Embedding Open Educational Resources in Research Methods Teaching in Education, Social Science and Criminology

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Introduction and context of the study

Funded by the Support Centre for Open Resources in Education (SCORE) this project aimed to explore the role of open educational resources (OER) and open educational practices more broadly in supporting the teaching and learning of research methods within several subject disciplines. The study was situated within Doncaster College, a large, mixed economy (HE in FE) college where the majority of the HE provision is at full degree and postgraduate level, however also involves work-based learning qualifications such as Foundation Degrees.

Access to HE

Historically, as the HE provision at University Centre Doncaster sits within a further education context, there has been an emphasis on extended face time with students and the introduction of blended learning and the open learner premise (McAndrew, 2010) are relatively new concepts which are currently beginning to evolve within the institution. It can be argued that the transition towards more open practices in education, where the learner is positioned in a *'wider open world of free access where the learner finds themselves'* (McAndrew, 2010, p. 9) and the tutor increasingly participates in the open sharing and reusing of teaching materials, is essential for learners within University Centre Doncaster. One of the reasons for this is that a significant proportion of the student population consists of mature students in work, who require more flexible forms of delivery. A significant and increasing part of the delivery to foundation degree learners for example,is managed through e-learning provision, including a mixture of VLE participation and personalised learning through the use of e-portfolios. As these practices are evolving and are fairly new to both staff and students the move towards open practices in teaching and learning which underlies any form of e-learning provision needs to be carefully considered and supported.

A further aspect to consider where students' access to HE is concerned is the demographic profile of the institution. University Centre Doncaster is situated within an area of North England where economic levels are below average with pockets of severe deprivation (Appendix 1, HE strategy). In 2011 Doncaster was identified as a 'black spot'for high levels of young people not in education employment or training (NEET) (Woods, 2001). This impacts on learners' access to higher education and learning resources. These factors define a clear need for sustainable, flexible and accessible forms of education, such as openness in academic practice strives to deliver (Hilton, Wiley, Stein and Johnson, 2010). Content which is open for adaptation and reuse for tutors and available free of charge for learners enhances the

opportunities for the student population to access a good quality educational experience and for staff to facilitate this access.

Challenges of research methods teaching

A key motivator for exploring open academic practices for the project emerged from the challenging nature of research methods teaching. UCD's HE strategy reflects the ESRC and HEFCE drive towards better preparation of undergraduate students with a research methods foundation (MacInnes, 2009). The challenges in achieving effective teaching and learning in research methods have been explored in the literature as grounded both in the students' understanding and the staff's preparedness to teach both qualitative and quantitative research methods. This is even more likely to be the case where an HE in FE learning and teaching context is concerned. As outlined by HEFCE's Good practice guide on supporting HE in FE colleges, the key purpose of HE in FE is to deliver and develop higher level skills, amongst which are research and independent learning skills, particularly to learners accessing higher education through the widening participation route (HEFCE, 2009). However there is a recognition of the issues with knowledge and expertise where research skills are concerned*:*

'FE staff may not be exposed on a daily basis to institutional debates on research… Partner HEIs may offer free standing modules or workshops on research methods, or could be invited to present a workshop to introduce staff to current discourse on research approaches and methodology' (HEFCE, 2009, p.29).

Within this there is a clear need indentified for external knowledge and expertise as a way of enhancing practice in research methods teaching in an HE in FE context. Besides the visiting lecturer approach identified here by HEFCE, it can be argued that open practices, dialogue and sharing of practice by academic staff could play a significant and positive role in addressing these needs.

In addition to continuing professional development needs for staff and good quality provision for learners, the research methods teaching context itself lends itself well to development through open practice. Research methods teaching is complex as an area of academic practice, involving a combination of theoretical/ conceptual understanding and practical skills acquisition within the learning process. Within UCD, social science research methods are applied across disciplines as diverse as Education, Early Childhood Studies, Sports and Exercise Science, Applied Social Sciences, Psychology and Criminal Justice. The theoretical and skills knowledge base therefore is not subject specific, rather it acquires specificity through the examples, data, overview and presentation which the tutor brings to bear on the academic delivery of the subject. Therefore, the possibilities which OER offer to revise and remix content as defined by Hilton et al. (2010) are essential for allowing the tutor to firstly reuse

resources containing the common core content of research methods OER available and secondly revise and remix these to provide the subject specificity necessary to engage learners. As some of the findings of this study indicate further on, the capacity of the tutor to contextualise the OER available emerges as the key role of the tutor who adopts open academic practices. This is also indicative of how the tutor role of teaching with OER is evolving away from the development of content and towards the design of the learning experience (LDSE, 2011).

A different set of challenges relating to pedagogical issues with research methods teaching face the learners. Edward and Thatcher (2004) highlight the mode of delivery and the students' ability to understand and apply theoretical concepts as two of the key challenges which learners face in their study of research methods. On this basis the authors propose an approach to research methods teaching which involves developing high quality resources to supplement theoretical understanding and seminar-based, student centred face to face sessions.

