

Empowering Teachers to Author Multimedia Learning Resources that Support Students' Critical Thinking

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Abstract

Students studying Marketing, Fashion, Public Relations, Advertising and similar subjects need to develop a 'critical eye' in relation to images, media and digital technologies. This project aims to empower teachers to develop multimedia learning resources that would support students engaging in this essential activity. Developing such resources is usually demanding in terms of time and effort, and staff can be reluctant to take part due to their (perceived) lack of skills in using unfamiliar software. A key aspect is that the resources developed should act as 'open educational resources' (OERs) that could be reused and re-purposed easily by other teachers. An action learning methodology is followed to develop two learning resources, embed them in two different classroom contexts, and evaluate student reaction. The evaluation shows that use of the resources across a large module with over 300 students made a difference by the inclusion of theory in the students' written work and that use in a smaller classroom with international students assisted in overcoming cultural barriers of 'speaking out' in a discussion setting. The teachers in both class settings report that they, and their students, found these resources relevant, accessible and useful both inside and outside the classroom.

Keywords: design, student engagement, open educational resources, OER, GLO.

Introduction

The European Commission Report (2010:28) 'Learning, Innovation and ICT' comments that professionally produced and self-produced content is very expensive, and does not always exploit the opportunities of (Information and Communication Technology (ICT). Part of the Commission's solution is the recommendation of blending, where different stakeholders can come together to produce local solutions. Indeed, the New Media Consortium Horizons report (February 2012:5) comments, "The hope is that if learners can connect the course material with their own lives, their surrounding communities, and the world as a whole, then they will become more excited to learn and immerse themselves in the subject matter." However, Kouadri Mostéfaoui et al. (2012) note in their case study paper, "...it would seem that the integration of creative multimedia as a communication and assessment medium is only slowly taking place outside the constraints of disciplines traditionally viewed as 'creative'. For teachers, who perhaps do not have the skills, but have the passion of their subject knowledge to share, Online Communities of Practice are the perfect place where individual creativity and social creativity can generate a dialogue and give life to new Best Practices (Tosato & Bodi, 2011) . It is Open Educational Resources (OERS) that can offer possibilities of huge potential in the developing of creative materials, "as they can be used and reused by teachers and learners in a range of contexts; contexts of both formal, non-formal and informal learning, as well as contexts of both individual and collaborative learning in relation to both product and process" (Korsgaard Sorensen et al., 2011:3). Tosato & Bodi (2011) suggest that to address the constant changes and complexity of the information society, teachers should develop new skills: creativity, ability to survey and ability to learn in relation to peers, as well as be able to manage their knowledge as a social process.

Our case studies are located within this wider debate, in that the teaching of Business as a discipline has some way to go before acknowledging creativity as an important factor. Previous work by Holley & Dobson (2008) indicates that, when offered a series of interesting and challenging materials to work on inside and outside the classroom, students are far more likely to engage with the subject matter. There are particular challenges for first year undergraduate students who, as they make the transition from school or college to university, are faced with problems such as the move from structured study plans to independent learning. Such problems can be compounded by a potential misinterpretation of the subject area, and students may perceive the subject to be something quite different from what both academia and industry understand it to be. Fashion students need to be equipped with knowledge of key people, together with these key peoples' values and judgments in order to understand how these particular individuals' work has been promoted

over that of others (Marciniak, Holley & Davies, 2012).

To aid this transition, an early activity for the students on the module was to visit the Victoria and Albert Museum, with its international reputation as a museum showcasing art and design. Students were directed to its collection covering fashion and accessories from the 17th century to the present day. Feedback from the module team indicated that subsequent, assessed student presentations designed to draw upon the V&A museum collection for inspiration, lacked any critical reflection or insights into the design of the costumes, despite extensive briefing notes. The decision to develop and use multimedia resources had its origins in the work of the Centre of Excellence for Teaching and Learning for Reusable Learning Objects (RLO-CETL, 2010), where small 'chunks' of a curriculum, often the most problematic for students, were developed using underlying pedagogical principles embedded within the Glomaker OER software (www.glomaker.org); as well as the JISC OER programme (2010). The affordance of rich multimedia would appeal to members of a student body who were very aware of image and meet the teacher needs of being added to a packed curriculum without the need for huge redesign, and would be accessible to students both inside and outside the classroom via the Institutional Virtual Learning Environment (VLE).

