. PJ pointed out that should not mean a proliferation of top-level boards.

5. New facilities: RHE reported that the EEMeC review group had discussed a 6-12 month moratorium on major EEMeC developments to allow time for consolidation and review. This was met with general approval.

6. EEMeC Evaluation: RHE announced the imminent EEMeC evaluation which will run in March or April. There will also be follow-up in the form of focus groups and interviews. GLJ offered to assist with these.

Appendix 9.6: Users Group Meeting 15th June 2004

MINUTES

Overview of 2003 – 2004
RE reported on use of EEMeC. The last set of system log analyses indicated that EEMeC was currently receiving more page hits than WebCT (for the rest of the University). RE reports on EROS, ResManager and the Assessment Engine. The new Assessment Engine delivers year 5 marks this session. Assessment management for other years is to follow. BC indicated that laptops were not used as much as PDAs by students, citing concern of laptop theft while on attachment and difficulties of connecting to network. BC also reported later years material within EEMeC poor in terms of "educational resources" General comments were raised about navigational difficulties within system. RE reported that the proposed OPAL project would address this issue by offering search parameters based on objectives and outcomes, rather than study guide / timeline parameters. The new Resource Manager was also reported as being expected to ease navigation pathways.

Year 1-5 reports + VT
Not all years were represented. PW reported that the year 1 students are more technology "savvie" than before. NT, representing year 4, reported positively on being able to create learning content, but that bringing non-University teaching staff up to speed was a challenge. SR reported that the SSM interaction is now mostly handled electronically and that the course benefits greatly from EEMeC. He also indicated that the human component was still a key component of the system. BC reported that computer access on attachment is often lacking. Also, that accessing pdfs and Flash content in microlabs was often problematic. Also, that the discussion board was a very valuable resource. DM, representing VT Pharmacology & Therapeutics indicated that much was being done to restructure P&T as it is now acknowledged as being not taught effectively. Also, that many involved staff are still not familiar with EEMeC. A number of participants asked for statistics resources to be added to EEMeC.

Portfolio
MB reported that portfolio uploads were better formatted than in previous sessions but that there are still significant difficulties with conversion of documents. Allowing students to upload PDFs met with support. RE indicated it would make the LTS workload easier. Simon Riley offered to allow the SSM upload to act as a pilot. NT reported year 4 dissatisfaction with the portfolio marking scheme – this was referred to the Portfolio Committee.

Timetables
RE reported on availability of administrator timetable uploads for preclinical years, and future integration with Outlook through iCal exports. BC reported that timetables were sorely lacking in clinical years and asked whether in lieu of a full timetable an organiser featuring key dates (deadlines, exams, etc) could be developed.

Graduate Access
RE reported that graduates are currently able to access EEMeC. BC suggested that the students did not know about the service. It was reported that the matter had been raised at numerous year 5 meetings throughout the last academic session.

Integration with central / external systems
RE reported on the forthcoming integration with central university systems through EASE. The EASE authentication initiative uses the Michigan University developed Co-Sign system. The system requires University recognised UUN identifiers, removes the need to hold

passwords on a local server – and is anticipated to run initially in parallel with the existing sign in system as and when components are made available by EUCS.

RE reported that there is now in place a single sign in link up between EEMeC and the SDMCG website (www.scottishdoctor.org).

BC suggested that greater access to external web resources such as eLibrary would be welcome. It was noted that NHS sites were often difficult to gain access to.

Learning Materials
Issues were raised by BC that EROS is good at info transfer but poor for learning. Also that students can feel quite isolated on peripheral attachment. Critical Care resources were hard to find, as were MF's clinical videos – it was reported that no one knew they were there. Paediatric clinical skills videos were also not known about. RE reported that the new Resource Manager will significantly increase the transparency of teaching materials.

eLearning Needs Analysis findings
These were discussed and how they relate to planning bids to the Principal's e-Learning Fund.

A look ahead to 2004 – 2005
Semesterisation, Resource Cataloguing (ResManager), Postgraduate support (EEPoP), SHEFC SDMCG bid, Student progress / profiles, OPAL…

Any Other Business
NT enquired about making areas of EEMeC available outside the security layer. He also raised the issue the EEMeC was still intrinsically tied to the studyguides.

RE indicated that this is technically possible, though contrary to the initial specification for a completely secure environment. Such a move would require significant redevelopment and resourcing as current hardware constraints would not be able to cope with the increase in bandwidth demands raised by broader access. Data protection of patient related records was a further issue, as was the point that any activity within the environment that resulted in data being input to a university database had to be initiated by a recognised user of the system – i.e. no anonymous web user could interact with system features such as CALs. Alternative browse paths will be implemented with the OPAL project. NT suggested that PowerPoint uploads do not contain friendly data and that perhaps more lecturers should be encouraged to seek alternative means of learning content upload – such as EROS.

BC called for greater transparency within the system.

Frequency of future meetings

No word on frequency though a written communication from Allan Cumming hoped that the group would meet more often. Next date to be confirmed though it is hoped to be in September 2004

Appendix 10.1: Interview 1

EEMeC Evaluation Interview with Dr R, 17th December 2004, NRIE, Edinburgh. Dr R is the Year 2 Organiser and the main author of the PathCAL series of 120 online tutorials on a variety of biomedical subjects.

Question	Response	Notes
How often do you use EEMeC? Would you say this is often – seldom?	Quite a lot, quite a few times a day. I'm semi-permanently logged in to it. I keep looking up the discussion boards for the second and first years and try and answer any points that have been raised on it. I also use it for accessing the PathCAL modules. I use it a great deal.	Heavy EEMeC user
Are those the two main functions you use it for?	Yes, I also use timetables and other things relating to the second year but those are the two main things.	Focused on role in MBChB
Do you also look at any aspects outside your main area of responsibility?	Yes, I look at the discussion boards for the other years in the course and occasionally timetables as well but mainly year 2.	
Is EEMeC effective?	Yes, I would say so. It's very effective. It's a splendid resource.	
Is EEMeC useful?	Yes it's useful to me.	
Is EEMeC important?	Yes. It's important for getting in touch with students, seeing what their view are and finding out what's going on. Accessing and transmitting information to students.	
If you didn't have EEMeC how easy would those things be?	Well most of them would be impossible. They simply couldn't be done at all.	
Do you have confidence in using EEMeC?	Yes.	
How often do you find there are problems with it?	Personally it's pretty seldom. There are occasional problems in getting things to students but this is probably human error I'd guess, not EEMeC itself. There are communication gaps, not due to the Learning Technology Section but to the way information is passed on.	Problems are from the MBChB as a whole rather than EEMeC alone
Are teachers and learners better supported with EEMeC than without it?	Yes, undoubtedly. I think it's a pity that more of the staff don't use it but that no doubt will come. The students use it an immense amount very productively and educationally as well.	Staff not using EEMeC enough
Do you encourage the teachers you have responsibility for to use it?	Yes I do and a number of them recently confessed that they did indeed look at the discussion boards but didn't quite have the nerve to answer some of the points raised. These were more junior staff and just didn't have the self-confidence to get involved.	Staff lacking confidence to enter a student space
Do you think this was	I think it's the latter; they didn't feel could have an	Fear of being

because they were unconfident with the system or the subject matter?	authoritative go at it. Because they were tutoring rather than running the course they might have wrongly felt that we didn't want them to answer questions, especially if they put in the wrong answer but in fact I wouldn't mind if they put an answer in that was wrong because we could always correct it. I'd rather that happened than silence. No doubt that will come.	(visibly?) wrong greater than will to get involved
Has there been a change in your freedom of action as a result of EEMeC?	Yes, it's been much easier to get in touch with the student body. I can contact the entire year or just individual students and get feedback from them more or less right away. If there's anything we need to discuss then it can be done and sorted very quickly. That gives me as a course organiser considerable flexibility.	Greater freedom to contact students
Do you think it constrains you in any way?	I can't think of any ways it's constraining. There's nothing it stops me doing.	
Is there more or less flexibility in the course as a result of EEMeC?	Yes I think so; I'd say it's very flexible. There's nothing more I can think of that I want it to do yet. There will be things that come along that I would have wanted I am sure.	Needs will change over time and new tools/features will be required to support them
Is the MBChB complex and does EEMeC sufficiently support the complexity of the course?	The MBChB is very complex and I think it [EEMeC] does support it. No doubt it will increase in ways that at the moment I do not foresee but it certainly is able to cope with most things.	
Do you feel that EEMeC has made the course more or less complex?	Well in some ways yes, it has made it more complex. But of necessity and beneficially. There are some things such as the communications that have become more complex; it's now possible to have dialogue with all students and everybody can see it, and that's obviously more complex, and that's an extremely good thing.	Complexity has increased but for the good
Has the quantity and quality of interactions increased as a result of EEMeC?	Yes, the discussion boards in particular have been a very good way of getting students stimulated to discuss things amongst themselves. There's a huge amount of activity, particularly before exams but there's a lot of concepts that are being cleared up among the students, one to another, and occasionally by the staff when they chip in. I think its educational benefits are immense.	Students support each other via discussion boards
Are you saying that students are doing both more and better?	Yes, I think so. It's difficult to produce concrete results in terms of say exam results because the standards are very high - apart from one or two students.	