The issue of students' understanding and application of research methods concepts can be explored further through Land and Meyer's definition of troublesome knowledge (2010). This theory provides an insight into the challenges which learners may be facing in learning research methods and offers possible approaches to addressing these challenges. The authors define troublesome knowledge as *'when what is to be assessed lies outside their prior knowledge and experience'* (2010, p. 62). In these situations students may experience *'liminal'* or '*stuck'* places (2010, p. 63) which they will find it difficult to move beyond. It is possible to relate this definition of troublesome knowledge to the learning of research methods, which can involve complex theory and abstract procedures which are outside of the learner's immediate experience and are therefore difficult to internalise. Land and Meyer propose the need to use threshold concepts in context and to further support these with *'discursive resources'*(Land and Meyer, 2010, p. 70) which would act as stimuli in the process of understanding the threshold concepts. These stimuli should offer opportunities for the learner to *'think like a researcher'* and engage with the conceptual language of the discipline (2010, p. 71).

It is possible to see a clear role of OER in addressing the difficulties of research methods teaching if we look at this subject as a source of troublesome knowledge. Open resources online often offer a mixture of interactive, discursive and adaptive elements (Laurillard, 2002), and can thus serve as stimuli to support the understanding of threshold concepts. The requirement for situating concepts within a relevant context can be found through the use of real world open data, such as is accessible from the Economic and Social Data Service (ESDS). There is increasing evidence that large scale research surveys, in their search for opportunities to disseminate findings more broadly, are making data openly accessible to the HE sector for reuse in research and teaching contexts (Growing Up in Scotland, 2012).

Within this project therefore, using a combination of opportunities including open data, and interactive OER, was seen as a way to engage research methods tutors at University Centre Doncaster in developing open academic practices, and a way to support learners more fully in their mastery of research methods theory and practice.

Aims of the project

Based on the context and pedagogical needs outlined in the introduction, the aims of the study involved the following:

- Raising awareness of UCD staff of the value of OER, through actively involving staff in the evaluation and embedding of OER in academic practice
- Working towards the embedding of OER in teaching practice across several disciplines, with a focus on research methods skills and knowledge.
- Developing an understanding of the elements of the changing learning blend where OER are introduced. This includes understanding learners' needs and preparedness for OER as well as exploring the use of online and physical spaces and forms of dialogue to support the use of OER.

Methodology

An action research framework was adopted within this project to reflect the change oriented nature of the project's aims. Reason discusses participatory forms of action research which aim to both *'produce knowledge and action directly useful to a group of people'* and *'…to empower people… through the process of constructing and using their own knowledge…'*(Reason, 2001, p.182). As the project's aims were primarily to engage staff in open educational practices in their research methods teaching and to support them in developing approaches to embedding OER in teaching, the action research approach involving the production of knowledge and the development of academic processes which enhance ownership of this practice was highly relevant here. The author further discusses action research as collaborative and 'research with people' (Reason, 2001). The benefits of this form of enquiry are in knowledge having a firm basis in human ways of knowing and experience. The collaborative ethos of action research was implemented within the project to support each participating tutor in enquiring into their own teaching practice and judging the value and place of OER within this – thus each participant was also a researcher themselves. This approach is also known as cooperative enquiry or second person research (Reason and Heron, 2006).

The level of third person research involves communicating the project's aims, outcomes and recommendations with the broader institution (Reason, 2001). This aspect was addressed

most fully through the dissemination of the project's outcomes – while the project's activities were located with research methods teaching staff and contained within the school of Humanities, Education, Social and Sports Sciences (HESS), the outcomes of the study were disseminated through presentations and staff development sessions to all academic staff at UCD, to HE management and to specific task groups including the Teaching, Learning and Innovation Task Group. This enabled a broader dialogue and a broader awareness of how to implement change at different levels including technical and strategic management.

OER evaluation by tutors

Three research methods tutors participated in the study from the disciplines of Teacher Education (postgraduate level), Applied Social Sciences (undergraduate) and Criminal Justice (undergraduate). Each tutor explored a range of research methods OER and chose five of those for an in-depth evaluation. The evaluation was conducted through a detailed questionnaire followed by a semi-structured interview. The questionnaire questions were derived from considerations of pedagogical effectiveness and pedagogical responsiveness of reusable learning objects identified through the Learning Object Attribute Matrix (LOAM) (Windle et al., 2010) and the motivation, technical and quality implications of reuse identified by the ORIOLE project (Pegler, in press). The areas explored through the questionnaire and subsequent interview are indicated in Table 1. The subsequent interviews focused on discussing in more detail the responses from the questionnaire. The LOAM tool was also useful as a way of visually mapping out the pedagogical attributes of the OER evaluated, thus adding a layer of visual analysis to the evaluation.