This article first outlines the context of the study then briefly covers the technical specifications of the software package used. An action research methodology is used to explore the stages of design, development and evaluation of the two artefacts developed, and two different contexts for learning are reflected upon in the final conclusions.

Context of study

Following a full evaluation of the performance of the first cohort of Fashion Marketing students and their performance at the annual Awards Board, the Course leader identified a lack of critical thinking as a key skill that was underdeveloped in many of the students. However, in an already content focused curricula, there was little space to add yet more content, and so the wider team drew up a 'wish list' for working with the Glomaker team. The development team consisted of: the teacher; the RLO-CETL dissemination lead in the institution; a multimedia developer; and, the collections manager from the Women's Library, who was keen to disseminate the high quality resources from the collection. The wider team format had previously been piloted and evaluated by Greaves et al (2010).

We wanted the resources to be available as open educational resources that could be modified when being reused by other teachers, and also because fashion changes rapidly. The team also wanted to scaffold the student learning earlier in the module, but have an attractive and inviting resource available to those who may have joined the course late. (Having a high proportion of international students, visa issues were common in delaying a student's start date). The Business School hosts students from 150 different countries (London Metropolitan University, 2011). In the student body are many mature learners (many with children) who are returning to education and international students who do not speak English as their first language (Bradley & Holley, 2010). Most students also now work to fund their studies. Hence teachers were actively seeking strategies to engage learners both inside and outside the classroom within the blend of learning activities offered.

It was decided to develop the resources as open educational resources (OERs) to maximize their flexibility and impact. The study benefited substantially from the work of the Centre for Excellence in Teaching and Learning (CETL) in Reusable Learning Objects which had developed and released as OERs over 200 multimedia learning objects (see RLO-CETL, 2010). The RLO-CETL also developed an Agile project development approach to support staff in developing these resources (Boyle et al., 2006). This Agile approach empowers collaborative groups to create rich multimedia resources. Teachers play a central role in these groups, often working with students, and supported by a multimedia developer. The development process usually starts with an intense workshop where initial ideas are suggested, discussed, and developed into an outline storyboard. The multimedia learning objects are then developed iteratively through a series of prototypes which enable communication between teachers and developers to ensure a convergence on the pedagogical solution envisaged by the teachers.

However, while the Agile development approach worked very well, it was difficult to scale up in terms of numbers of objects. The requirement for a multimedia developer in each group produced a bottleneck, as there was limited access to the developers. The RLO-CETL had thus developed an authoring tool, GLO Maker (GLO Maker, 2011) to enable teachers to develop their own multimedia learning objects.

GLO Maker is specifically designed to enable teachers to develop rich, adaptable learning resources. Version 2 of the tool was released in August 2009. It is an open source and free for educational use. The tool produces generative learning objects (GLOs). GLO Maker 2 has been used to develop reusable learning resources at a number of educational institutions (e.g. Greaves et al., 2010). It was used for this project because it enables staff to rapidly develop multimedia learning resources with minimum technical support. The tool enables a teacher to move from a text-based underlying learning design through to a full multimedia learning object or GLO. Teachers are encouraged to release their GLO as OERs; the format of GLOs enables relatively easy adaptation of GLOs by local teachers. Full guides on how this is achieved, together with sample generative learning objects, are available on the GLO Maker website (GLO Maker, 2011). Following Devlin & James (2003) there was an expressed desire for the work to feed into the

University e-learning strategy.

Method

An action research methodology (cf Norton, 2009) was followed in undertaking this project. Action research can cover a wide range of research paradigms and processes, and this work draws upon what Norton (2009:51) identifies as 'the British tradition' in that it links research to improvement of practice and is education orientated. Action research offers many possibilities to the practitioner; indeed, "it promises action on the problem, learning for the participants and, if they can be encouraged to write up their experiences, 'accounts of practice' which can be telling contributions to research reports (Pedler & Trehan, 2008: 204). However, Norton (op. cit.) cites Roulston et al. (2005:182) who point out that although the teacher as researcher has long advocated teachers being involved in educational research, academics tends to critique such work and it is frequently left uncited in academic literature. This theme is addressed more broadly by Denzin's (2008) analysis of the politics of evidence, in which it is shown that by Governments' and other powerful institutions' insistence on methods and methodologies of quantitative inquiry that, "a narrowly restricted view of what counts as knowledge is imposed on research" (Satterthwaite in Denzin, 2008:ix). Satterthwaite argues that locating this work within the scope of a deliberate, solution-orientated investigation, as advocated by Kemmis & McTaggart (1998), which is characterised by spiralling cycles of problem identification, systematic data collection, analysis (covered immediately below), and reflection, data-driven action and problem redefinition (which form part of our conclusions), that the work can be recognised as theory based, relevant and improving classroom practice.