Has EEMeC improved the quantity and quality of teaching and learning on the course?	It's increased it a lot and it's proved to be of great benefit. The feedback reports on PathCAL that have recently appeared that immediately offers quite a lot of ways of getting at what students are learning and any misconceptions they're having. I think that's got a lot of potential for analysing what they do and for correcting and changing the PathCAL programs themselves to cope with misconceptions I can see they've got.	Evaluation reports and PathCAL use reports used to improve teaching (Argyris double loop learning?)
Are you saying that you're able to change what you teach in response to what the students demonstrate about what they're learning?	Yes, that's right.	See above
Does EEMeC matches or challenges your professional and personal objectives?	Umm … I think it continues to support the things that I do. It supports my objectives in the sense that it's possible to ask for developments which come around over a period of time. I think the answer is yes. On a personal level the main one is the PathCAL stuff as it now allows me to work on it and develop it at the rate that I want to.	What isn't in EEMeC can be requested.
Do you do editing and authoring of PathCAL in your own time, at the weekends?	Yes, mostly and now I've got broadband it will increase, I use it for PathCAL at home a lot already but that will increase. The one thing that has happened recently is that I have taken some of the points raised in the discussion boards and incorporated some of these points into PathCAL programs. On one occasion someone raised the same point and somebody else mentioned that it was in one of the PathCALs. I felt that was very satisfactory outcome.	Substantial EEMeC from home (out of working location and hours)
Does EEMeC create economic benefits or increased costs (time, money, resources)?	That's difficult to say. It certainly hasn't increased our costs in terms of the course because we're not paying for it. I think what it does is it allows us to do things we couldn't do before. The peer appraisal certainly couldn't be done without an electronic system. It saves us quite a lot in terms of paper. No doubt there has been a cost at some stage but it's not come out of our budget.	EEMeC has provided cost savings locally for year 2
Do you and your staff have more time or has it freed you up to do other things?	In some ways it's freed us to do other things but in other ways it takes us time and effort to do the things which we couldn't do before anyway.	Displacement of activity rather than absolute time savings

Has EEMeC led to greater expenditure of student and staff time on the course?	I suspect that the students spend a lot more time on it but there's not enough engagement from the staff. The students obviously spend a huge amount of time on it. I don't know if all students do but it's a very significant majority that do – the discussion and the evaluation. I think there's a greater expenditure of student time – whether they spend more time on their studies is hard to know because a lot of them are almost workaholic in regard to their studies – to the point that we have far more problems with students relating to their excessive workload than we have with people failing or not doing enough.	Students spend a lot of time using EEMeC. Medical students have a tendency to be workaholics so it is hard to distinguish overuse of EEMeC from general overwork
Is EEMeC contributing to students working more than they should?	That's difficult to say as there's no clear evidence of that. I think the nature of the students on the course that they work very hard. I'm beginning to wonder if on some of the discussion boards they're beginning to interact and reveal how much they're working to one another and that might be beneficial.	See above
Is the overworking typical for medical students or just Edinburgh?	General I think, they're very competitive and very bright and they have terribly high standards for themselves. It's impossible to relate it to EEMeC – it's just part of the general interaction.	See above
You said earlier that staff don't use EEMeC enough – what would you say constitutes 'enough'?	Well you don't see their names cropping up regularly – the discussion boards are were you'd expect them to chip in but they just don't. There's a few that are reading them. I think that most staff get given a login and a username and then they just don't use it at all and then forget it and lose it. We've not yet developed a culture of staff using it. I don't know what we can do about that other than plug away and invite them to use it. I thought of giving them specific duties the way they get allocated a tutorial group. A specific time or a week 'on call' might be a way of doing it and it would give them the authority they need to do some work on it. I'll have a go at it in the forthcoming semester.	Strategies do get staff to use EEMeC more

Has EEMeC led to a redistribution of authority and responsibility? Have individuals or groups become more or less empowered as a result of EEMeC?	I think possibly the students might be more empowered because of the possibility to discuss things more with their colleagues in public. For staff it's difficult to say because they mostly don't use it. I don't know if it gives course organisers more authority as much as let them do a few things. It doesn't really affect their authority. I think the students probably have more responsibility for their learning because in the discussion boards they have dialogues with themselves and often chip in and answer one another's questions which must give them some degree of responsibility, which I think is a wholly good thing.	Students are more empowered Staff are not empowered mostly because of non-use
Can you influence the way EEMeC runs and is developed?	Yes I think so. I just contact you and ask for things [laughs].	
Has EEMeC changed things in the course or in those working within it?	I think so for some of the reasons I mentioned. It's given students a greater power and ability to discuss things. It imposes much greater organisation. I think the timetabling that they can download is a lot better and better organised and a lot less trouble to run from our point of view.	EEMeC imposes greater organisation
Does EEMeC tend to increase or reduce competition or collaboration among its users?	I think it increases collaboration; by users I'm meaning students. However it may also increase competition because they see one another learning and how much they know about things. Although I think that element of competition is intrinsic to many medical students. It probably does increase it but I don't see that as a bad thing at all.	EEMeC increases collaboration
Does EEMeC tend to be authoritarian or democratic?	Well I think it's quite democratic, it gives everybody the right and the chance to chip in and partake of the discussions and I think that's excellent; I don't see any authoritarian trends in that at all. In the past courses were much more authoritarian than they are now.	EEMeC is democratic – course use to be much more authoritarian
Does EEMeC cause conflict or does EEMeC help to resolve conflict?	I don't see much evidence of conflict; there's a great deal of healthy debate in it and some of it's on non-medical things. There's one I noticed in third or fourth year on theology that was very interesting and has gone on for hundreds of entries now. I can't remember how it started but it's a huge thread. It's very healthy debate and the fact that it's gone on for quite a while is a very good thing. It's about a non-medical thing that's important for medical students to think about. And there's a few other things like that. I think it's healthy debate but I wouldn't say it causes conflict.	Healthy debate but not conflict NOTE: interviewee concentrates mostly on EEMeC as venue for discussion

Does EEMeC limit, confine, constrain or oppress EEMeC users?	I don't see how it can do that. If it were tending to it would be up to us to try and change it; I think sometimes when things are just new or recently introduced that might happen. The new assessment engine might be an example of that. But that's only until it's developed fully. To begin with it's quite possible that a thing will have a constraining effect until it's sorted. People have to use it for a wee while before people figure out what's not right about it. I don't think that's a serious failing; it's inevitable with the development of anything.	Novelty can cause temporary constraints
Does EEMeC represent one or many ideologies? Does it allow individuals to be themselves?	I think it caters for just about anybody with any ideas at all. I don't see how it represents just one ideology except the idea perhaps that students are part of the system and have as much right as anybody else to discuss issues that concern them. To that extent I think it's got a beneficial democratic tendency and I could see that that might not appeal to some staff members that don't want students to have a voice. I think another thing is that there's a slight informality about electronic communication that I quite like but which some members of staff might not like. I could see that it might lead to conflict with some members of staff who have a more formal view of what a student should and shouldn't say and do.	EEMeC is pluralist – the informality of this electronic medium may not be popular with all teachers
Has anybody actually said that?	No but the debate that went on with the [name of pharmacology professor] and his lecture was quite interesting. I don't think it was a serious matter at all by the way. It was interesting that the debate happened at all and students felt free to chip in and say some things about it. He was saying some things in a lecture and some people, one Christian, one Muslim, had got in touch with him privately and said that some of the comments he'd made were a bit disagreeable. Word had got back to the student body that a couple of people had said something because [professor x] had said without naming individuals that he'd had some comments and he than defended in public his reasons for doing that. He thought there might be others out there that hadn't said anything and he might have offended. I thought that was quite a good start to a useful discussion. The general trend was that it wasn't offensive at all and most people that were discussing it couldn't see how it could be offensive and that a member of staff had a right to express some views sometimes that weren't medical. All of that was quite interesting discussion. I could imagine maybe some members of staff wouldn't agree with having that discussion in public.	See above Staff not liking some discussion topics being aired in EEMeC

Does EEMeC cause anxiety or ameliorate it?	I don't think I could answer that. I think it might make some students anxious when they see what their colleagues know, on the other hand if it answers their questions then it might make them less anxious. There are one-off problems but that sort of thing happens all the time in real life. In general I would imagine it helps anxieties because it helps answer those questions students have worries about. I would imagine that has a much greater effect than the anxiety that some students have that their colleagues know more than they do.	EEMeC is a forum for answering students' questions
Does EEMeC oblige its users to conform to norms and expectations?	I think there are certain norms that people have to conform to and I think they're quite clearly laid down in the discussion boards and the blurb that goes with them. In the first year those discussion boards got going they were rapidly stamped on when people went outside - and quite rightly so. I must say I see very, very little that's in any way disagreeable or offensive. There are occasional things on the non-academic board but I see very few things … I don't know if it's whipped off quickly or not. There's very little of the silliness of when it first came out. I imagine that's because the users are much more attuned to it and it's not a novelty any more.	EEMeC users, and in particular discussion users, are much more attuned than they used to be
If EEMeC were to be withdrawn tomorrow would that cause you problems; would you miss it?	Oh yes I think it would cause us a lot of problems with organising the course. It would make it a lot more difficult for us to organise the timetables and a lot of other things that go with the course that we've now got in electronic form. I think it would be a great nuisance if it disappeared. It would cause quite a lot of expense as well because we'd have to produce lots of stuff in printed form and duplicate it and distribute it in a way that it's now just accepted that we put it up electronically. A lot of lecture material goes up electronically but we couldn't possibly distribute that in hard copy form. It was in fact costing us a fortune last year when we did it for a short time.	EEMeC's absence would cause major problems and incur large costs
Is there anything you would like to add?	I don't think so particularly, it's been a great thing. It's splendid and I hope it continues and improves.	

Appendix 10.2: Interview 2

EEMeC evaluation interview with Dr W, 17th December 2004, Teviot, Edinburgh. Dr W is a respiratory physiologist, the leader of the year 1 respiratory module and the Medical Teaching Organisation's EEMeC liaison representative. In her latter role she has been tasked with improving the structure of the information provided on EEMeC. She has authored the 'George' virtual patient CAL in EROS to support her year 1 teaching. Interviewer: Rachel Ellaway.

