The EASiHE Spanish and British Sign Language Formative eAssessment Case Studies

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Abstract

Formative eAssessment can be very helpful in providing high quality higher education assignments. When a university is encouraging the uptake of formative eAssessment internally it is useful to have case studies from academic schools detailing how academics enthusiastic about formative eAssessment have used it in their modules with the assistance of support staff. It is particularly helpful if these case studies document: a) the cooperative-design process through which the eAssessment solution has been created by the teaching and support staff; b) the implementation of the resulting eAssessment solution; and c) an evaluation of the effectiveness of the solution. However there is a shortage of such real-world case studies. This paper helps fill this gap in the literature by describing the case of a Spanish Language module at the University of Southampton and a British Sign Language module at Bournemouth and Poole College. We describe the generic formative eAssessment solution resulting from the case studies which can be positioned at the cutting edge of formative eAssessment practice. This uses both open source and commercial eAssessment software; provides support for QTI, accessibility and mobile eAssessment; and provides reporting and web 2.0 tools to give the teaching staff feedback on the eAssessment. Our evaluation with undergraduate student volunteers from the modules has resulted in positive feedback.

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1. Introduction

There is significant evidence that formative eAssessment can be helpful in providing high-quality higher education assignments (Heinrich, et al., 2009; Pachler, et al., 2009). In addition to using desktop computer-based eAssessments students can also use mobile devices, allowing for more flexibility in where the students work and on what device (Zhang, et al., 2010). However, there are obstacles restricting the uptake of formative eAssessment in higher education including both cultural and technical issues (Warburton, 2009). Models and studies of these obstacles include general technology uptake studies (Rogers, 2003; Lewin, 1958; Moore, 1999) and higher education-specific studies (ALT, 2003; Sommerlad, et al., 1999; Warburton, 2006; Warburton, 2009).

When a university is encouraging the uptake of formative eAssessment internally it is useful to have case studies from a range of academic schools detailing how academics enthusiastic about formative eAssessment (known as "champions") have applied formative eAssessment (or attempted to apply it) to their modules. It is particularly helpful if *three key case study requirements* are met. These involve documenting:

a) the cooperative-design process through which the eAssessment solution has been created by the teaching and support staff (for example learning technologists, programmers and IT staff);
b) the implementation of the resulting solution; and
c) an evaluation of the effectiveness of the resulting formative eAssessments.

Examples of previous case studies include (Pachler, et al., 2009; Shephard, et al., 2006; JISC Pattern Language Network, 2010). However, there is a shortage of real-world long-term case studies that meet the three key case study requirements as listed above. This paper helps fill this gap in the literature by describing two case studies meeting these three requirements. The first case study focuses on a Spanish Language module in the School of Humanities at the University of Southampton. In this module the students take a small number of formative eAssessments each week for two semesters. This School of Humanities case study is particularly relevant to the understanding of e-Assessment uptake because it is: *a)* lead by a non-IT specialist academic who is making significant use of formative eAssessment whilst not being involved in e-Assessment research outside of this case study; *b)* because it is conducted within a university having a strong interest in the uptake of formative eAssessment at an institutional level; and because *c)* formative eAssessment has been used on the module for ~10 years. The second case study focuses on a British Sign Language module at Bournemouth and Poole College. In this module we are adding formative eAssessments to a module that has not used them previously. This case study is selected: *a)* to give us a wider range of students - the students study the module in the evenings, are on average older than the Spanish students and may not be studying any other modules; *b)* it allows us to test our eAssessment solution in the context of an external institution's IT environment; and *c)* it allows us to test our educational co-design process (Millard, et al., 2009) in the context of a college as opposed to university environment.

The contributions of this paper are: *a)* the description of the co-design process involving teaching staff, learning technologists, programmers and IT staff; *b)* the detailed description of the implementation; and *c)* the evaluation of the resulting eAssessments with the students. The work described in this paper has taken place in the context of the eAssessment in Higher Education (EASiHE) project. EASiHE is a JISC and University of Southampton funded project and is run by the University of Southampton School of Electronics and Computer Science and iSolutions. EASiHE has been funded to accelerate the process of both implementing an open source, service based solution to institutional e-assessment; and addressing institutional change by engaging academics and students in co-design and co-deployment. In line with the University of Southampton e-Learning Enhancement Strategy, which places the quality of student learning as its first objective, the EASiHE project has

provided an open source solution for formative assessment by integrating services available within the JISC eFramework.