Problem identification, systematic data collection and analysis

A series of introductory staff development sessions were held across the Business School, where the GLO Maker tool and the resources available from the Women's Library were showcased. The fashion team was immediately attracted to the idea of creating some bespoke materials for its students, as the new BA Fashion had recently been launched; feedback from the initial cohort of 90 plus students was that they wanted much more fashion-orientated module content. The challenge for those delivering such courses is to ensure that the needs of industry are met and, in doing so, ensure that students understand that the subject, which is informed by aesthetics, anthropology, psychology, linguistics, sociology and cultural studies, is given the gravitas that it deserves as opposed to something that is merely frivolous and fun, wherein enthusiasts are only informed about fashion through the pages of Vogue, Elle and other glossies (Marciniak et al., 2012) pedagogical affordances of the GLO Maker authoring tool make a useful starting point for teachers seeking to develop a small but highly significant part of a curriculum. The Women's Library at the University were also concerned that their materials, recognised and visited by both national and international scholars, lacked visibility in the hosting University.

Data collection leading into artefact design

A one-day workshop was offered at the Women's Library, and a cross section of staff from across the University attended. The teachers were requested to bring any documentation relating to their course that would assist the informed development of the artefacts. For the purposes of this paper, the focus remains on the Fashion materials, but a total of four other projects were developed using the Agile design principles and GLO Maker, including teams from Education, Sociology (a Life history resource), Computing and the Library. The Agile design principles were applied, and the day started with a demonstration of the GLO Maker tool and an overview of the huge range of resources available from the Women's Library to assist academics with developing their projects. The teams were formed into cross disciplinary groups in order to brainstorm, and a GLO Maker expert/multimedia designer worked with each group to provide technical assistance. The Women's Library team had a presence at all times and acted to 'fast track' access to source materials at critical development points.

Teachers identified the key issue with first year fashion students as a lack of criticality in evidence terms of image, and also a lack of understanding of the need to engage with theory. Artefact 1 (Figure 1) started with the team considering various ways in which the students could interact with the materials on offer and the best combination of scaffolding student learning to work through a resource. There were critical discussions about: the theories to be introduced; the language and terminology to be used throughout the resource; the 'right' amount of interactivity; the mix between audio and text; the most effective features of the GLO Maker pedagogical patterns to design with; the images to be used (some compromise was needed in terms of copyright); the balance between the module teachers' desire to design an artefact that could be utilised across the whole of the first year student body; and, fashion teachers' desire to have a bespoke resource for the fashion cohort. Rapid prototyping took place in terms of developing storyboards and by lunchtime the teams had presented their initial ideas to the whole group for peer review and critical comment.

In the afternoon, the teams reassembled into their subject specialism, and the morning storyboards started to be moved across to the GLO Maker. By the end of the day, there were four prototypes (one per team) mapped out, and placeholders signposted to indicate where text and/or images still needed to be provided.

A final review took place, and the offer of continued sourcing of appropriate materials was made by the expert librarians from the Women's Library.

Analysis of workshop

Staff data and feedback was required to evaluate how well the workshops were being run, and also tracking was needed to follow the developments of the GLO Maker objects into the curriculum. The staff data were collected via the paper plans of the objects the team developed in workshops, following best practice from the RLO-CETL; additionally field notes of conversations were made during the workshop and in conversations afterwards. The analysis of the workshop fed into the design and running of a series of OER workshops now offered by the RLO-CETL to higher education institutions nationally (Glomaker wiki gallery, 2011).