Question	Response	Notes
How often do you use EEMeC? Would you say this is often – seldom?	Often – it depends which part of my academic year I am in. When I'm teaching scientists I use it irregularly because they're on WebCT but if I'm doing administration and teaching medical students then I'm probably in at least once a day.	Use of EEMeC is role/activity dependent
Is EEMeC effective?	[pauses] … I think you have to define what you mean by effective. I think it's effective in certain things and for certain years but for other things it's ineffective in that it's very difficult to find things on it.	Difficult to find things
Is EEMeC useful?	I think to the students it's useful, I think it's a qualified usefulness in light of the comments I made about its effectiveness. It's as useful as far as it goes in that if you can find what you want quickly then it's enormously useful, if you can't find it it isn't [laughs].	Qualified utility
Is EEMeC important?	I think it is extremely important; the potential is immensely important. The concept is important; the stage it has got to means that there are always limitations on its importance. If you can't find something then it becomes very unimportant and you go elsewhere for the information. But potentially it's importance is enormous.	Intervieweee seems to be taking a predominantly content-focused view of EEMeC
How far from achieving that potential is it?	[pauses] I think that's very difficult to answer because it probably simply needs (like everything else) a lot more support. If you'd got enough pairs of hands it could get there very quickly. If you don't have enough pairs of hands it will take longer. If you've got a huge number of staff programming then you can probably program it into a really easily searchable system with everything catalogued in the right place, faster than the people thinking about how to design it can think it. So it's like any research, how quickly you get there depends on how many hands you've got on the pump.	Difference between perceived potential and actuality
Do you have confidence in using EEMeC?	[pauses] … sometimes. I think the problem with EEMeC is (like any computer system) the stuff that's on EEMeC is only as good as the stuff that's been put in, and the stuff that's been put in is only as good as the person that's putting it in. The downside is that you have this huge range of people (as I see it) putting the stuff in and it is very dependent on the non-technical side of the system. It is dependent on the committees, the subgroups that decide on information putting it across and making sure it's all correct. The problem as I see it with EEMeC is that the staff providing the information to the technologists can't get	Dependence on people and external processes 'bitty' Distinction between technical and

	their act together. Therefore it ends up being bitty with contradictory material on it. There's also the problem that there's an inconsistency in the material supplied by staff, therefore what turns up on the system is very bitty and that is not a problem of the technical side of the system. It's a problem of the other side of the system.	non-technical aspects
Are teachers and learners better supported with EEMeC than without it?	Yes, better supported. The reason I say that is because we're at a stage now where everything has to happen in an electronic basis. The whole University has gone … if you think of the WebCT system that has been rolled out for the rest of the University. Things like online evaluations, online timetables, online putting up lecture notes and PowerPoint displays and electronic links through to CAL programs and other resources. It is patently better than what it was before, even with all its limitations it's better. It's just that if you're wanting perfection then we shall be constantly striving.	Everything going electronic
Is it a matter of all journey and no destination?	Oh yes, by definition we achieve perfection at infinity!	
Has there been a change in your freedom of action in the course as a result of EEMeC?	I'd actually say neither. It depends on what you mean by freedom as a teacher. To me that means me as an academic. My limitations as a teacher within medicine are dictated by the curriculum and not by anything else that's what I see as freedom as a teacher. Whereas in science I'm simply told 'can you give us a course on respiration' and then it's left to me as an academic to decide what is appropriate for that level, what I'm going to teach and what I can fit into the lectures I'm given in the course I'm given. In medicine I am teaching to a menu. I don't think EEMeC in my interpretation of 'freedom' impacts on me either way.	Difference in level of teaching constraint in medicine cf science (not an EEMeC constraint but environmental to EEMeC)
How about the course in general, the MBChB community as a whole?	I've no idea, I can't speak for anybody else.	Personal view only
Is there more or less flexibility in the course as a result of EEMeC?	At present, no, I don't think it works that way. I think all the change is being driven by outside agencies. If you mean: is it more flexible so you can shuffle lectures around and material around. No, I don't think that's affected at the moment by EEMeC. I can see how it could be down the line. At the moment all of that sort of stuff is done in a paper-based way through a secretary. For shuffling around, you would need to expand EEMeC.	No effect

How about the recent changes to years 1 and 2?	I think EEMeC has had no role in that … I'll rephrase that. The idea was way back when we were changing years 1 and 2 was that we [teachers] had bulletin boards that we all could go into but the problem was to do that you had to have all the staff going in and see that as the area where they will have conversations. I think at the moment that most of the staff are not of that generation; they're much more likely to have their conversations in the corridor because that's where we've always had the conversations. The only person who went into those and chatted was [name of Curriculum Developer] which was interesting. The academics tended to meet on the corridor and say 'by the way what do you think about this?'. In terms of flexibility of setting up, let's say a module, that's still done by email and telephone conversation and grabbing people when you can and I can\t think how EEMeC could enhance that. If you think along the lines of being able to book rooms and central room booking and being able to say 'I want a lecture here, I want that room there and is it available?' and that is a great improvement because you can do some of that via EEMeC [College rooms are bookable via a sister system co-linked with EEMeC]. When it comes to actually getting the lecturers on board then I don't at the moment envisage how you could use EEMeC to do that. As soon as you get one person stuck and you shift everybody round them, short of getting everyone into EEMeC and us all having conversations through EEMeC (the sort of thing that is currently about begging and pleading over the telephone) I'm not sure how EEMeC would actually enhance that.	Little effect. Staff absence from EEMeC Traditional f2f modes of working with colleagues still most common, normalised and effective Reactionary individuals are holding back full adoption
Do you think the MBChB is complex?	Yes.	
Does EEMeC sufficiently support or match the complexity of the course?	[pause] … the MBChB is complex because it has huge variety of ways in which it is taught. For a single course or programme it must have the single highest number of teachers and members of staff teaching on it. Does EEMeC match that? It serves the complexity, but one of the problems that I think EEMeC has is that are only a limited number of devotees amongst the staff. And therefore in that sense it doesn't match the complexity because only a very small number of the staff go in and use it. It copes very well with the content, the timetabling and the students but actually there's a limited number of staff that go in and use it.	Multimodal nature of MBChB Limited number of staff users
Has the quantity and quality of interactions increased or changed as a result of EEMeC?	It has for students, I'm sure it has because they have immediate access to the immediate 250 or 2,500 of each other. They can chunter away to each other although I suspect it's a very limited number of students who do that. Yes I think there are more student-staff interactions because individual staff members can go in and see what students are thinking and vice-versa which we didn't have facilities for before.	Actually there is broad participation in discussion boards. Discussion boards and community gestalt?

	I'm trying to think back to how we used to send out information to students in pre-electronic days. I suspect they all had to be sent letters or something. Going back to an earlier comment about flexibility in that sense the system is more flexible because you can get information much more rapidly to cohorts of students which we couldn't do before. Yes I think the interaction has increased. It would be interesting to know what proportion of the teaching staff and the students is that is engaging with it.	? generate this data from logs
Has EEMeC improved the quantity and quality of teaching and learning on the course?	That's an awfully difficult one to answer because EEMeC has developed alongside a changing curriculum and it's also developed alongside a change in global technology. So I think it's awfully difficulty to say if it's EEMeC, the curriculum or the fact that the facilities that we have available to us in a very global sense have changed. If you say is EEMeC the facilitator of the global revolution; by having EEMeC and EEMeC staff this gives the other staff a window into using these facilities then yes EEMeC has because we can do things like produce CALs, links to other resources and having the technology to deliver resources that have come in from other sources. If you take it in that sense then EEMeC has but the problem is that it has run alongside other changes and it's awfully difficult to separate them out.	Parallel change factors not isolatable – non experimental and multivariate EEMeC as window or opportunity to access new technologies
How well does EEMeC match your professional and personal objectives?	It does in the sense that as a teacher it gives me access to innovative ways of presenting the material and it provides me with people who can advise on the technical side of accessing this electronic revolution. Otherwise as a non-techie person I would be wallowing in. So in that sense I think that what EEMeC provides the enthusiasts amongst the teachers with is the specialists to advise us and it allows us to use modern technologies for delivering the teaching. This means that you can provide the material in a greater variety of ways in which case you are going to be able to reach students who are learning in different ways. If you can actually increase the number of ways you can deliver any given piece of information then hopefully you will actually get through to a broader spectrum of students and I think EEMeC does that.	EEMeC as provision of opportunity and affordance Benefits of multi-modality
Does EEMeC create economic benefits or problems?	I think probably both. When you are developing something it always looks as though it's costing a lot to deliver new stuff. There's always initial outlay, both in terms of the tech and the staffing. If it ran perfectly (which we have agreed we will get to in time infinity) then it will probably save time. I think it will probably only save time if the people feeding in to EEMeC are better educated. I think that at the moment in order for EEMeC to save time it's got to have a system where people feed in to it directly and it reduces the time in other people and I don't think that's happening at the moment. What I think is happening at the moment is we are creating material	Front loaded investment means benefits come later Staff not 'embracing the electronic environment'

	in a hard copy format and that is then put on to EEMeC. It's not efficient. At the moment in that sense EEMeC is not saving us time because we are actually not fully embracing the electronic environment. I think that requires the users to be educated and the system to develop just a bit further, or maybe quite a bit further, so that stuff goes straight on to it and we don't have these parallel systems where we do everything on hard copy and then everything again electronically. It's potential for saving money is very high. If you look at the development of electronic material for teaching then again it isn't time saving because it is very time-heavy to develop new material in the first place or source them or whatever. That's why it's very difficult to get anybody to write CALs because whilst down the line it might save you time, in the first instance your outlay in time and therefore money is very high, so it's going to be a long way down the line before you actually see any cost benefit.	
Has EEMeC led to a redistribution of authority and responsibility? Have individuals or groups become more or less empowered as a result of EEMeC?	No. I cannot see that it has made a power shift at all.	EEMeC considered to be power neutral
Can you influence the way EEMeC runs and is developed?	From my specific perspective I would hope the answer is 'yes' [laughs] because if I don't then I should retire now! I think that's an interesting one for other members of the community because what we don't have at the moment is a cohesive way of sitting down with EEMeC and talking through policy. It's done very piecemeal – everyone has their little say and my impression is that if I was an EEMeC-er I would get very frustrated because one person says 'let's do it this way' and another says 'let's do it that way' so there's no sense of cohesion or sense of a concerted view from the users on how it should be developed and what it is aiming to do. I suspect there are a very limited number of people who give a toss one way or another. All they want is a system that they use. It's the same thing as; would I write a letter to Bill Gates saying 'excuse me, I don't like the way that Microsoft does this' – as long as Microsoft does it relatively efficiently for me I will live with some of the mistakes but I won't try and influence how it is done. I think that most people would be of that opinion, but I would hope that I *can* have some influence!	Lack of sense of strategy or policy … … and limited interest in any such focus Passivity and inevitability in user relations with EEMeC – cf Nardi and O'Day
Has EEMeC changed things in the course or in those working within it?	[pause] … I don't know. For the same reason I couldn't tell how EEMeC had had an influence; there's been so much happening at the same time that it's terribly difficult to winkle out which has changed what. The only thing I think that has changed Is evaluation and some of the things like that. Some of the things	Evaluation and Portfolio