This paper is structured into the following sections: (2) the case studies and obstacles; (3) the co-design; (4) the implementation; (5) the pilot evaluation; (6) the evaluation; and (7) the current status.

2. The Case Studies and Obstacles

2.1. Spanish Language

A University of Southampton School of Humanities Spanish module, for final year undergraduates, is used as the first case study. The module lasts for two semesters, with three classes each week. Typically there are around 20-30 students on the module. Prior to the work described in this paper the optional independent study web-based formative eAssessments were as follows, with typically one or more eAssessment per study week. They were implemented using Hot Potatoes and accessed via Blackboard, the module virtual learning environment (VLE). They required the students to first play an audio/video media file (in Spanish) before undertaking the assessed questions. Categories of eAssessment that could be automatically marked included: *a)* assessing understanding of the media file (typically multiple choice questions); *b)* transcribing the media file using close procedure (fill in the gap) questions; and *c)* a vocabulary test (also multiple choice). During the last ~10 years, this kind of eAssessment solution has been found to be something motivated students can use independently to practice their language skills.

2.2. British Sign Language

The second case study involves a Bournemouth and Poole College (BPC) evening module teaching British sign language. The module lasts for one year with typically one evening class per week. Prior to our involvement formative eAssessment was not used on the module.

2.3. Obstacles to the Use of Formative eAssessment

Obstacles to the extended use of formative eAssessment in the case studies, as identified during the co-design process, included the following cultural/institutional issues: (1) lack of confidence in university/college eAssessment support for eAssessment systems not recommended by the institution; (2) difficulty motivating students to take full advantage of eAssessments; (3) the need to improve eAssessment accessibility and usability, especially for students with specific learning difficulties including dyslexia; and (4) writing high quality questions being difficult due to lack of examples of good and bad formative eAssessment questions, and associated guidance. Technical obstacles included: (5) interoperability of different eAssessment software; (6) how to choose the infrastructure technologies to use; and (7) the need to increase usability of eAssessment systems for the lecturer. A final technical obstacle (8) was how to present results from multiple eAssessments taken by multiple students in a form that allows them to be understood and made use of in a short period of time. These obstacles and the strategies we used to work through them, are discussed throughout sections 3 to 5.

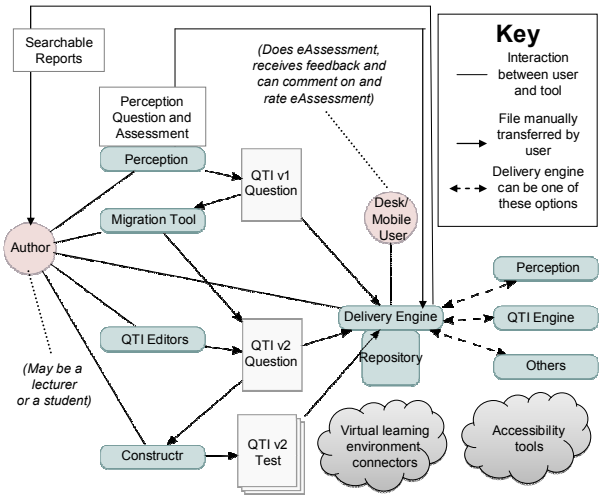

Figure 1: overview of the design of our solution for formative eAssessment

3. The Co-Design

We engaged with the module lecturers in our co-design process (described in Millard, et al., 2009). In the case of Bournemouth and Poole College this was primarily via the institution's ILT Development Centre Manager. Our goals included dealing with the obstacles from section 2.3; creating a realistic eAssessment solution that is an interactive part of the course used by students, lecturers and teaching assistants; and creating a solution that could also be used outside of the module. This process involved developing personas, scenarios, design documentation etc. For both modules this was conducted over approximately 5 months. For the Spanish Language module this involved regular face to face meetings with the module lecturer; and for the British Sign Language module this involved regular teleconferences with the institution's ILT Development Centre Manager. Changes to the modules were informed by literature recommended by the University of Southampton for good pedagogic design (e.g. Biggs and Tang, 2007). We also made the decision to update the Spanish Language module Intended Learning Outcomes so they were structured as advised in the literature survey in Gilbert and Gale (2007). This gave us a more precise set of module requirements to use as an input into the co-design process.