Artefact developed: "The theory of erogenous zones"

The 'theory of erogenous zones' aims to encourage engagement and critical thinking about how "erogenous zones" are used in fashion marketing. This multimedia learning resource starts with a series of moving images showcasing dress from three different decades. This 'splash screen' attracts attention, and encourages the user to 'click' further to the next screen. The navigation at the foot of the page clearly shows the number of pages, thus it is clear that this is a task limited to a number of 'pages', a clear request made by students. Three multiple choice question tasks follow, to engage the user. The theory page (number 7) is designed to enable the learner to come to a stop and listen to audio files, and read the supporting text files if desired. The Mary Quant mini skirt image is a fashion icon, and certainly fashion students would recognise the image as an iconic fashion photograph. The following three pages 'test' students' understanding of the theory they hear, and the final page simply signposts further reading. These multiple clues, both oral and visual can lead to successful language acquisition (Halliday, 1975).

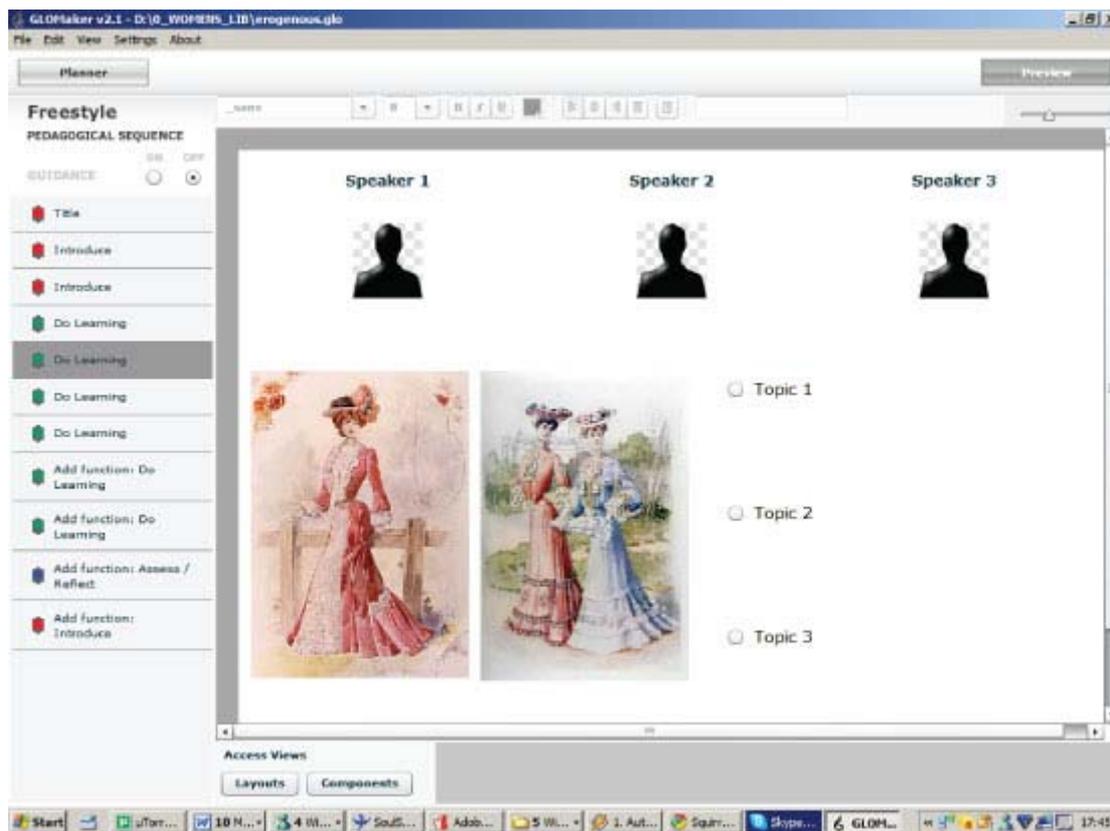


Figure 1. Artefact Developed: "The theory of erogenous zones"
Available online at: http://www.glomaker.org/samples/MarketingFemaleForm/GLO_Player.html

Evaluation and further development

Student formative feedback

After the workshop, the prototype of 'marketing the female form' (working title of artefact 1) was shown to a single Fashion marketing seminar group for critical feedback. The students commented that having a title such as 'marketing' was dull, and they would be unlikely to explore a resource labelled in this way

independently in the VLE. The students then came up with the title of ‘Theory of Erogenous Zones’, saying that they would automatically click on a link with a more interesting title such as this. The students were also keen to have ‘extra’ images in the GLO, for example showing other examples of historical dress, and an extra page (number 6) was added showing example images of 18th, 19th & 20th century dress. Another request was for the GLO to scaffold student writing; however, the teacher and students together agreed that to add still more to the existing GLO would tip the balance from short and really interesting to overlong and attempting too much with one artefact.