OER attribute explored	Research questions
Quality	How would you qualify the resource Would you use this OER as part of research methods (RM) teaching
Flexibility	Can the OER be adapted to the purposes of your RM module? What would this adaptation involve?
Interactivity	Does the OER encourage/afford for students to collaborate? Does the OER afford dialogue between learner and their community? How should this be supported?
Constructive alignment	Is there a match between the OER content and specific learning objectives? Which ones? Briefly describe the framework for teaching and learning and the use of the OER within it.
Pedagogic effectiveness	Does the OER facilitate learners in internalising knowledge? Would learners be able to use the OER autonomously (little introduction or explanation from tutor)? Does the OER address broader learning needs?

	Does the OER provide access to resources which you would not usually be able to provide?
Tutor's role	Would using OER save you time in creating new content? Would OER be able to supplement content where you perceive this as weaker?

Table 1. Research questions

In order for participating tutors to be able to evaluate research methods OER a collection of existing OER was set up through Cloudworks (http://cloudworks.ac.uk/cloud/view/5548). Initial conversation with staff revealed that there was little prior experience of accessing OER through repositories, therefore selecting the resources under a broad 'research methods' focus and making these easily accessible for the participants, was a necessary scaffolding step. More importantly however, the evaluative questionnaires required tutors to explore aspects of OER which were pedagogical, technical and related to quality as outlined within the ORIOLE project (ORIOLE, 2012). Thus the collection of OER for evaluation had to represent a range of resources with different levels of granularity (big significant resources and small bits of content, ORIOLE, 2012), as well as different levels of context specificity, adaptability and interactivity. The resources were therefore carefully selected to reflect this range of pedagogical and technical attributes and allow tutors to make choices which would be appropriate for their own learning contexts. The reasoning which tutors applied to these choices would be a basis for understanding barriers and enablers for adopting OER, as well as giving an insight into the needs of tutors in designing the learning experience. Tutors were instructed to select three examples of OER which they found particularly useful for their research methods teaching and two examples which they thought were interesting but would not use in teaching.

Focus group interview with students

Following the evaluation by tutors, each tutor selected a range of OER to introduce and embed within their research methods delivery (Appendix 1). An interview was conducted with one of the student groups exploring their perspectives and experiences of using OER as part of studying research methods. 7 students from the BA Hons Applied Social Sciences programme, studying Social Science Research at Level 5 took part in the interview. The interview questions explored learners' experiences of studying research methods, difficulties around access to resources, the value of open access resources, the OER introduced specifically in their taught sessions as a result of the project (Table 2).

Aspect of teaching and learning explored	**Research questions**
Challenges of learning research	How do you feel about studying research methods? Do you enjoy it, are

methods	there any parts that are difficult?
Resource provision for RM teaching and learning	What do you think about the resources available for the research methods modules – do you have access to enough resources? What kinds of resources do you use? Is there an area of research methods where you feel you need more tuition and guidance? Is there an area where you feel you could do with more/more versatile resources? How do you feel about the online resources available from the LRC – academic journals, Ebrary books? Are they accessible/ do you use them? Are there any advantages or drawbacks to using these resources rather than printed textbook material?
OER use strategies	How did you use the OER - was it in the session or as self-directed learning at home? Which do you think was more effective – using the resources as self-directed learning or within the taught lecture?
OER interactivity	How did you feel about the interactive exercises on the online QDA website – did you learn from these?
Effects of OER use on ability to work with NVivo	What are the challenges of using NVivo? Were you able to apply your theoretical knowledge to the practical analysis with NVivo? What helped with this transferring theoretical knowledge to practical tasks such as data analysis?

Table 2. Student interview questions

As the specific OER used in this instance was Online QDA, there was a further focus dictated by the content and aims of the resource, which was on the extent to which the resource helped with understanding principles of grounded theory and applying coding techniques in qualitative data analysis with NVivo. The last set of questions sought to explore the effects which using OER had had on learners' ability to work with NVivo and apply the concepts and procedures of grounded theory. Learners were not asked to comment on OER directly here, but to discuss resources and provision in general which had supported them in this aspect of their studies. Any mention of OER here would be indicative of their pedagogic effectiveness.

Data analysis approach

The small number of participants in the study necessitated an overall qualitative approach to the analysis. The questionnaire's multiple choice responses were not analysed in themselves as this would not have resulted in significant data. However these questionnaire responses were used to subsequently focus the semi-structured interview discussions. The qualitative interview data from tutors and the focus group interview data from students were analysed

using NVivo and applying a thematic analysis approach, using hierarchical coding. An outline of the thematic analysis of tutors' evaluations of the OER is presented in Appendix 1.