Figure 1 gives an overview of the design of our solution for formative eAssessment. We note that the author would typically be the lecturer and the user typically the student. A desk user accesses the eAssessment using a workstation or laptop; a mobile user via a mobile phone or PDA. As has been mentioned, the original Spanish Language eAssessments were written in Hot Potatoes, not QuestionMark Perception – which is now the University of Southampton's standard supported eAssessment infrastructure (see obstacle 1). We manually converted Hot Potato eAssessments into Perception format so as to be fully supported by the University.

It was not possible to create the British Sign Language eAssessments in Perception as this software is not provided by Bournemouth and Poole College. It was decided to create these eAssessments directly in the standard IMS Global Learning Consortium Question & Test Interoperability (QTI) Specification format. This has a number of advantages including: *a)* it is not necessary to buy a commercial delivery engine such as Questionmark Perception; *b)* we have shown that the questions can be done on an Android mobile without any kind of network connection; and *c)* creating the eAssessment questions directly in QTI (as opposed to converting from Perception format) makes them more future-proof. We undertook to support the QTI eAssessments in the School of Electronics and

Computer Science as they are not supported by the University of Southampton/Bournemouth and Poole College IT departments at present.

To help address obstacle 5 we also exported the Spanish Language Perception eAssessments into QTI, so they can be run in any QTI-compliant delivery engine. Perception exports directly to QTI v1 and the JISC QTI migration tool then converts this into the current QTI v2 (specifically QTI v2.1). We note that as with many multi-stage editing and conversion processes, creating the QTI in as few transformation steps as possible helps create less verbose QTI. Verbose QTI can create a problem for tools that use this QTI, especially for question types other than multiple choice and multiple response.

To help further address obstacle 5 we wrote custom connectors that synchronise the eAssessment data in the Perception and Blackboard/Moodle (VLE) databases. We note that eAssessment technology interoperability is a known issue but by taking these steps we provided functionality to help simplify the process of moving the eAssessments to other delivery engines.

Addressing obstacle 6 ("choosing the infrastructure technologies to use") thus involved the following. For the Spanish Language module - choosing the standard university infrastructure including Perception and the Blackboard VLE. (Given that via QTI support, our recently developed tools and also the QTI migration tool it is significantly more interoperable than it used to be.) For Bournemouth and Poole College - since Perception is not available, this involved choosing QTI and our QTI tools. For both modules we chose to use the open source EdShare repository from the University of Southampton to store the questions and associated files in. EdShare is a free, user-generated, education and curriculum resource that allows lecturers to: a) post eAssessments, other exercise types, video and audio files, notes, worksheets etc; b) download materials created by others; and c) help new lecturers survive through their first few years of teaching by allowing them to use existing materials.

QTI v2 questions can be edited directly using a QTI editor (such as our web-based Southampton Eqiat QTI editor). The QTI questions are then combined into a QTI test, for example using our Constructr tool. The Perception/QTI eAssessment is done by a student using a delivery engine, for example the internal Perception or our QTI Engine, respectively. The eAssessment is typically stored in a repository (in our system EdShare), and given to the student via a VLE (e.g. Blackboard or Moodle).

We have found that the suite of tools discussed in this paper, combined with the support provided by the University (for Perception) and the School of Electronics and Computer Science (for QTI Tools), helps improve the usability of eAssessments for the lecturer. That is, we address obstacle 7 by helping minimise the number of tasks that need to be done manually. To help improve usability for the student, especially students with learning difficulties or disabilities (obstacle 3) we have: *a)* followed human computer interaction advice where possible (e.g. Preece, et al., 1994) and advice from our JISC LexDis project (Seale, et al., 2008) on making content accessible; *b)* conducted usability evaluations (with students with learning difficulties represented - see sections 5 and 6); and *c)* incorporated accessibility tools for students with access difficulties via our JISC TechDis ToolBar (Skuse, et al., 2010).