Student summative feedback

The ‘Theory of Erogenous zones’ was embedded within the VLE for use in the third week of the semester, the week before the visit to the V&A museum. It was embedded for both fashion students and the wider cohort, comprising public relations, advertising, retail and marketing students. The wider cohort had their visit to the Tate Modern museum, and teachers showed the GLO Maker resource prior to the visit to the museum. Thus the GLO was showcased to around 300 first year students, by 15 different teachers in class, and available for students to revisit in their own time. Web statistics are not sufficiently sophisticated to show access to the individual pages, but teachers commented during the marking process, when students wrote a 500 word ‘patchwork’ text on their museum/art gallery visit there was a ‘significant difference’ in the quality of writing, (Smith et al, 1999) in that far more students had incorporated the theories incorporated into the artefact (Fluger, Laver, Steele & Wilson).

Subsequent student feedback in three of the seminar groups (run by Holley) saw the students requesting a resource that would enable them to write and structure their writing outside the classroom. For the next semester, the Women’s Library Collections Manager sourced a range of ideas around a brief developed by students and the teacher (Holley), and finally a collaborative decision was made to develop a theme on ‘Josephine Butler’.

Second artefact: “Josephine Butler”

The second artefact – ‘Josephine Butler’ – was developed ready for testing in the second (spring) semester, and aimed to address the students’ comments about having an interesting and interactive resource that they could use outside the classroom to start to develop their writing. The teacher still wanted an element of critically, ie getting the wider student body to develop a ‘critical eye’.