Project findings

The analysis of the evaluations of OER which the three tutors carried out provided an insight into both the enablers/motivators for implementing OER in academic practice, as well as the barriers to adoption. It was clear from the evaluations that OER offer significant potential for tutors to engage in creative, open and flexible forms of delivering academic content. However existing barriers to adoption emerged, ranging from institutional and technical infrastructure, to tutors' knowledge of how to unlock the potential of open resources, and to the limitations of the OER themselves. Some of these barriers can be seen as contributing to a form of digital divide (Inglis, Ling and Joosten, 2002), characteristic of smaller HEIs such as HE providers in an FE college as is the case in this study. Appendix 1 presents an overview of tutors' choices in the three disciplines including the OER chosen for adoption, those considered interesting but unsuitable for adoption, and the decision making criteria applied by each tutor for each resource. The following sections will discuss the key themes which emerge as significant for understanding this decision making process.

OER and understanding abstract concepts in research methods

Some of the key advantages of OER highlighted by the tutors were in the potential of the resource to address the fact that research methods involve understanding abstract concepts, seemingly unrelated to the discipline. Both the Sociology and the Education tutors made similar points about the way the conceptually complex knowledge of research methods can be addressed by the interdisciplinary nature of OER. The Education tutor defined interdisciplinarity as:

Education tutor: *Well it is whatever is around that can help us understand the case, whatever is around which can help us understand learning, whatever is around that can help us understand change and innovation … if you look at it from more interdisciplinary point of view – you start with a problem, and say who can tell us about that problem.*

The Sociology tutorsimilarly made the connection with interdisciplinarity. The easy, at your fingertips access to resources online encourages learners to explore content independently. In addition the interactive and interconnected nature of OER encourages learners to link across the disciplines, accessing external resources and making connections on their own. From the tutor's point of view the interactive nature of OERs (linking to external material)facilitates this kind of interdisciplinary thinking:

Sociology tutor: *Yes I found that I had a look at his external links … and it gave me this link to FreeFind, where they can refer to other sources and I thought that was a really good useful link. Not only for research methods. What I have found … So I typed in 'feminism' I found information on feminism… which I think is useful as yet another source, not only for research modules – what I found pretty much with all of these that I looked at is that there are uses in other modules as well.*

Sociology tutor: *I could see that the experiment which was – the commentary on the BBC remake of the Zimbardo study is very useful for introduction to psychology so again we are going away from only seeing it as learning about research per se.*

This form of interdisciplinary thinking is seen by the tutor as a strategy for learners to situate their knowledge into a broader framework of related subject knowledge. This strategy could provide support with some of the conceptual difficulty which learners experience with research methods as a subject of study. According to Meyer and Land's theory of threshold concepts (2005), in order for the learner to move beyond liminal places and internalise troublesome knowledge, their learning needs to be contextualised and supported by stimulating resources. The hyperlinking which OER provide to other related subjects, resources and more familiar examples, can be seen as the necessary contextualising and stimulus mechanism. It is clear that this kind of interdisciplinary learning is best supported by resources which are live, and continuously updated – a key characteristic of onlineresources.

Another relevant characteristic of the OER discussed here (the Zimbardo study was an iTunesU video) was the strong narrative potential of the medium. iTunesU resources were valued highly by both the Sociology and Criminology tutors, due particularly to the strong, linear and visual narrative presented. The literature on media for learning (Laurillard, 2002) highlights the value of narrative media to support learner cognition. Therefore iTunesU resources have specific value as research methods learning resources as they simultaneously provide a strong narrative and contextualisation for the otherwise abstract concepts discussed.

The tutors' evaluation here suggests that OER which provide visual, narrative or interdisciplinary context are most likely to be successful for the teaching of research methods. OER have potential to address the conceptually difficult nature of the subject and contextualise this, thus supporting cognition in areas where the learner may encounter troublesome knowledge.

The tutor's role in the student experience of OER

The introduction of OER creates certain tensions with regards to the teacher's role in the teaching and learning context. While interactive resources provide engagement on the level of introducing sound, moving image, interactive feedback digitally, there is an important interpersonal level of teaching and learning which a good learning experience should provide. Njenga and Fourie (2010) argue that human contact in teaching and learning plays an important role in the knowledge construction process which should not be undermined by

the technological push. The authors further argue that enthusiasm for e-learning can blur the boundaries between information and knowledge, erroneously presenting limitless and immediate access to information as access to knowledge. This makes it necessary to consider whether OER alone provide access to knowledge. The evaluations with staff highlighted their stance, that the process of knowledge creation requires the tutor's input in contextualising the resources:

Education tutor: *These are fantastic resources. The clever bit surrounds how you will actually use them and integrate them into your teaching. That also depends on the nature of the open resource as well. Some are more flexible than others, some you will have to do more background preparation and some after-work. Others are kind of almost freestanding.*

This need to preface the resource use and to guide the learning interactions was evident in the Criminology tutor's point of view as well:

Criminology tutor: *'would learners be able to use [the OER] autonomously' – undecided because obviously if they sit for half an hour then they are going to find things but I would have to guide them as to why I need them to read or listen to, things like this. So it would have to have some guidance.*

The tutor's role was also discussed in the context of reusing the resource over more than one level of study:

Sociology tutor: *I could see that being used as not the initial lecture on questionnaires but a development of what they have done so far. So rather than the students only having one session on questionnaires I could see it better that they could have an initial session and then tweaking and improving. As that particular one says it is about improving the use of questionnaires. Which might be a skill that needs to be spread across three years – if they are choosing questionnaire for their dissertation then they might want to revisit to improve on their design of questionnaires. So I have placed this as being both for SSR2 and for SSR3 the Dissertation as an update.*

It is evident that all three tutors identified a definite need to contextualise the resources for effective learning and teaching. The tutor's role articulated in the responses emerges as one of introducing the knowledge context before directing learners to explore OER on their own. In addition, where the OER were envisaged as working across several levels of study, as in the Sociology tutor's example, the tutor's role would be to embed the use of the resource in her delivery in different ways depending on the learning objectives concerned.

OER and the development of the tutor's own academic practice

The role of the tutor in reusing OER has to be seen as professional academic practice. In this context of professional practice and development, the possibility that the open resource itself could act as inspirational material and a trigger to rethink delivery was discussed. OER here were seen as a form of creative spark which opens up opportunities for the tutor to think about further and alternative ideas of how to introduce the subject to learners. However this discussion was in the context of external pressures which limit such creativity:

Education tutor: *'I mean what I could quite see there is that, if I had the time and I was feeling positive and creative, not wrecked and worried about where that stuff in the room's gone [missing assignments], you could create scenarios – like 'you have been given the task to conduct action research into this…how do you go about doing it. These are the features, these are the people involved, these are the problems and whatever and then something like that would be great to link with it. What it does is that it kicks off a lot of creative ideas and follow-ups.'*

This type of concern to some extent places a barrier to the creative benefits of OER. They encourage creativity however in order for a person to be creative they need to also be relaxed and free from external pressures (Cropley, 2001). To a certain extent this could explain some of the reluctance in the uptake of OER - where teaching staff feel pressure, creativity takes second place. On the negative side, this could also mean that it is more likely for staff to utilise OER resources which are quick and easy to reuse, offering time saving potential rather than engaging in reuse which offers potential for rethinking and innovating curricula.

Other concerns included the fear that *'A less experienced tutor may over-rely on these resources'* (Education tutor). Particularly where OER are seen as a time-saving mechanism, this could be seen by a less experienced tutor as a way of avoiding the authoring of the teaching and learning content and therefore missing the benefits of developing learning experiences for the students.

Towards a blended learning approach to delivering research methods with OER

The tutors' exploration of OER inevitably raised questions regarding teaching and learning strategy. As online resources their adoption would necessarily mean engaging in blended learning forms of delivery. As already mentioned in the introduction, several factors need to be taken into account when considering blended learning approaches to delivery at the host institution. The first of these factors concerns de-emphasising face time as the only legitimate form of delivery and accepting that legitimate learning, collaboration and discussion can happen online. The second issue concerns the student body in an HE in FE context, which comprises a large proportion of mature learners with significant work commitments who require more flexible forms of delivery. The third issue is related to staff preparedness to adopt e-learning as part of their provision.

From the tutors' comments it was evident that they would actively consider the possibilities to support learners' self-directed use of OER with discursive/communicative e-learning tools. However it was also evident that at present the practices of utilising online discussion boards for example were not developed:

Researcher: *Have you thought about combining for example them watching a video and then having a discussion online? Or do you not use those very much [online forums].*
Criminology tutor: *We are at a point now with our degree where we are looking to do these kinds of things – we have not had them before where we have discussion boards and forums, we haven't got any forums, but we are at a point now where we have built our foundations and we are looking at*

forums – so definitely if I provide them with MP4s to watch and then provide a forum for those – that's the way forward now.

The Criminology tutor's response here expresses an intention to develop e-learning academic practice in the future, rather than commenting on embedded e-learning in practice. It was evident that while this practice was currently underdeveloped, tutors were prepared to actively explore discursive forms of e-learning to support learners' the use of OER. OER can therefore be seen as the vehicle for developing blended learning approaches in academic practice.

In terms of teaching strategy, the Criminology and Sociology tutors outlined specific ways in which they could see OER being used. One example was the video material from iTunesU which both of these tutors showed enthusiasm for. Both tutors were keen to see this type of resource used as revision material by learners and as stimulus material which would in turn contribute to collaborative discussion. The fact that tutors believed this material was easy enough for learners to navigate meant that they were equally supportive of the iTunesU resources being used in a self -directed way with discussion online, as they were with using the video material as part of a taught session with seminar or workshop activities providing the discursive layer of the interactions. The use of iTunesU was therefore outlined within face to face lectures, individual, self-directed exploration and collaborative discussion.