Another obstacle in the original system was motivating the students to take full advantage of it (obstacle 2). Improving the usability of the system and moving to the standard university supported infrastructure helped with this (see above). To further help address this we classify all eAssessment percentage marks via a red/yellow/green traffic light system and feed this information back to both the student (immediately) and lecturer (via Perception/QTI Engine reporting functionality). The lecturer can then work with the students to help minimize the number of students in the red for each eAssessment. This approach, combined with categorizing each eAssessment by subject, difficulty and question type, also helped to address obstacle 8 (how to present results from a significant number of eAssessments in a form that allows them to be understood and made use of in a short period of time). For example, the students can see the question categories they are getting red results in. In

addition in Web 2.0 fashion we allow students to provide feedback on, rate and help improve eAssessments. The final obstacle not yet discussed is obstacle 4 - writing high quality questions is difficult due to lack of examples of good and bad formative eAssessment questions, and associated guidance. To help address this we have extended the University's eAssessment training programme to include a workshop on pedagogically based eAssessment design. The booklet written based on the discussions at this workshop is available on the EASiHE website.

4. The Implementation

We have implemented a generic formative eAssessment solution using the design from section 3, targeted at the case studies from section 2. This involved configuring the software we and others have created previously so it functions in an integrated manner. It also involved creating new software. This section documents the solution, and our advice based on our experience.

4.1 QuestionMark Perception eAssessments

This sub-section describes the Spanish Language eAssessments implemented using QuestionMark Perception. The eAssessments are inserted into Blackboard as external web links. Figure 2 shows an example of doing an eAssessment, which requires viewing video media. In this example this involves watching a short news clip prior to doing the eAssessment. The students access the eAssessments from the course virtual learning environment (Blackboard) by clicking on the link on the menu bar on the left. The eAssessment questions are provided by the lecturer, although in "Web 2.0" style we have other case studies where the students have worked on both questions and feedback.

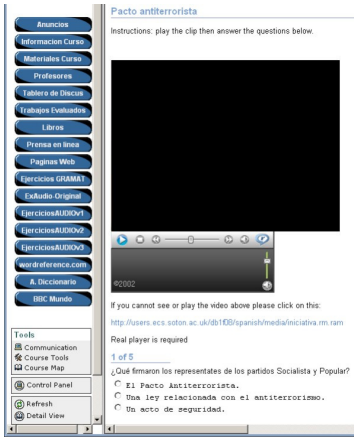

Figure 2: doing a Perception eAssessment on a PC via the Blackboard VLE

We recommend using images in the Blackboard pages to help encourage the students to do the eAssessment. We have also found that care must be taken to make sure that the video file is in a format that can be played on most web browsers. For example, video clips may be in Real Player format, but not all student workstations at the University of Southampton have Real Player installed. To help address this issue we are considering converting all videos so they can be played in a standard web browser flash player. We also note that the Perception fill-in-the-gap functionality is not as rich as that from other products such as Hot Potatoes. Figure 3 shows one of the original fill-in-the-gap eAssessments written in Hot Potato. Hot Potato fill-in-the-gap eAssessments can add the next correct letter to the current missing word when requested and give the student a lecturer-specified hint. In contrast adding this functionality to a Perception eAssessment involves a complex procedure.

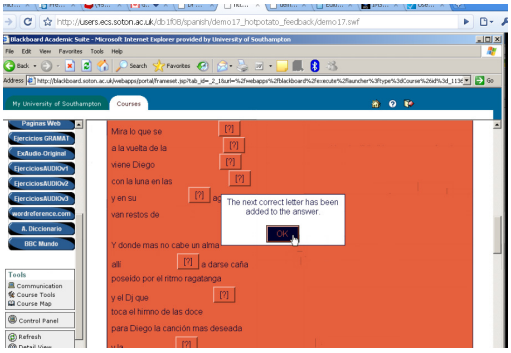

Figure 3: doing a Hot Potato fill-in-the-gaps eAssessment on a PC via the Blackboard VLE

Figure 4: perception feedback to the student

After the student has finished the eAssessment he/she gets feedback. As recommended in Gilbert and Gale (2007) the feedback is specific (both per-question and per-eAssessment), appears immediately, and is contingent on each student's answers. As shown in figure 4, this can be both per-question and per-eAssessment. The feedback includes new exercises for the student to do and encourages the student to create their own exercises.

4.2. QTI Tools eAssessments

This sub-section describes our QTI tools, which are used to create the British Sign Language eAssessments. These tools are built on the following underlying libraries from the University of Southampton:

- *JQTI* - the main library on which the other tools rely. It gives functionality including reading, parsing and interpreting QTI; programmatically constructing and outputting QTI; and validating QTI. JQTI is written in Java.
- *QTI REST API* - a RESTful web service interface for a remote application to access.