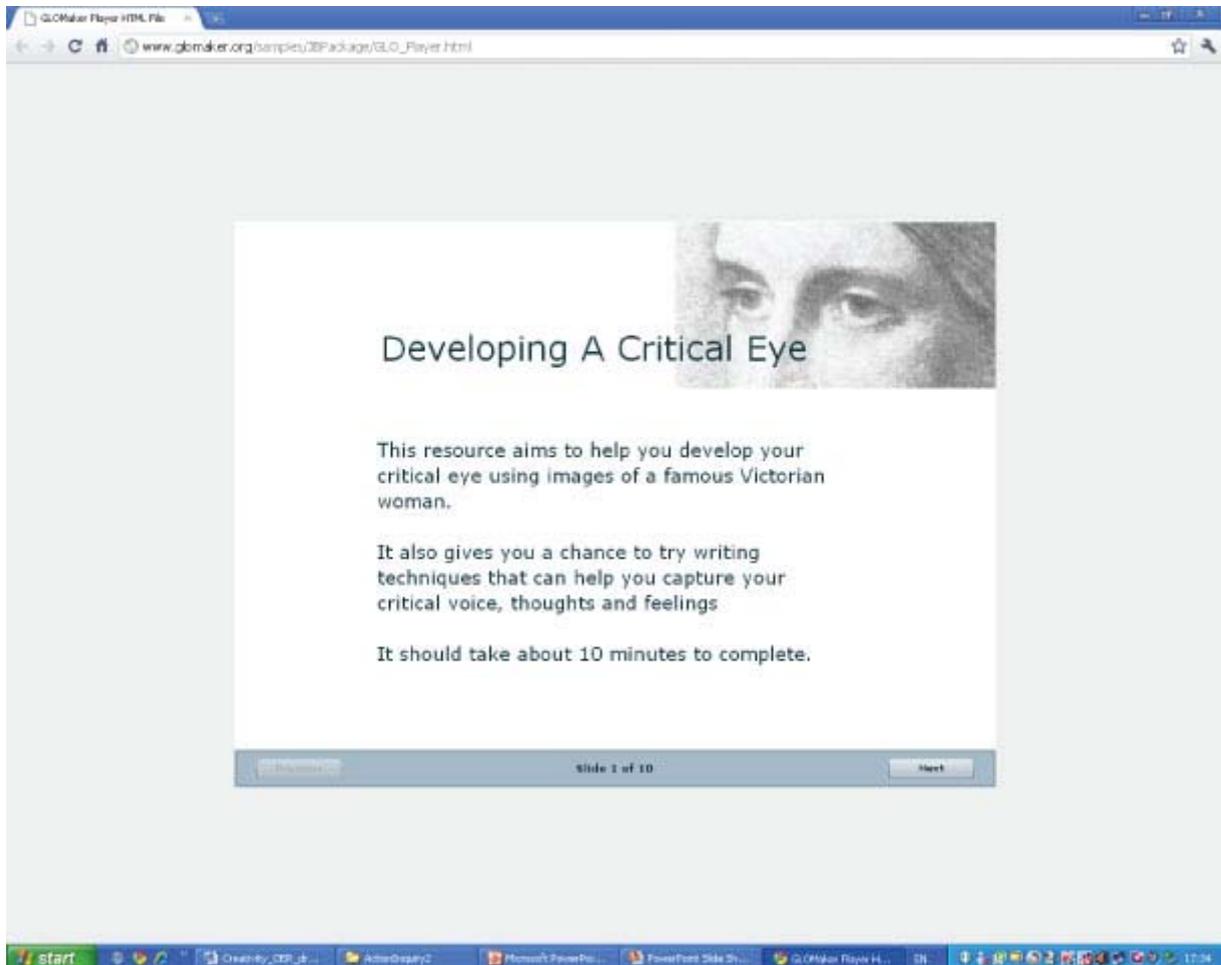


Figure 2. Second Artefact Developed: “Josephine Butler”

Available online at: http://www.glovermaker.org/samples/JBPackage/GLO_Player.html

Josephine Butler was a remarkable woman, a feminist and a libertarian who campaigned against the Contagious Diseases Act of 1864 and was influential in raising the age of consent from 13 to 16. The images we selected show her portrayed as a demure, modestly dressed woman of her time, a real contrast to the passion shown in her work and her writing. We were able to reuse resources with permission from the Women's Library, and this GLO features extracts from "A Women's Guide to Changing the World", a film made by students from schools in the East London Consortium with filmmaker Mary Mullen in 2007. To develop this GLO, the module teacher built upon the ideas for the 'erogenous zones' project, mapped out the Josephine Butler GLO using the GLO template, and emailed the outline to the Resources Manager at the Women's Library. Several discussions ensued, and a range of images obtained, two of which required specialist copyright clearance. The services of a multi-media developer were required to develop the video clips, but this was a relatively small task compared with creating a range of animations with a developer using Flash, for example. The design principles around language, tone, style and pedagogic practice had already been debated in full with the first artefact, and positive student feedback obtained.

Student summative feedback in semester 2

The Spring semester intake of students consisted of a single Fashion Marketing group of 30 who first saw the 'theory of erogenous zones' in week one of the semester, followed by scaffolded writing tasks and working through Josephine Butler in week two. The group asked questions about the development of the two artefacts, and were very positive about their use in class. In the end of module evaluation (where the teacher asked for feedback with the use of post-it notes for 'one good thing; one bad thing') six students mentioned the artefacts specifically as a positive; a further nine identified high quality materials/support on the VLE; and negative comments were mainly confined to administrative events outside the control of the module leader.

Evaluation of Reuse of the Resources with International Students

A presentation on 'The theory of erogenous zones' at a staff development session led to a teacher requesting their reuse as part of his teaching for a group of 40 International Foundation Students, and thus reused for language development. Re (use) of the artefact in a very different setting and for a different purpose generated very different reactions. The teacher commented,

"In the large module, there was a similar gender split ie mainly female students with a small number of male students. Culturally both my groups had a diverse range of students from different cultures and backgrounds. However, the reaction of the large group cohort to the RLO was well, the only word I can use is 'stunned' by the creativity and design and beauty of the materials displayed, especially with the erogenous zones GLO, and their comments were very much along how this would feed into their planning and design.... It was interesting that a male student in the smaller group felt able to disagree and to voice his opinion, despite being in a minority of one giving negative feedback."