	online, like the portfolio that is stored online and assessed online and I would think that EEMeC has changed the way that the people that are involved with that work a lot. The one that springs out immediately is being able to send out assignments immediately to mark who are physically spread hither and yon. I know the problems we have with sending out Honours exam papers to markers who are at the Western and the Royal [the two main teaching hospitals in Edinburgh] – that has probably changed the way people work quite considerably. I think it is administrative things like that that EEMeC has facilitated. I'm still not sure whether it's effected the way we deliver things like lectures, tutorials and that sort of thing.	Main changes are administrative or logistical
Does EEMeC tend to increase or reduce competition or collaboration among its users?	Not that I'm aware of. Collaboration's an interesting one. It depends what you mean by EEMeC; whether it is simply the electronic facilities that go along side modern developments. I'm thinking of the CALs. They have definitely promoted collaboration. Would we have collaborated on producing a CAL if EEMeC didn't exist? Probably no. It comes back to the business of if EEMeC wasn't there providing us with the wherewithal and the knowledge to do these things we probably would toil to do them. When I say EEMeC I mean some system, whether it be EEMeC or WebCT or whatever. In that sense yes, there are some areas. The competitiveness in lecturing is when you see your scores at the end and see how the students have rated you. That's always been there even if it came in on a piece of paper; you can just get it faster and get to more students electronically. I don't think that per se is what's driven it. That's come about from asking students what they thought and you're always thinking 'I'm better than so-and-so' and 'he's beaten me in the list' but that used to come in on paper.	CALs increase collaboration EEMeC as provider of wherewithal and knowledge to do new things Competition between lecturers
Does EEMeC tend to be authoritarian or democratic?	That's an interesting one. To be authoritarian or democratic you have to be in the position to dictate to other people. Would I think that EEMeC dictated to me, or was even in a position to dictate to me? I would have thought that it would never enter the heads of most academics that EEMeC could be authoritarian because they would not see that EEMeC had any authority over them. It couldn't be authoritarian or democratic because it is not in a position to be either.	Political neutrality apolitical due to it being an artefact
Does EEMeC cause conflict or does EEMeC help to resolve conflict?	Between whom? [laughs] there's always conflict in the course but I wouldn't have said it was related to EEMeC.	
Does EEMeC help to resolve it?	It's not that sort of conflict because conflicts are usually personality ones and technology won't either	

	create or solve it. The only other conflict you might have depends on how you define conflict. Why as an academic do I always think of conflict as being between two people? Is that how academics operate? If you were talking about conflict in the administrative sense then EEMeC ought to be in a position to resolve these problems. It could spot when I have shoved all my pods in [pod=unit of year 1 and 2 student groups] it could do a head count for me and say 'excuse me, did you know that you've got pod 1 in two places at the same time? It might even do the podding. If it was clever it could solve all sorts of conflicts in the administrative sense. In the other sense, as long as you've got academics there'll always be conflicts [laughs]	Two meanings of 'conflict' (people and information) Potential for parsing, checking and commenting on inputs
Does EEMeC limit, confine, constrain or oppress EEMeC users?	That's an interesting one. EEMeC effectively is an inanimate object. It's like the conflict one. EEMeC per se can't do any of those things. It's the people that feed into EEMeC and that dictate how EEMeC will be that determines whether they're constrained or not. I would have thought that the constraints were being set by the curriculum and EEMeC services the curriculum so that any constraint is due to the curriculum and the people that set the curriculum.	The curriculum is the main constraint
Is it used to control people?	No. If you are asking 'could it?' then yes the answer is yes it could be but not at the moment.	Possible but not actual
Does EEMeC represent one or many ideologies?	It supports multiple ideologies, that's one of its strengths.	EEMeC's strength is its plurality of support
Does EEMeC cause anxiety or ameliorate it?	Mm, both! Depends what you're doing, what mood you're in, what you're trying to achieve … a whole host of things.	Interviewer should have expanded on this one!
Does EEMeC oblige its users to conform to norms and expectations?	[pause] … that's interesting. Again with a lot of these things I think it could and part of its problem at the moment in a sense is that it doesn't. The fact that it doesn't means that, in a way, it can be a bit of a hotch-potch. One of the dangers of creating a uniform way of displaying information and making people interact then that's the situation that you've got. You're forcing people into a very rigid way of presenting, delivering, and behaving. But equally, the other way round is if you let every academic do their own thing you end up with a hotch-potch. I suspect the thing with EEMeC is that it needs to provide a rigid framework within which all the egotistical academics can do their own thing.	EEMeC does not force conformity but it probably should.
If EEMeC were to be withdrawn tomorrow would that	Yes I would miss it. Would it cause me problems? Yes, I would be half out of a job! If we say that EEMeC is the electronic way that we deliver the curriculum	A VLE has acquired a sense of inevitability –

cause you problems; would you miss it?	and we are now in a position where so much of our delivery is electronic we would not have a platform to put our electronic material on. We're getting really to the stage, even those who are not desperately EEMeC-ers. where we are getting used to having an electronic medium onto which we hang our material. In this day and age we have to have something. Whether it is EEMeC, WebCT or whatever there has to be something on to which all the electronic material is actually hung. To not have it would be so going back in to the nineteenth century.	its absence would be highly retrograde
Is there anything you would like to add?	The big problem with EEMeC at the moment is that like a lot of things that have just grown it has its problems. The difficulty of creating a really nice, neat structure in to which everything fits has distinct plus points and distinct dangers. I see the problems for EEMeC as being trying to create a very usable site but leaving enough doors open for everyone. It's about creating an easily navigable structure that is common enough but within which they do not feel constrained or controlled by EEMeC. That's a real difficulty. The next difficulty is encompassing the entire community of staff. It really only becomes really effective if we're all on board. At the moment only a small proportion of people are on board. It works very well but you have these great black holes. If you get the students thinking that everything is available on EEMeC and it isn't because two-thirds of the academic community are not contributing then it automatically limits the usefulness of the whole system. I think that down the line we have to get all the people who are contributing to it, particularly the administrators, to think electronically and not think in hard copy. EEMeC itself cannot be developed in a sensible electronic format if actually all it's being asked to do is to be somewhere you can simply put hard copy documents; it constrains the whole idea. I don't think you can be hard and fast about anything however because the electronic medium has really opened up huge vistas and I don't think anybody can really see where it's all going, which is a plus point and a down point!	Constraint and control reprised: there are comprises about presentation and structure that could introduce constraint and control! Need to involve whole community Need to go beyond simple content handling and storage. No one can see where all of this will take us.

Appendix 10.3: Interview 3

EEMeC Evaluation Interview with Dr C, 13th January, Little France, Edinburgh. Dr C is the Director of the Medical Teaching Organisation, which manages the curriculum and the teaching within the MBChB programme.

How often do you use EEMeC? Would you say this is often – seldom?	I wouldn't say it's often, and I probably use it twice a week. There are episodes when I'm in and out of it every day, and within the day there will be several visits as it's something I am doing or researching that needs the information from EEMeC. It's often enough to have a good working knowledge of EEMeC, but I could probably use it more often if there were more documents there.	
If you have periods of activity, what are you doing then?	Often seeking information about what is going on in the course using it as the golden copy. Looking to see what information we did give to students, either through studyguides or what the last notice said about perhaps a submission date or something or other. I also use it to understand the programme better or themes and courses within it. For instance recently I've been looking at Pharmacology and Therapeutics and getting a sense of what lecture are happening and when they are happening, using it to track the curriculum. Dates as well, to find out the dates things are happening. I think those are the main things. I might also be thinking of how to develop something and therefore finding out what is happening. So it's for curriculum development and for understanding what's been given to students. The other thing I do a fair amount of is looking at the discussion board to touch base with the students. I don't go in just randomly, it's usually when I might be aware of an issue. For instance with the portfolio thing[i] I went in and out quite a lot to get a sense of what students were feeling.	Use for research, reference and understanding Discussion as thermometer
Did you post any replies to the students?	I've tended not respond on the discussion page and that's been a deliberate decision. Mainly because of the language and the professional behaviour displayed, the discussion board is a forum I don't want to enter in to. I do have some thoughts on that. I do think that rather than having academic and non-academic, we ought to really have private and public pages. I acknowledge and appreciate that we all need safety valves, to be cynical and sarcastic and to let off steam about what we perceive as happening to us, we all do it. The discussion board is a good way for students to do that, and that's fine. But we mustn't mix that up with engaging other people in a professional discussion about an issue. We might use certain language when we're amongst friends with a common issue to moan about. We wouldn't do that if we were around a negotiating table with the other party and that's what I find difficult. So I do not want to enter in to a forum where the students are behaving like they're in one forum and I'm trying to bring them into	Discussion too informal and unprofessional