However, despite the enthusiasm for using iTunesU on the side of tutors, there are significant barriers to its use in the institutional context. These barriers are of an IT infrastructure nature and effectively make the use of these resources impossible within the institution. The response of the Computer services team with regards to using iTunesU on campus was the following:
'iTunes cannot be installed as our infrastructure is not currently enabled to support the technology iTunes requires i.e. Firewall issues and Compromising network security.'

The teaching strategies articulated by the tutors above involve an essential element of working with the resource on campus and being able to signpost learners to the resource through the institutional VLE. As these elements are inaccessible on campus, due to the limits in the capacity of the IT infrastructure in a relatively small HE provider, the connecting role which the tutor needs to perform in introducing, 'prefacing', contextualising the resource cannot be performed. Thus the relatively low level of openness of the iTunesU service creates a form of digital divide for smaller institutions, such as those in an HE in FE context.
Based on the tutors' responses regarding possible teaching strategies with OER, the use of open resources and open data for research methods teaching and learning was piloted on several modules including:

- BA Early Childhood Studies, year 2, Research Methods module
- BA Applied Social Science, year 2, Social Science Research 2
- MA Education Innovation and Enterprise

The section below outlines the experiences of students on the BA Applied Social Science programme of using a specific OER – Online QDA (University of Huddersfield), as part of their studies on social Science Research.

Using OER with Sociology students to support learning the principles of Grounded Theory and applying its coding procedures with NVivo

Online QDA is a large open educational resource with a focus on qualitative research methods and methodologies. It combines a range of media (video lectures, interactive exercises) to convey the nature of qualitative research and encompasses both explanations and examples of how broad methodologies work as well as providing an overview and practical interactive exercises on the application of different coding procedures. The resource further covers the use of NVivo to apply qualitative data analysis techniques – this is achieved through a series of step by step video guides on the application of these techniques.

It was considered appropriate to introduce Online QDA as part of the delivery of the Social Science research module for level 5 (second year undergraduate) Social Sciences learners. Many of the topics covered in the module pertaining to qualitative data were also covered in the OER. In addition, the module involved introduction to NVivo and an analysis task with NVivo was built into the learners' assessment. The open resource was therefore considered a useful addition to the core provision on the module.

Based on Oliver et al.'s framework for describing learning designs (Oliver, Harper, Hedberg, Wills,, Agostinho, 2002) and Littlejohn and Pegler's LD_Lite planning tool (2007), a pattern, lesson plan and temporal sequence for a rule based design were developed to capture the approach taken to planning the delivery with the addition of OER (see Appendix 2). The pattern tool outlines the 'design problem' in the delivery of this module. The temporal sequence represents the tasks (rectangles), resources (triangles) and supports (circles) necessary over the course of the module delivery.

The key issue which the learning and teaching approach was aiming to address was to provide support with conceptually difficult material in research methods, as well as to support learners' development of skills in applying procedural knowledge such as applying coding procedures to the analysis of data. The use of the OER was seen as providing the necessary stimulus material for learners, and acting as revision material, easily accessible to the learners.

The temporal sequence (Appendix 2) illustrates how provision was organised as consecutive iterations of lecture type or workshop type delivery, followed by self-directed exploration by the learner, supported by the Online QDA OER. It was important to explore whether learners were able to utilise the OER in a way which was pedagogically effective.

Learners' experiences

Learners discussed the challenges of studying research methods. The social sciences 2nd year students talked about the transition which they were making from studying only quantitative methods in year 1 to studying qualitative methods in year 2. Some authors highlight that the division between qualitative and quantitative methodologies is 'superficial' (MacInness, 2009) which would suggest the need to introduce both types of methodologies concurrently.
The combination of theoretical and technical concepts which the learners have to acquire is

another challenge in research methods teaching. Having to understand the theoretical concepts around Grounded theory and the procedural techniques of applying coding, as well as the technical interface of NVivo as a tool for analysis, introduces some complex challenges for these learners.

The introduction of the OER into their learning resource provision brought several advantages which students articulated and which could to some extent be seen as addressing the difficulties articulated by the learners.