The following sections describe the main QTI tools used in the EASiHE project.

QTI Engine

This is an open source engine for playing IMS QTI v2.0 and 2.1 content. QTI Engine uses JQTI to handle QTI xml, and uses a completely customisable XSLT-based rendering solution to generate the rendered questions and tests. QTI Engine includes MathML support for Internet Explorer and Mozilla Firefox. There is also a Moodle plug-in, which allows the QTI Engine to run as a component in Moodle. This allows a lecturer to schedule a test (uploaded from the current machine, or imported); and for students to take the test as part of a Moodle module.

Mobile QTI Engine

This is a version of our QTI Engine delivery engine that allows eAssessments to be done from a (currently Android only) mobile device without a network connection. The Android QTI rendering architecture and tools have been built on top of JQTI. The mobile QTI Engine delivers an eAssessment consisting of an assembly of QTI items; and retrieves eAssessment results. Figure 5 shows an eAssessment in QTI format on the Android mobile phone emulator.

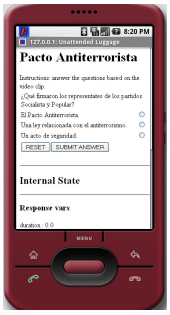

Figure 5: example screenshot for the Mobile QTI Engine

Eqiat QTI Editor

This is short for "Easy QTI Item Authoring Tool". Eqiat is written in PHP and is a web based QTI authoring tool with a focus on simplifying item authoring. Eqiat takes a "fill in the blanks" approach, sacrificing flexibility for ease of use. Further, the user does not need to have a detailed understanding of the QTI specification. Eqiat internally calls Validate to validate the QTI it produces. Validate is a small JQTI-based command line utility which validates QTI items, giving any errors or warnings as output. Eqiat supports a subset of QTI that in our experience authors are likely to use. Currently this is multiple choice, multiple response, extended matching item (a list of multiple response with a common stimulus and list of options) and question matrix (multiple true or false) item types. The items can be downloaded as XML files or content packages. A screenshot of Eqiat is shown in figure 6. Figure 7 shows our mobile-optimised QTI editor. This is an editor to author QTI items for mobiles, with a focus on Android mobiles. Currently we support multiple choice, text entry and hottext item types.

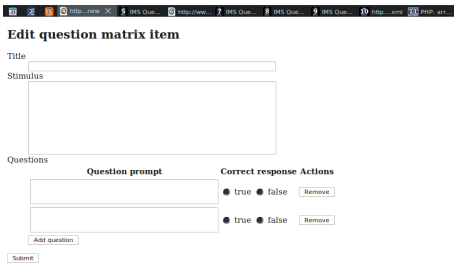

Figure 6: the Eqiat QTI editor

Figure 7: the mobile-optimised QTI editor

QTI Box

QTIBox is a plugin for Edshare which allows QTI content to be previewed from the repository view. A box appears on the abstract page of any share whose first document is seen to be a valid QTI XML file or QTI content package. Clicking the "play item" button uploads the item to the QTI Engine instance and then replaces the contents of the box with an frame pointing to QTI Engine's preview.

4.3. Tools for Giving the Lecturer Feedback on the eAssessment

The lecturer can generate a report on the students' performance on an eAssessment (or a range of eAssessments). This can be done using the standard Perception functionality or via the QTI tools functionality. Data that can be reported includes for each student attempt at an eAssessment: the student ID, the eAssessment ID, whether the student finished normally, the date and time, the total score and the student's answer for each question.

A "web 2.0" EdShare share can also be created for each eAssessment or eAssessment question, and linked to from the VLE. Figure 8 shows an EdShare page with a web link to a Perception eAssessment. Students can use this page to add comments on their opinion of the eAssessment or eAssessment question and also to rate it. Anyone who is authorized to view the share can view these comments. This allows a moderated discussion about the eAssessment to take place.