	another one. That could be in a private, albeit academic, discussion and there could be an acknowledgement that on the more public discussion arena we act like professionals with a job to do and appropriate codes of conduct and language. Just occasionally I have put something up when it's just a straightforward question, but it's usually the secretaries who have the best ability to do this. When it was about personal development in the old days when I did the theme I would enter into it then. When there are problems I don't like to see them pulled – that's too simplistic a response. I rather think the public/private would be better. The only thing about having a public forum where staff really are expected to answer, we only have a limited time when we can do all that. We can't be addressing staff-student liaison issues in too many media; we have the questionnaires, we have the staff-student meetings, those at the coalface will often be answering emails. I still think it's something we should try.	
Is EEMeC effective? Is EEMeC useful? Is EEMeC important?	In some things yes, and to a certain extent, yes. I don't think yet it's fully effective. I would do these questions in the opposite order. I think it's undoubtedly important. I think its importance will grow but only if it becomes increasingly useful and effective, which is why I would answer it the other way round. I think it is important, I think it's part of our everyday language and behaviour. Thinking about management we need to keep it up there – like every communication to students must go through there, we must continue to do that and work through EEMeC to maintain its importance. By maintaining its importance we will build up its usefulness and its effectiveness. It takes the whole community to buy in to it being important and therefore use it. I think people are convinced that it is important and therefore send things through it and that makes its useful. We've made it useful in that it's an area for lots of information and perhaps we're now moving on to it being an area where we keep lots of thinking. For example the year 1 and 2 curriculum development. As a manager and a curriculum developer I find it useful to know that I can put those things there. Again I'm not sure that everybody is tapping in to see it. I think to keep golden copy is great. I think it would be increasingly useful if we can find ways of creating our study guides online and converting them to Word in a simple process and printing them off. Because it's linked with the Assessment Engine and feedback to students, our management decisions have bolstered that. Things like we've decided to have an assessment page for staff and it remains to have the Course Organisers' Guide that would make it incredibly useful. But with the collapse of staff in the MTO it just lost momentum and we just haven't been able to pick it up. I don't see that as completely lost; we just need to do it piecemeal. So course management and staff management has a big impact on whether it's useful or	"it's part of our everyday language and behaviour" was useful now thinking

	not.	
Turning the question around, in what way is EEMeC not useful or effective?	It falls down in its effectiveness. It's not yet completely intuitive; it's often counter-intuitive. Streamlining of information hasn't happened to the extent that it needs to get to. Even to the way that each page has its [menu] bar varied. As you know under the assessment menu there was a variety of information. You couldn't know that if you hit the assessment button you'd get the assessment details for that year, the portfolio and descriptions of what the assignments would be. That makes it less useful because you'd go in there and find it frustrating. It's less effective and therefore less important. These things are being addressed by [PW - MTO-EEMeC liaison officer]. This is something I've said before. It needs a closer working relationship between LTS and MTO, not that there's anything fundamentally wrong but it's just getting somebody to do it. In the long term it worries me how we're going to sustain that. I would almost see that there has to be somebody in LTS who knows the MBChB inside out and top to bottom. I think that's something for you to think about, whether there's somebody who comes to every curriculum meeting, has more than one foot in the MTO, perhaps comes to MTO meetings and therefore is responsible for maintaining EEMeC. At the moment we have PW who is going to shape it but in the longer term we're not going to have somebody like that so we need somebody in the LTS who reads something and thinks "reading this I know this is a year 4 assessment and it belongs to that module and I know that that module doesn't run until then"; they've got to have all that information at their fingertips. So more of an educationalist than technologist.	Counter intuitive Sustainability LTS-MTO liaison
Do you have confidence in using EEMeC?	I think that question combines a lot of things. I'm very confident in my IT skills for using EEMeC and reasonably aware of the features and how to use them, so, yes. But again not because I know it won't necessarily be intuitive and the bits of information that I would expect to be there won't be. However because I know the curriculum extremely well and I know it must be somewhere there in EEMeC I probably have a lot more confidence than other more casual users. I think to myself "well if it's not there, where could they have put it?" and I can think laterally and go elsewhere and get it. I don't find the search facility useful at all I must say. I haven't used it in the last semester, but before that when I was using it for portfolio stuff, because it only searches the HTML and so much of our information isn't in this but is based on keywords or higher order of classification. The word might be 'pulmonary' but I might put in 'respiratory' – it's not intelligent enough at the moment. I haven't done a lot of editing in it, so if you were to say to me 'well I've shown you how to use the editing tool' I wouldn't say I've got confident in that. I haven't got down to using it mainly because there are too many jobs to do in a day.	

	Overall, yes, pretty confident. It's back to this effectiveness, and the glitches that are still there that are being sorted out.	
Are teachers and learners better supported with EEMeC than without it, or less well supported?	I'm sure the answer is yes, they are better supported but I'm not a neutral observer in this. I've supported its development so therefore I'm going to be biased. Also I have really limited knowledge of this programme without it as it started the second year I was here. Because we do now have a web-based system to get information out there I think they must be better supported. However it comes down to whether people take the time to read the material. Even X's comments on how to write questions [from the meeting immediately prior to the interview]; we've displayed how to do it and given links to many websites and so forth. If they don't take the time to read it, it could be a marvellous encyclopaedia … With improvement in user-friendliness and the fact that we are continuing to use it as our route of information then I think they must be. The learners all know that that's where they go to find out or ask questions of one another.	If people don't use it then … Main route of information
Has there been a change in your freedom of action in the course as a result of EEMeC? Are you freer or more constrained?	I'm not quite sure what you mean by freedom of action [qualified: they way you do things, the approaches you take]. I think certainly harking back to how I use it I can get things without troubling other people. In the past I would have to ask the secretary for the most recent version of such-and-such, perhaps a studyguide in Word. Just yesterday I was able to track things down on EEMeC rather than troubling people so it meant I got the job done there and then when I had time to do it rather than the delay of writing to a secretary, which would have dragged the task out, I would probably have lost the thread and it may never have got completed. Having all that information I think it really does; and things like tracking the curriculum and reviewing bits of the curriculum, and getting a better understanding how the curriculum works is important. Obviously in my job being able to pull together things like information on assessment is important. Yes, I can get on and do things because information is freely available and it's 'golden copies'.	Easier to get access to information Tasks able to be completed when needed Viewing the curriculum golden copy
Is there more or less flexibility in the course as a result of EEMeC? Has it made it more or less flexible?	It depends how you take that word. In some ways it is less flexible as the rules and regulations are laid out for everybody to see. In that way it standardises practice and behaviour. We wanted that but it's not necessarily a bad thing. It may improve flexibility in the sense that if somebody is developing their own course within the programme they can see what else has gone on, they can do searches, they can find out who to speak to so you can have better collaborations and you can perhaps see where the learning objectives might be repeated or synopses of lectures sound very similar. So in that way it could permit flexibility, if staff members read it and use it in that way. Again it's not as searchable so anyone like [name of	Information and rules = standardised practice = reduced flexibility Searching to inform and improve

	pharmacology lecturer] who wants to find out any drugs being mentioned, any pharmacology, he could do a really good search, spot all the instances and decide how to change his course accordingly, then it would become more flexible. But the beginnings are there. Recently I have to review learning disability through the course and EEMeC has helped with that. Again it's about getting information that you can use to make something more flexible. But it's also about having guidelines up there; we should all know the standard operating procedures. In that way we are trying to build up the assessment site but it will make it less flexible in that way.	Both more and less flexible – differently flexible
Is the MBChB complex?	It's fairly complex, yes.	
Does EEMeC sufficiently support the complexity of the course? Has EEMeC has made the course more or less complex?	It's as complex I think, with or without EEMeC. Does it support the complexity? Again I think it could do more and we're back to this … getting the way we represent the information. The other thing I think about the complexity of the course and how EEMeC could support it more (and this will show how I've fallen behind in the knowledge of the development of EEMeC) is when you clear EEMeC from one year to another and you lose a lot of links then we have to find a way that we put those up automatically again – maybe you have done. In the past links perhaps to CALs or to other lectures have been lost as you put up a year, even sample questions and things like that. That definitely needs to be developed. It takes time for a lecturer to work out all those links; you'd have forgotten what links you suggested. That would help with supporting the complexity of the course. It also doesn't support the complexity of the course well enough from visualing it. When we go into EEMeC we have to see the spiral diagram. Something that says 'this is the programme, which year would you like?, now which module?'. At the moment you go in to year 5 and you get the choice of all these modules, I would rather you went in to year 5 and you saw the plan of how the students rotate through all the modules. So that you have this concept of boring down into the detail. When you go in to EEMeC you don't see that complexity pulled together. Even going to year 3 you don't see that it's just four modules with the vertical themes. I think it would be better with pictorial representation.	No net change in complexity Make things easier for staff users
Has the quantity and quality of interactions increased as a result of EEMeC?	Quantity of interactions between students has probably increased, has the quality? I don't know because in the past I wouldn't know what they said to one another. The quantity and quality of interactions between students and staff has probably increased as well, for two reasons: one, they think they're speaking to the staff in the discussion boards and secondly if they don't get a reply then one of them may email a member of staff on the basis that several people are saying they don't understand or want to make a comment about something.	Didn't see what occurred before Interactions improved I both quantity and quality

	Interactions between the staff. I've mentioned to a lot of staff and a lot of staff have mentioned to me that they go on EEMeC and see material and therefore will know who to contact. So maybe the quality has increased. They know who to contact and what their course is about. I'm aware of people talking about doing it but I don't know whether it's improved.	
Has EEMeC improved the quantity and quality of teaching and learning on the course?	It is so difficult to measure. I don't think it can have undermined or reduced either the quantity or the quality but has it and in what ways? It has probably offered variety in that through EEMeC there are lots of different CALs. I think that by having EEMeC has increased awareness about blended methods of teaching and learning so more people are getting in to e-learning. I think that improves choice for most students and that must improve quality. Some people like CALs and more and more notes are up there and PowerPoints from lectures. One gets the sense that that must improve quality. But we haven't measured it and just having those things available we don't know how many people use them. It would be useful to now if students find the PowerPoints of lectures helpful because it's something we have thought about developing. We need to ask whether it's worth the effort, if the effort of doing a talk over would add tremendously to it. I think it has been done where somebody takes their lecture notes and in the quiet after having given the lecture, then tapes their lecture. It gets rid of ums and errs and it should get rid of the errors when they say 'no' when they mean 'some'. That could add tremendously to the quality of the teaching. The quantity I don't know. The quality again, one thinks it has to have been helped by EEMeC by providing the learning objectives all there and the synopses easily available, but they were being made available anyway in the studyguides. It's just that they're more accessible and people can flit around. I'm subjectively making a personal judgement that it must have done.	
Does EEMeC thwart or match your professional and personal objectives?	The professional ones again are about tracking the curriculum, about being able to interrogate the curriculum and get information. In that way we talked at length earlier and it certainly does match and help. It's only partially effective so far so I would like to see it developed so it does meet my objectives, we can say 'this is the amount of biomedical science happening', 'this is where pharmacology is taught, this is where it is assessed'. I think we need to head that way. Personal objectives? I don't think I have any personal objectives when I come in the door. What kind of personal objectives were you thinking of [increased power, money …]. Again it does allow me to do work-related things wherever I am and so it suits my way of life that I can find out things at home, that really are not such high priority that I want to spend time at work doing them. That's maybe the time that I'd look at the discussion	