The teacher introduced the existing 'Erogenous Zones' to the small international group, and used it to scaffold a series of language activities. In the process, feedback was obtained from a diverse international study body. All names have been replaced, but nationalities are accurate. Broadly, the students appreciated the images and the scaffolded activities, as these two extracts from student comments indicate:

"Slideshows about this subject were organised well and presented the topic in an interesting way by beautiful illustrations. The 3 different theorists were also fascinating." Rasa (female) Lithuania age 23

"I liked that quiz, it's clear to understand. Women's fashion is changing all the time. At the time of the pictures it was really restricted to emphasise particular parts of the body, which looks very nice but a lot of effort and even pain comes with that amazing look. To emphasize their waist women needed to tighten it really strong, so for me women's fashion is very interesting but sometimes it's hard to believe in that effort." Jacek (male) Poland age 21

In a university setting where students mainly come from homes where English is not their mother tongue, it can be problematic for staff to overcome shyness, cultural reserve and lack of confidence in speaking out. Although technology has been used to offer ways in which to encourage full class engagement, this tends to be use of mobile technologies (see Bradley & Holley, 2010; Bradley et al., 2010). The teacher, experienced in working with international students, used a variety of paper-based and online resources to encourage the students to contribute orally in class, examples of which can be found in the LearnHigher CETL resources on student writing (www.learnhigher.ac.uk) and groupwork (www.learnhighergroupwork.com). The pedagogical pattern behind the artefacts enabled students to think and consider their points of view and to offer these freely – most unusual in the experience of the teacher. He commented:

"There is something about the way in which these two GLO resources speak to the student."

My conclusion is that it is not just the creative design, but the pedagogic rationale underpinning the design..."

Our action learning project conclusions have been framed around the final sequences identified by Kemmis & McTaggart (op. cit.): Reflection and Data-driven action, and Problem redefinition.

Reflection and Data-driven action

The project, facilitated by RLO-CETL as part of its 'host institution' dissemination strategy, was clearly welcomed by the student body in both the larger 'Fashion' course and in the International Foundation Student programme. The study started with the problem of engaging students in a critical reflective way in their study of Fashion. Teachers engaged in a collaborative development to develop rich online resources to support this process. Both the teacher feedback on the development process and student feedback on the complete resources were very positive. Teachers report student writing that draws upon underpinning theory presented in artefact 1, the theory of erogenous zones; and the use of artefact 2 as a medium for discussion has enabled students from different cultures to express an opinion. However, in terms of data, more sophisticated tracking of student use inside and outside the classroom is needed, as well as a mechanism for identifying staff barriers to engagement with the project outside the workshop.

Problem redefinition

Developing bespoke materials for students working in cross disciplinary and discipline based teams with specialist librarians to enable rapid prototyping is a very effective way to work. The Learning Objects are very small and engaging, and this is part of their success with students. The project was thus very successful in engaging teachers in a creative development process that led to valuable resources, with the resources themselves made freely available for reuse and adaptation. The use of a tool specially designed to produce OERs (GLO Maker) enabled teachers to produce resources that are broadly reusable beyond the initial target student group. The teachers were thus enabled to produce resources that are reusable and adaptable as well as pedagogically rich.

A clear limitation of the study is the way in which, although reuse in different learning contexts occurred, repurposing of the objects did not happen – despite all the tools being OER, pedagogically driven and simple to repurpose. In terms of an action research methodology, clearly at the data gathering stage staff attitudes to engaging with the technology needed to be captured and post project tracking would undoubtedly assist in exploring which ways would most effectively enable staff to repurpose OERs for their *specific* groups of students. With the time lapse between the project design and its evaluation, it is easy to see the assumption being made that a member of staff being willing to engage in a workshop setting did not equate to action outside the scaffolded setting. To really leverage the power of these kinds of OER software developments, the students need to be at the centre of the process, for example as peer reviewers; or for academic staff to value and assess student work in a different way, for example enabling students to develop their own GLOs as a way to demonstrate matching Learning Outcomes to practice for assessment purposes.

To conclude, although staff were able to access pedagogically sound, free OER resources for use, reuse and repurposing, in reality the project only delivered on the reuse in different learning contexts. Thus the title of the paper 'empowering' teachers to author (ie. customize) for their own specific classroom contexts has not, as yet, been delivered. A more accurate description of our action research project is that it encouraged staff to consider repurposing, but a short term solution was to simply reuse. Further work is needed to identify barriers to repurposing with the individual staff, and to develop ways of scaling up the agile learning design and inclusion of OER resources across the wider institutional context.

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