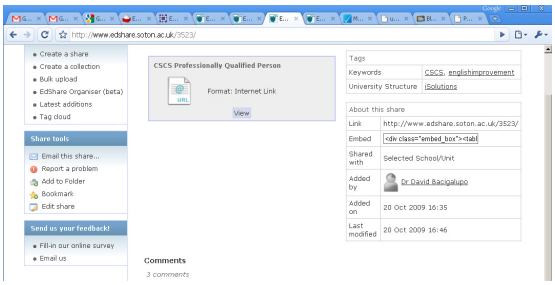

Figure 8: using EdShare to give feedback to the lecturer on the eAssessment

4.4. Accessibility for the Student

Students can use our JISC TechDis ToolBar to change how eAssessments look – for example to make them more accessible for students with additional education requirements (Skuse, et al., 2010). A 'lite' version is available that doesn't require installation. We note that using the toolbar alone does not guarantee accessible eAssessments. It is also important to design the eAssessment in an accessible fashion. For example keeping the layout single column and the use of English straightforward where possible, and not using complex HTML that could confuse the toolbar. For more information see the advice provided by our LexDis project (Seale, et al., 2008). Figure 9 shows the toolbar being used for a British Sign Language eAssessment. The toolbar has the following functions:

- A magnifiers button to increase or decrease the size of text;
- a font button to choose a different font for the text and to increase line spacing;
- a spell checker button;
- a dictionary button to give a Wiktionary definition for the currently highlighted word;
- a text-to-speech button to read out either the whole page or the highlighted text;
- a styles button to change the eAssessment web page colours to one of a selection of pre-set styles. This button also allows the web page colours to be fully customized, and for the colours the JISC Techdis toolbar is displayed in to be changed.

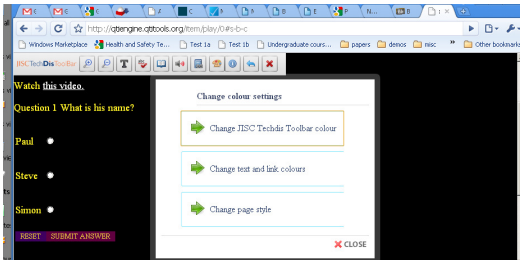

Figure 9: the accessibility toolbar being used for a British Sign Language eAssessment

Further information about the tools described in sections 4.1 to 4.4, and in many cases full source code download and screencasts, is available on the EASiHE website[1].

5. Pilot Evaluation

This section describes our pilot evaluation with Spanish Language students that took place from June to November 2009. The aims of this evaluation were to help guide us in the co-design and implementation processes; and also to help refine our evaluation technique – rather than to conduct a large-scale evaluation. The number of students involved was therefore kept small and each evaluation was conducted individually. This allowed us to go into more depth when discussing each student's opinions of the eAssessments.

The evaluation of the eAssessments was guided by Kirkpatrick (1998) and took place at level 1 (the reaction level); that is, the reaction of the student. Each student evaluation (taking 1-1.5 hours) involved: *a)* the interviewer explaining what is required; *b)* the student doing a pre-selected set of Perception eAssessments; and *c)* the students answering the evaluation questions (shown in table 1). The evaluation questions were decided upon after consultation with the module lecturer as well as learning technologists and the university CAA officer. Students on Spanish modules were invited to attend by the course lecturer, and a gift voucher was provided as inducement. All those responding to the course lecturer's email invitation who could attend the evaluation sessions were included.

Table 1: the pilot evaluation questions, answered on a five-point Likert scale

1. The exercises helped me learn
2. The exercises contributed to my general knowledge of what is going on in the Spanish speaking world
3. The exercises helped me learn new vocabulary
4. The exercises helped me improve my grammar
5. The system is easy to use
6. Compared to studying Spanish without any interactive exercises, I feel that the interactive video enhanced my learning
7. I would recommend that other modules or other languages courses provide some exercises like this

Five students were recruited to undertake the evaluation interviews. Three of these evaluations were conducted as described above. All these students answered "strongly agree" or "agree" to questions 1-5 and "strongly agree" to questions 6 and 7 - with the exception of one "disagree" response to question 6. All the students liked how the eAssessments helped motivate them in their independent learning. Dislikes included the material could be "more fun", and one student was "not a big fan of multiple choice". All students made comments implying that more care should be taken in classifying the difficulty of each eAssessment, as there are many factors (e.g. accents, student language background) that can affect this. We also asked two students to do a Perception eAssessment on a mobile device; both students found this straightforward and were positive about this experience. The final two interviews were about eAssessment accessibility. These highlighted technical requirements

[1] http://easihe.ecs.soton.ac.uk

such as the importance of being able to automatically change fonts, colours and background. Also, cultural/institutional requirements were highlighted. For example lecturers on other modules being more aware of accessibility issues, such as using accessible page templates and keeping page layout and structure simple where possible.