	boards and that sort of thing. Being able to do that is very important to me.	
Does EEMeC create economic benefits or increased costs?	I think it's increased costs, because I think it increases aspirations for improved quality. It means people spend more time creating CALs and that uses peoples' time, developers' time but a tremendous amount of academics' time. The fact that we do have all this online – it doesn't just happen, there are certain processes to have to go through, from paper to online, and because we don't work in a medium that is convenient for both. It's back to how we create studyguides or how do we create any information. It tends to be done on desktops and on our H: drives and then transferred, it's not efficient at the moment. It's also costs because we carry on developing things and seeing potential. It's about putting links on EEMeC, it's about tagging our entries on EEMeC. It's all increasing costs. Whether it may also improve efficiency? If we looked at the same quality of teaching, learning, admin and management, whether we get it cheaper by having EEMeC than the old systems. That's a different question and you haven't asked it.	EEMeC increases aspirations
I'd like to ask it now	Then possibly the answer is yes because, as I was saying with my job earlier this week finding out information, it would have meant making phone calls and emails and waiting for the response. Collating information would have been very costly. The end result would be that we probably wouldn't have done it. So it probably does improve efficiency but I think overall it increases costs.	EEMeC increases costs
Has EEMeC led to greater expenditure of student and staff time on the course?	Again I think because we increase our aspirations, we are spending more time because we have this new medium that we can use. It's additional to what we do in other ways. Students browse through it and perhaps spend more time using CALs where they won't have in the past. It probably has improved efficiency; we're spending more time because we're doing additional things, either quantitatively differently or improving the quality of what we're doing. I think it has led to greater expenditure of time, certainly my time, but I'm probably achieving more.	EEMeC is additional Improved efficiency and added new things to the mix
Has EEMeC led to a redistribution of authority and responsibility? Have individuals or groups become more or less empowered as a result of EEMeC?	I think that's a very difficult question. It has probably put more power in to the centre in the way information is controlled and put out there and made public. LTS has probably become a lot more powerful because you're the gateway to getting things up there and making things happen. So the fact that we have more e-learning makes LTS much more powerful in the College because we've got to have you folks on board in order for it to happen. Things like online assessment make you terribly powerful. It also has meant that whoever is managing this course is creating and managing it, we all have a say. That group,	Learning Technologists gain in power … … but also responsibility

	once it reaches consensus has more power because they put up public statements and have guidance out there. We have lectures up there with their little list of objectives so the way we're formatting information has given more power to the centre. Usually that has been a consensus decision, there haven't been too many tussles there but it has shifted authority a bit … and responsibility? Yes, it leaves some of us very vulnerable I think. You've experienced this in LTS where things have gone awry (information from A to B) and you lot probably feel a whole lot more responsible as a result of it. Mistakes happen, information gets lost, it's downright wrong so you folks probably have to shoulder a whole lot more responsibility having a VLE as opposed to just creating CALs. Any of us that put information feel terribly responsible because it's out there, it's gone up and is seen by everybody and it's very clearly right or wrong and who put it up there. Yes I think it has shifted authority and responsibility but not necessarily all in one direction because also module organisers and lecturers have their name up against their lecture and they've got their materials and CALs that they create. Maybe it's raising their profile too. Students are more empowered by being able to find out what their collective opinion about something is, and then they can bring it more powerfully to the table. I think small group themes are more empowered by being able to distribute their learning. Things like communication skills and ethics are 'out there' now and I am sure that the people who mark overview essays[ii] go in and read the material. I'm not sure if it's personal power but they're getting a message across about what they're teaching.	
Can you influence the way EEMeC runs and is developed?	Yes. I think that many of us can but I do note that we haven't had an EEMeC Users Group for a long time. We need a bit more of that really.	Yes, but need more
Has EEMeC changed things in the course or in those working within it?	Well of course if not EEMeC itself but extended EEMeC, things like online assessment, the increase in CALs, tracking the curriculum electronically, is going to change things in the course. Not necessarily the content but knowing the content, perhaps shaping the content and how we develop it in future. The discussion boards; there's social change there. It has had an impact I'm sure because we all know about EEMeC and we can work through it but exactly what those things are … people can do more things online, teach online with the CALs, so it has probably changed people's thinking about how to teach and how students learn. But it's probably quite subtle.	
Does EEMeC tend to increase or reduce competition or	I wouldn't know. I would hope it improves collaboration by having the discussion boards to share experiences and have CALs that they can look at together. But that is a guess and a wish rather than knowing.	

collaboration among its users? Particularly students?		
Does EEMeC tend to be authoritarian or democratic?	Well I would of course say democratic but then a teacher out there might feel it's authoritarian. A bit of both and I don't think it's either exactly. I think it should encourage democracy because all of the information is there for everybody to see, we're not hiding things. There are routes to feedback, that's through management and not necessarily EEMeC, through staff-student liaison meetings and through curriculum development meetings. I think freedom of information should improve democracy. There is of course a slight authoritarian aspect that once there is consensus on things, like assessment, regulations and guidance, it is up there and can appear authoritarian. But it's only authoritarian if the community but in to it and don't feel that they've had a democratic role in creating that. So I don't think EEMeC is one or other. We use it in order to improve democracy but some may see it as authoritarian if they don't feel they contribute to that decision making that leads to that published statement.	freedom of information should improve democracy rules and regulations make it more authoritarian
Does EEMeC cause conflict or does EEMeC help to resolve conflict?	It causes conflict when it's not easy to use and information falls foul of the system. You've been in for a where things can get quite heated. Resolving conflict, I'm not sure how except for being very open with information and that of course may stir up conflict. It's better that people know and can discuss it – did you have anything in mind? [students raising issues in the discussion boards] Ok, well certainly they can make it more obvious to people. I don't think there are many issues that have come through EEMeC that would have not reached our ears anyway. Maybe they make it more forcibly or it's easier to see the strength of feeling, therefore staff find it easier to gauge how to respond, they wouldn't respond on EEMeC though. It helps perhaps in the sharing of information and then decision making.	Both
Does EEMeC limit, confine, constrain or oppress EEMeC users?	Well I think it does give them a hard time when it's not intuitive. You can be terribly frustrated and the search facility can be very limiting and constraining and you have the sense of being oppressed [laughs] because you're just not getting what you want. I think it's to do with the working and the effectiveness of it that you can come away feeling limited and constrained. Perhaps the links aren't always as all encompassing and thoughtful as they might be. You might want to go from one bit information to another and it's not there in the infrastructure. We don't have many links out to other sites at the moment such as in the	EEMeC constrains

	assessment site, maybe we should link out to the American national board of examiners for example. So yes it does. If we can get the how one uses it and the information a lot better then I think we'll feel a lot happier and use it more freely.	
Does EEMeC represent one outlook or ideology or many?	In which context? [the way you see the world, how people think and act] I'm not sure that's answerable, I suppose there is the philosophy of, first of all, the structure of our course and about it being systems based and then specialty based – that comes through. That's the ideology we've adopted there. The ideology of how we state our learning objectives, at the moment not closely linked to specific learning experiences – you could say that's an ideology. But that's different from the ideology of how we've structured our course. Every decision we've made about structuring the course would come across if you were looking for it so there are multiple ideologies there. If you're thinking ideology in terms of governance, centrality and how much freedom there is … again it does both. There are clear guidelines about how you represent your lecture in terms of objectives and synopsis but then we know that staff are given lots of encouragement to create their own CALs and that's liberating, not just one ideology. I'm not sure I can easily package all those thoughts in to an answer.	
How about the way medical courses socialise their students to become doctors?	Ah you're talking about ideologies in professional cultures. Well I think the students through the courses get a sense of how they should be shaped and about the importance of knowledge and analysis and along with that, skills and communication skills, then professional behaviour running through it. I'm not sure how much EEMeC adds to that at the moment. I think the big leap would be if we got personal development planning online. We could for example apply to the Principal's fund – I'd like us to create our own, something that could be adapted for the rest of the University. But the University are thinking taking off the peg from another university like Newcastle or Liverpool. If it's the ideology of the medical professional you were thinking of I was thinking about ideologies of medical education [laughs].	
If EEMeC were to be withdrawn tomorrow would that cause you problems; would you miss it?	Yes. It would cause problems and yes I would miss it. It seems to me to be the voice of the course at the very least. This is where you go to get the message about what the programme is, how we describe ourselves, what the guidelines are, how we assess ourselves and hanging from that are all these additional ways to help students learn; like e-learning, like links to other websites, like information about their careers. It's about giving them a forum to be miserable or constructive, whichever they want to be. I think I would really miss it.	EEMeC is the 'voice of the course' Long term repository of thinking and

	We might not miss it tomorrow, but we'll miss it next year when all our thinking has drifted on in different directions and we no longer have that one place that we can go and find out our shared thinking and vision. It would all I think begin to fall apart.	vision
Is there anything you would like to add?	I think the business of who keeps it up, I think the training and what the shape of that person is, is something that I think is really important to be born in mind. How you maintain it in the long term and fund it is another concern, but I don't have any easy answers to that. Maybe one other thing is how we join it up with other medical schools. Medical schools in particular but maybe other institutions. It's always back to this 'how do we make our assessment more effective and efficient?' and 'are we going to end up with one exit exam in Scotland?' and if we had a shared platform I think we'd be strides further forward getting an online assessment system that would work and could be shared with at least the Scottish medical schools. That's maybe a bit parochial so with any medical school. That's my thought for the future.	

[i] Year 5 students discussing a piece of coursework in EEMeC and using this to organise a formal protest.