One of the advantages which learners highlighted with using video material from the QDA website was the interactivity of the resource - the ability to pause, rewind, take notes at their own pace - this kind of flexibility of the interactions, of the pace of learning and the ability to take control over the learning interactions was something which learners valued:

Student 4 Female: *I watched some of the videos on QDA. It was useful because you could pause it if you didn't catch it and make notes; sometimes in a lecture it is really fast and you can't obviously pause it, but when you are watching a video you can pause it and make notes and carry on to your own pace rather than everyone else's. So I thought that was quite useful. When I watched on QDA I could make my notes how I wanted to make them.*

The ability to control the medium and to work at their own pace, seems to contribute to self-directed learning practice. Key elements to notice in the learning design here are the fact that the resource content was introduced by the tutor in class, thus helping to contextualise the self-directed learning interactions.
The students also reacted positively to the interactive exercises on grounded theory coding:

Researcher: *Did you do some of the interactive coding exercises – where you had to assign the code word and …*
Several: *Yes.*
Researcher: *How did you feel about those?*
Student 1 Female: *When we started doing the NVivo I remember going back to it and thinking 'oh it's just as simple as that then – literally just copying words and giving it a title.*

The interactive exercises provided learners with the opportunity to practice the procedural layer of grounded theory. However, care needs to be taken not to oversimplify or take the procedural exercises out of context. The danger with this is that the students may learn how to assign codes, however may not have actually understood the key concepts such as constant comparison or stages of open, axial and selective coding. As Meyer and Land identify (2005), learning of troublesome knowledge requires some form of transformation in the learner. Unless this transformation takes place, the learner may be unable to acquire knowledge and could instead engage in a form of 'mimicry' or ritualistic/surface learning (Meyer and Land, 2005: 382). This often happens when in an attempt to introduce the concept in an accessible way, teachers, or the resource itself, simplify the concept. While the OER discussed here introduces concepts in significant depth, as well as providing simplified exercises for learners to practice procedures, the interactive and non-linear nature of the resource means that learners could choose to view procedural content without having accessed or understood theoretical content first. This poses certain challenges to knowledge construction which need to be carefully considered.

Attitudes towards the use of OER in general were further explored within the focus group interview. Some of these attitudes can be related to the 'millennials' debate which places mature learners at a disadvantage where learning and teaching which utilises the internet is concerned (Oblinger, 2005). One learner described herself as a 'book person' identifying a preference for hard copy materials rather than online resources. The ingrained habits of working with hard copy seem to have an influence on this learner's readiness to explore online resources. The fact that the student population of the host institution includes a large proportion of mature learners makes it more likely that there will be digital literacy skills which will need to be addressed in order to prepare learners adequately for the range of resources they would need to access as part of their learning. The digital divide which these learners may experience needs to be addressed on the module and study skills level, as well as on a broader institutional level, particularly where barriers to access are concerned, as the example of iTunesU illustrates.

However it also needs to be considered that the learning experience varies significantly depending on individual learning needs and preparedness for working online. One of the learners highlighted that she has a better chance of understanding the material if she has searched and identified this herself. Searching for her own resources online helped the sense-making process and allowed the learner to internalise the concepts searched for and the information found better:

Student 6 female: *I think if you go on and find your own resources you understand it in a way which is better for you… we get these booklets and I don't tend to read them because it is too much and if I was to find it myself I would find bits that are relevant to what we are doing rather than reading it all to find relevant bits I can see it straight away.*

This point of view highlights the advantages of independent research to meaning making and narrative construction by the learner. Independent research is seen by the learner as fundamental to the process of internalising learning. This highlights a clear need for OER which are searchable by learners for use in a self-directed way. This example also suggests that the self-directed learning proportion of the learning design should incorporate searching for OER by learners, in addition to using the OER specified by the tutor.

Conclusions and recommendations

This action research study provided an insight into processes of developing open academic practices to address research methods teaching within the HE provision of a mixed economy college. The project met its objectives through providing an opportunity for tutors to engage in reflexive practice through exploring open educational resources. In addition, the embedding of some of these resources in academic practice has created a valuable foundation for reuse of OER for research methods teaching which tutors can build on in future provision and curriculum designs. Finally, through embedding OER in research methods teaching and exploring learners' experiences of learning with OER, a better understanding was developed of the design of the learning blend which would best respond to learners' needs. Following is a summary of the conclusions and recommendations from the action research study.

The findings of the study indicated that OER have significant potential to enhance provision for research methods teaching and learning. These resources encourage interdisciplinary ways of thinking about the subject which in turn support the learner in understanding threshold concepts as described by Meyer and Land (2005).

OER can also be a basis for developing blended learning practices which provide a discursive framework of support for the students – another element which supports the acquisition of troublesome knowledge. It was evident from learners' comments that they found the interactive nature of OER to be supportive of their pace of learning and therefore of self-directed learning in general. In this context OER can be seen as a driver for blended learning approaches and the open learner premise (McAndrew, 2010).

The findings further highlighted that the role of the tutor in embedding OER as part of the learning experience for students is significant. In their own articulation of their role in open academic practice, tutors described the need to preface, contextualise and embed the OER within the module content, one example of which is illustrated in the temporal sequence in Appendix 2. The resource is seen as one of a range of support mechanisms within the learning sequence, and its uses vary from tutor led, to learner directed forms of engagement. The key issue of using the OER outside of this guided context, in research methods teaching in particular, is that it could lead to use which produces ritualistic learning rather than authentic knowledge construction.