Overall, the student response to the eAssessments was positive, in particular in recommending that this kind of eAssessment be used on other modules.

6. Evaluation

The evaluation was guided by Kirkpatrick (1998) and took place at levels 1 and 2 (the reaction and learning levels). Students studying British Sign Language were invited to attend the evaluation by the course lecturer. Each student evaluation involved: a) the interviewer explaining what is required; b) the student doing a pre-selected set of eAssessment questions or eAssessments; and c) the students answering the evaluation questions. The evaluation questions were decided upon after consultation with teaching staff as well as learning technologists and the University of Southampton CAA officer.

The first part of the evaluation investigated what seven students thought of the individual eAssessment questions, accessing them one by one. The second part of the evaluation investigated what nine students thought of the eAssessments, each consisting of questions on a particular theme. Each evaluation question in Table 2 was answered on a five-point Likert scale (1..5). For each question, for each of the two parts of the evaluation, the mean point on the Likert scale was calculated from the student responses. For all questions this ranged from tending towards agree to tending towards strongly agree. The question of whether the mean response of the students was significantly better than 3 (no opinion) was tested by a Students t-test for each question. The results showed a statistically significant difference for all but questions 3 and 5.

Table 2: evaluation questions and results

Question		Mean eAssessment questions opinion	Mean eAssessment opinion
1.	The exercises helped me learn	3.9	4.0
2.	The exercises contributed to my general knowledge of British Sign Language (BSL)	4.0	4.1
3.	The exercises helped me learn new vocabulary	3.4	3.3
4.	The exercises helped me improve my receptive skills	4.4	4.3
5.	The system is easy to use	3.4	3.9
6.	Compared to studying BSL without any interactive exercises, I feel that the interactive video enhanced my learning	4.3	4.2
7.	I would recommend that other subjects/courses provide some exercises like this	4.0	3.4

7. Current Status

The EASiHE project is now in phase 3 (April 2010-April 2011)., which involves embedding the results of the project in the University of Southampton. Our conclusions at the end of phase 2 of the project were as follows.

- *Most significant lesson learnt on the Spanish Language case study* - a big challenge is how to manage the risk associated with introducing new types of eAssessment onto a module. If this is

not done correctly it is likely the module lecturer will not be able to embed the results in the module on a long-term basis.

- *Most significant lesson learnt on the British Sign Language case study* - we have learnt how to create a set of open source tools for lecturers to create, deposit and update eAssessments that include more than just textual information. Also, we have learnt how to overcome the challenges of applying our eAssessment tools and techniques in the context of an external institution.
- *How the University of Southampton and Bournemouth and Poole College have been influenced* - staff and students seem to have been impressed by the quality and effectiveness of these formative eAssessments. At a higher level, favourable feedback from our case studies has led to the leader of a University of Southampton assessment review panel seeking input from members of the EASiHE management team on a long-term basis.

It seems likely that, because the eAssessments have worked well, the School of Humanties at the University of Southampton, and Bournemouth and Poole College, will continue using these tools. It is also expected that their use will be extended into other curriculum areas. The EASiHE management team will monitor this during phase 3 of the project.

8. Conclusion

It is useful to have case studies from academic schools detailing how academics enthusiastic about formative eAssessment have used it in their modules. In this paper we have described the case of a Spanish Language module in the School of Humanities at the University of Southampton; and a British Sign Language module at Bournemouth and Poole College. We have described the co-design process (including learning technologists, the course lecturer, programmers and the university IT department) that we went through. We have described the generic formative eAssessment solution resulting from the case studies which can be positioned at the cutting edge of formative eAssessment practice. This uses both open source and commercial eAssessment software; provides support for QTI, accessibility and mobile eAssessment; and provides reporting and web 2.0 tools to give the teaching staff feedback on the eAssessment. We then evaluated this with student volunteers from both modules, receiving positive feedback. Future work includes helping embed the results of our work within the University of Southampton, helping increase the uptake of formative eAssessment within the University, and publishing the results of case studies we have conducted in other schools.

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