[ii] There are two Overview essays, one in year 4 and one in year 5. They are in course work based on discussing their work as evidenced in their portfolios and in the context of a 'portfolio vertical theme'

Appendix 10.4: EEMeC staff user interview base questions

1. How often do you use EEMeC? Would you say this is often – seldom?
2. If you have periods of activity, what are you doing then?
3. Is EEMeC effective?
4. Is EEMeC useful?
5. Is EEMeC important?
6. Do you have confidence in using EEMeC?
7. Are teachers and learners better supported with EEMeC than without it?
8. Has there been a change in your freedom of action in the course as a result of EEMeC?
9. Is there more or less flexibility in the course as a result of EEMeC?
10. Does EEMeC sufficiently support the complexity of the course?
11. Do you feel that EEMeC has made the course more or less complex?
12. Has the quantity and quality of interactions increased as a result of EEMeC?
13. Has EEMeC improved the quantity and quality of teaching and learning on the course?
14. Does EEMeC match your professional and personal objectives?
15. Does EEMeC create economic benefits or increased costs?
16. Has EEMeC led to greater expenditure of student and staff time on the course?
17. Has EEMeC led to a redistribution of authority and responsibility? Have individuals or groups become more or less empowered as a result of EEMeC?
18. Can you influence the way EEMeC runs and is developed?
19. Has EEMeC changed things in the course or in those working within it?
20. Does EEMeC tend to increase or reduce competition or collaboration among its users?
21. Does EEMeC tend to be authoritarian or democratic?
22. Does EEMeC cause conflict or does EEMeC help to resolve conflict?
23. Does EEMeC limit, confine, constrain or oppress EEMeC users?
24. Does EEMeC represent one or many ideologies?
25. Does EEMeC cause anxiety or ameliorate it?
26. Does EEMeC oblige its users to conform to norms and expectations?
27. Is EEMeC chaotic or ordered, and does EEMeC create chaos or order?
28. If EEMeC were to be withdrawn tomorrow would that cause you problems; would you miss it?
29. Is there anything you would like to add?

Appendix 12.1: Dialog on the Generic in VLEs

Do generic VLEs provide sufficient facilities for the learning and teaching needs of further and higher education?

Dialogue carried out by email between Rachel Ellaway (RE, University of Edinburgh) and Tom Franklin (TF, then based at Techdis) during 2002.

Diversity of VLEs

RE much HE activity is non-generic and whether subject or institutional, the diversity is important to preserve. Generic VLEs inherently oblige their users to do things and think about things (and themselves) in generic ways. WebCT or Bb etc do not support divergent and disparate practices

TF *I find this argument not terribly persuasive, by analogy, although subjects vary in their teaching methods they largely use the same spaces - sharing lecture theatres, seminar rooms etc. The exceptions being labs (which tend to vary more in equipment provided than in pedagogy - and in each lab you will find different pedagogies being used from controlled experiments to research work) and what might loosely be called on-site work (in hospitals, building sites etc.). Even where rooms are flexible it is unusual for staff to do much re-arrangement for their session beyond two or three standard patterns (rows, circle, horseshoe). While WebCT etc. do not (easily) support everything not VLE does, and I think that it will be a brave department that says that each type of session should be done with a different VLE - today we are being didactic lets use Bb, tomorrow we are doing something related to practice so lets use.... Therefore it is really a matter of compromises whatever one does.*

RE Sorry but your argument is (I believe falsely) predicated on the idea that generic VLEs provide such neutral unconstrained 'rooms'. In effect the 'rooms' they provide are anything but. These VLEs constrain and divert the practices that can take place certainly by their toolsets and interfaces, and more importantly by the lack of user configurability. In an abstracted room you can put anything anywhere. I propose that VLEs offer very specialised rooms such as small cloakrooms or ice rinks which may be inappropriate to those needing a garage, corridor or a clinic. The dimensions that these differences occur in are usually fairly common to a subject area/course and it is at this level that medicine for instance has appropriately developed systems that give it the kinds of 'rooms' and configurability it needs. These rooms also do not exist out of context. Thus generic VLEs have a long way to go before the spaces it provides are suitably generic and configurable. Furthermore teaching rooms in the medical school are deliberately cheek by jowl with subject-specific spaces.

TF *I was not trying to argue that the rooms are pedagogically neutral (I don't think that any space can be neutral, both of itself and because of the ideas that we bring to it). My argument is that rooms (real or virtual) are anything but neutral but we do little about it. How many teaching staff re-arrange rooms other than as rows, horseshoe or circle? In fact, how many re-arrange the room at all? Probably the two most constrained spaces that are supposedly generic are the (tiered) lecture theatre and the computer lab. But people still use them in lots of different ways.*

RE that's fine as long as you can accommodate your diverse needs in generic rooms. We find that we still need specialist configurations to allow to facilitate our teaching practice – both physically and online

Generic VLEs are particularly poor at sharing and targeting identities, roles and processes in ways that are configurable or appropriate to non-standard course needs.

TF *I am not sure what you mean by this, but it does look important, and I would appreciate some expansion and some examples; preferably including why they cannot be done in say Bb or WebCT as the two leading VLEs*

RE in that we don't use them now I can't give examples except as directed by colleagues who do use them. Both Bb and WebCT for instance work around a modular heuristic where everything happens inside a module 'box'. That box contains and contextualises the roles, processes and resources available to its members. These systems tend to support at best 3 or so levels of identity – student, tutor and sys-admin. In our VLE we have over 50 roles. Resources in these systems once loaded in to a particular module have been exceptionally hard to share between other modules. Modules cannot be 'semi-transparent' and aggregatable to form larger units of study such as years or degree programmes except in 'black box' mode. I regularly ask the Bb and WebCT reps about their support for these forms have not yet received a suitably robust and positive answer. The Bb 6 implementation falls far short of this.

TF *Several interesting points in this I think. The first thing to note is that you don't use the feature, suggesting that though useful it may not actually be necessary. While I agree that 3 roles may not be sufficient I think that although 50 different roles can be identified in practice no one will want that many – in part because people cross roles and therefore the distinctions will be too restrictive and equally because it will be difficult to pin down those roles clearly in real life.*

I think that the latter points are much more significant, and are currently limiting for what one can do. However, I have little doubt that they will be there in future versions of commercial systems, and while "nice to have" are not essential, especially as it appears to me that you may be asking the VLE to have some functionality that may properly belong elsewhere (in the MLE or portal).

Communities of practice

RE communities of practice - rather than teaching facts and competences, much HE practice is about becoming a practitioner, usually in the context of a community of practice. A system that supports these processes needs to also support the value systems, symbols, language and other semantic systems of that community. Generic VLEs deliberately homogenise communities

TF *I don't agree with this one, any more than a generic library (using Dewey - which I know medics hate) causes homogenisation. The way in which one becomes a practitioner is by understanding the languages and the methods of the community, and whatever VLE one uses during learning is very unlikely to be part of the working environment anyhow.*

RE Ah but a VLE-in-use is no longer 'virtual'. It has become a very real component of the broader learning environment in which it sits. A learning community's values, philosophy, language and symbols are embedded throughout that environment and form an essential part of its hidden curriculum. By failing to reflect these aspects of a course environment a generic VLE is peripheral and potentially distracting and contradictory to the environment as a whole. A VLE should be sufficiently 'constructively aligned' to its course environment so that it comprises a coherent part of it.

TF *I am not sure what you have in mind here, but if I understand you rightly it is about customisation of the VLE, which is becoming more and more feasible in the commercial VLEs. There are institutional (policy) issues about how much this may be done, but that is not about the nature of the VLE that is about the nature of the institutions management.*

RE more and more feasible yes, but not yet. It is conceivable that commercial VLEs will become sufficiently configurable that their utility to non-standard forms becomes attractive – not there yet though ….

TF *I think that we are basically agreeing on this, in which case the question is can we "put up with" the somewhat limited customisation currently available or do we **NEED** the additional?*

Logistics

RE Many courses run in ways that are asymmetrical with the mainstream. They start and end at different times and in different ways, they can be in very different geographical and/or temporal frameworks and they can require very different participation and resource models. Generic VLEs do not accommodate these differences

TF *I think that this one is simply wrong, the major VLEs do support any start time etc. otherwise FE could not use them as many of their courses are frequent starting ones.*

RE we find that essential resourcing, upgrading and development phases for generic VLEs follow standard institutional cycles, in particular often being 'down' and 'repopulated' over the summer. At Edinburgh the medics run their course 12 months of the year and cannot afford such gaps in service provision. Furthermore, authentication frameworks and resource limitation to an institutional domain does not work for a geographically dispersed learning community. The tools and processes required and the timeframes in which they are needed drive divergence from a monolithic mainstream. True this can only be done where means and need are found but medicine has both.

TF *Again, this is not a VLE issue, but a management issue. Much the same was said at many universities which have moved over to central timetabling / room allocation. There are issues, but these are issues about the management of the solution, not about the selected solution. The upgrade /development cycles of all infrastructure have to meet the needs of the users, and that applies to availability of rooms, hardware, networks and software including VLEs. This has nothing to do with the selected product.*

RE regarding the end user experience - you cannot remove one from the other. A VLE-in-use is a complete solution/implementation and a centralist model of provision tends to exclude non-symmetrical practices. Also the negotiation of changes and additions is far less tractable for a commercial and institution-wide application as opposed to a local one. Please let's not have a beauty contest of 'my VLE has xy and z'. VLEs-in-use or at least the potentiation of a VLE-in-use is a far more appropriate approach to take.

TF *I agree that we should avoid the beauty contest. My point really was that it was not an issue relating to where the VLE is sourced, but institutional policies including how many will be allowed / supported. If the answer is only one then the issue remains, if more than one it is not really an issue about whether they are commercial systems or not. Taking that just a little further, some institutions require all users / departments (whatever) to use a common template while others say if you can do it in the system great, go ahead. Again, that is a policy not a system issue.*

Generic versus community based VLEs

RE For environments that are relatively similar and have little in the way of online support generic VLEs can offer at least a basic service but for established, divergent and strongly communal areas they are an anathema. The determinism framework I presented in Glasgow alluded to a lot of these issues, I have also submitted a research paper to ALT-C approaching this from the communities of practice angle.

TF *The reasons they are anathema are twofold I believe. Firstly there is the general mistrust of any central initiative (one size cannot fit all) which we have seen over and over again. I can remember several universities where there were massive arguments over central timetabling and room allocation which bar some teething troubles have worked very well. The issue was really loss of (perceived) autonomy. I might be convinced if there were significant things that people are doing in other VLEs that no one has been able to do in Bb, WebCT etc. However, if people are doing them in those (or other major commercial VLEs) then I believe that the argument falls.*

RE I am aware of a large number of things we (and other med schools) are doing that are not part of the WebCT, Bb or other generic systems. Examples include:

- multiple levels of association and aggregation - the VLE manages a whole course and its component parts simultaneously, with any part or tool able to exist at multiple levels of aggregation simultaneously
- filtered access to tools and resources based on a potentially infinite number of user types and their associated rights
- online evaluation - questionnaires are set presented, completed, stored and analysed within the system
- assessment system allows real time transcripts and analysis of assessment activities. This is multidimensional, looking at assessment event, learner, staff or aggregated forms of any of these. Real time standard setting tools are also built-in for exam boards and externals
- archives of previous academic sessions and their iteration of the VLE are made available to the learners who took them and to staff for reference and QA
- vertical themes - embedded conceptual themes such as ethics or personal development are built in to the VLEs structure allowing a multi-dimensional view/browse path through the course
- customisable log and tracking information - we decide what we want to capture when, how and in what format

It is important to note that these are deployed across long (5-6 year) courses, learners can take different paths and that any individual can take on any number of roles. Resources, identities and processes are not constrained by course or module boundaries but can follow independent or linked trajectories through the system. Overall such purpose built systems are more like what generic VLEs should be as they are in fact far more abstracted and therefore configurable than any commercial system managing simultaneous levels of course and module aggregation simultaneously and facilitating true learning communities.

TF *I cannot see anything in that list that cannot be done in Bb version 6, with the possible exception of the vertical themes.*

RE I cannot see Bb6's implementations actually providing the form, orientation or interoperability we already have. Commercial vendors have been notorious for their somewhat inflated spin on their products – this is probably to be expected in a commercial and competitive environment. Local systems by and large are not in a competitive market and do not need to inflate their potential but stand by their actuality.

TF *That I think is to see the non-commercial systems and house systems in a very rosy light. I have been in several institutions where for a variety of reasons the local system has been grossly oversold. I think that the two main reasons this is done are firstly fear that the system will be replaced by an alternative (not necessarily commercial) system and secondly because the developers believe that what are in fact slight differences of no real import are major pedagogic differences.*

On your more specific point about Bb (or whoever) matching precisely what you do, no I am sure that they will not. However, I don't believe that exact matching is necessary or desirable – it assumes a very closed model where the exact form of the VLE is the greatest determinant in the success of the teaching and learning. That is obviously not true, the pedagogy, skill and personality of the teacher and even the content are more important.

Continued system development

TF *However let me add a couple of problems with using home grown systems. First, there is the problem of ongoing maintenance and development. I have seen very many systems that have been lovingly developed die once their original architect (or the second in a few cases) leaves. Frequently the system is not built in a way which is easy for others to understand and once the knowledge is lost serious problems ensue.*

RE this is not unique to VLE systems. Any process can suffer when organisational knowledge is lost in this way. A well managed system has safeguards built in to avoid these problems whether it is a VLE, course or any organisational process or entity.

TF *I completely agree that it is not limited to VLEs, indeed many institutions are still running their management systems and student systems on home grown, which is almost invariably a mistake. Besides the danger of loosing the original developers which can be mitigated there is also the problem that the entire costs of maintaining the system fall on one institution, so that when the law changes (changes for instance in data protection may have an impact on VLEs) or when practice advances (as it is very rapidly in this field) all the developments costs and all the requisite skills have to be found internally. I have seen far too many cases where this has either led to systems dieing (as they were not essential) or leading to ossification of the institutional processes as it was not possible to develop the system to meet new needs. To me this is probably the most important argument for going with commercial systems.*

By the way there is also the related issue of total cost of ownership, which can get very high if a lot of different forms of expertise are needed to maintain the system or ensure continuity as staff leave.

Student mobility / Compartmentalisation

TF *A further problem (perhaps less in medicine than elsewhere) is student mobility. Students take courses in a number of faculties / department having slightly different interfaces, ways of working causes well known cognitive problems, especially when the systems are supposedly doing the same (sort of) thing. But I would add an additional one to that, of students wanting some material (in the broadest sense, to include notes, discussions etc.) available between the different subjects they are studying. Having subject VLEs will make this almost impossible, leading to compartmentalisation of knowledge. Again, this may be less of a problem for medics than other groups, but some medics do take courses (modules, units) elsewhere precisely to broaden the approach. Compartmentalisation works against this.*

RE ah but Bb and WebCT are the worst compartmentalisers – work inside their world and everything is rosy. Step outside and you see how hermetic they are. They all claim specifications-compliance but their application profiles for the specs are often Byzantine allowing little real interoperability.

Purpose built systems are much more flexible in importing and exporting compliant and well formed information. Plus the internal translation is appropriate to the requirements of the subject of study. There are also issues over which specs are important. Bb trumpets SCORM compliance but again this is of little use to medics as

SCORM only supports single learners, not groups and the other aggregations of learners we have as a core heuristic.

TF *I think you have a very rosy view of how easy it is to move between two systems that are non-commercial. Different systems are different and there may be some where the movement of some content (and I don't just mean learning objects) is easy but that is not related to their provenance.*

TF *Then again, there are students who are (and increasingly will be) taking courses from numerous institutions (will this be an issue for new medical schools, or can they provide the full range of subject I don't know). The obvious group here is foundation degree students where consortia of local FE colleges and HEIs work together to deliver the degree. Having home grown systems will make this incredibly difficult.*

RE I am not suggesting that everyone use home-grown, there is certainly a place for the 'big blue' approach in low resource, modular and homogenous programmes of study. However the commercial systems are still far from what we need in situations that diverge from this norm. The investment in developing local systems is significantly lower than most people make out.

TF *I think that you are unnecessarily rude about the type of user who benefits from the commercial systems (and rude about them too). Yes, the development costs are lower than some people make out, but also greater than others think. However, the key issue here is not the development cost but the long term support costs. And another problem is that most of the commercial application developers (eg. people developing learning objects and learning opportunities to work in conjunction with textbooks) will develop them for commercial VLEs, they may not work (well / properly / at all) in others thereby limiting the opportunity for students. If you don't think that will happen you only need to look at the number of web sites which do not work (well / properly / at all) in Netscape.*

Conclusion

RE convinced?

TF Not yet. Are you convinced by my counter arguments?

RE Nope - practical experience has shown otherwise. Have mine shifted your position?

TF I will admit that medicine is a peculiar case. It is typically much more isolated from the rest of the university than other disciplines are so that going its own way is less of an issue, and indeed a tradition in the field - though not always with good results. Medicine also has the luxury of better funding which does help to make things work. perhaps the best way forward would be for the medical schools to work together to develop a (commercial :-)) common medical VLE to meet its needs. However, I think that what you would end up with is another generic VLE because there is as yet nothing you have proposed for the VLE which is exclusive to medicine.

RE regarding developing common approaches within medicine these are already underway. We have a vision of a federated systems model where components can plug seamlessly into other systems, adopting the look, feel and semantics from the new parent VLE. It is worth noting that despite higher funding for medical students this has dropped significantly over the last few decades and the drivers for efficiency and scalability are driving us hard too.

TF *The model that you will end up developing if you push it is another generic (and probably ultimately commercial) VLE. It may also be better than the existing ones because of the close involvement of the user community in its development. I wish you well with the project. It wont be easy to try to reconcile the differing needs / wants / requirements of different constituencies that includes different institutions,*

departments within institutions and different roles (management, teaching staff, clinicians and students for instance).

TF *In short. Current VLEs do not offer everything that we want to do (nor given human creativity will they ever) the question for me is: is it sensible for medical schools to expend significant resources building and continuing to support their own, or are they better off taking commercial ones, customising them and putting pressure on for continued developments.*

RE the development costs are less than you would think. We spend about £50k a year developing, supporting and running a system that supports 2,500 members of our joint medic and vet learning communities. These costs include major components of content management, staff development and dissemination (costs that would be incurred whichever system was adopted). The efficiency savings we provide in return are very approximately £30k p.a. – the added value to the course outwith efficiency savings more than makes up the ongoing investment in this process.

TF *Two questions arise from this. Is it the most effective way that the money could be spent to support learning and teaching? What will the long term costs be?*

RE Moreover organisational knowledge is retained, the course communities express a real sense of ownership and commitment to the project and are actively involved in its development and orientation.

TF *I would be worried if the nature of the VLE had a significant impact on the feeling of ownership of the learning. Will a PPP teaching hospital be a somewhere where the teaching declines because of a lack of ownership (of course if the PPP is badly handled then there will be problems which could be a mirror of our entire discussion).*

TF *And finally, the subject of the debate is "This house believes that commercial VLEs provide sufficient facilities for the teaching and learning needs of higher and further education", not are they best for all possible purposes (which clearly they are not) but do they provide sufficient facilities. Thus I think are opinions are closer than they might appear.*

RE I come back to the beauty contest issue. If all we can do is look at feature lists than we just as well give up and go down the pub. Or maybe we discuss what we mean by 'sufficient' – such subjective language is tricksy (angels on pinheads time!). I still refute the proposition but, as I think you are suggesting, it exposes underlying issues and ideas then the debate is certainly worth having.

TF *Pub sounds like a good idea. I am not thinking of this in terms of a beauty contest, so much as what do current teachers need now, and what will they need in a few years as they get more to grips with the potential of VLEs. I believe (or in my more depressed moments just hope) that VLEs will keep up with thinking in the field. However, I believe that the resources that are available to commercial developers will mean that their products move ahead over time.*