Finally, the barriers to effective reuse of OER were highlighted. Within an HE in FE context these included the digital divides created by technological infrastructure and digital literacy skills of learners. These barriers further included the impact of external pressures on staff time which in turn could result in limited ways of reuse constituting time saving measures, rather than reuse aiming to enhance creative teaching practice.

Dissemination activity and future plans

The work on the project and the project's findings have been disseminated both internally within University Centre Doncaster and externally, aiming to reach broader audiences with interest in the implementation of OER within an HE in FE context, or with interest in research methods teaching and learning academic practices.

During the life of the SCORE project I gave three staff development presentations based on the progress and findings of the study. I presented at a C-SAP (HEA subject centre for the Social Sciences) dissemination event, University Centre Blackburn College, 1st September, 2011. University Centre Blackburn College is similar to University Centre Doncaster (UCD) in its staff development needs and learners' needs within an HE in FE context, therefore the findings and issues discussed within the presentation were highly relevant to staff in this institution. The presentation is available through the C-SAP Open Cascade project website (CSAP Open Cascade Project, 2011).
The outcomes and work on the project were also disseminated internally within UCD through a staff development lecture which was followed by a workshop session on searching for OER. The session was attended by the majority of HE staff at UCD and is available on SlideShare:

http://www.slideshare.net/EsterEhiyazaryan/oer-staff-development-presentation

The outcomes of the project will further be disseminated externally through a presentation in April at the Cambridge 2012 OpenCourseWare Consortium and SCORE conference: Innovation and Impact - Openly Collaborating to Enhance Education.

Future plans to develop the work involve internal funding from UCD to continue the work on OER. I have been successful in an in-house teaching fellowship application at UCD, which will build on the work with the SCORE project and focus more directly on the student experience of learning with OER embedded in their programme of study. This work will seek to continue the action research cycle started in the SCORE project and evaluate the reuse of embedded OER in teaching and learning. This fellowship will start after the end of my SCORE fellowship in March 2012. As part of the in-house fellowship I will be required to submit an article for the UCD journal on Research and Scholarship – this journal is widely read by UCD HE and FE staff. The article I will submit will draw both on SCORE project work and the extension of this through the in-house fellowship. It is hoped that this will have an impact on teaching staff considering the benefits of an open and technologically enhanced approach to their academic practice.

Other possibilities for development of the work involve working closely with library staff and learning technologists at UCD to make themed OER available through the Learning Resource Centre's intranet pages, OPAC Web, and contributing to establishing a Xerte repository for Doncaster College and University Centre.

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Dissemination activity list

Ehiyazaryan, E. (2011) 'Open Educational Resources', staff development presentation and workshop, University Centre Doncaster, 16 September 2011.

Ehiyazaryan, E. (2011) 'Embedding Open Educational Resources in Research Methods Teaching in Education, Social Science and Criminology', presented at C-SAP dissemination event, University Centre Blackburn College, 1st September 2011.

Available from the C-SAP Open Cascade project website:

http://csapopencascade.wordpress.com/2011/07/19/strictly-come-cascading-at-university-centre-at-blackburn-college-1-september-2011/

Ehiyazaryan, E. (2011) 'Open Educational Resources' presentation given to the Teaching and Learning Innovation Task Group, University Centre Doncaster, April 2011.

Ehiyazaryan, E. (2011) 'Embedding Open Educational Resources in Research Methods Teaching in Education, Social Science and Criminology', poster presented at the Association for Learning Technology (ALT) Annual Conference, *Thriving in A Colder and More Challenging Climate,* 6-8 September, University of Leeds, UK.

Presentations published on SlideShare:

OER staff development session:

http://www.slideshare.net/EsterEhiyazaryan/oer-staff-development-presentation

Introduction to OER:

http://www.slideshare.net/EsterEhiyazaryan/introduction-to-oer

Appendix 1 Thematic representation of tutors' evaluation of selected OER.

Subject area	OER would definitely use in practice	Reason would use	OER interesting but would not use in practice	Reason would not use
Teacher Education	1. Aston University TESOL Powerpoint explaining how to do Action Research: http://humbox.ac.uk/1416/ 2. Some ideas to make your questionnaire more effective (Dave Harris at MARJON): http://www.arasite.org/mmedia/addvalquaire/index.htm 3. Anne Burns podcast on research methods: http://humbox.ac.uk/897/	• Flexibility offered for building into teaching practice • Content which works at a variety of levels • Mixture of linear narrative and interactive activities • Accessible for learners' digital literacy levels • Good basis for collaborative activity • Flexible enough to create own scenarios around • Kicks off creative ideas • Appropriate for self directed learning • Provides interdisciplinary links to external content (allows discovery) • Real people discussing research methods – accessing expert opinions • Content which works at a variety of levels • Ability to build the resource into existing activities (for example: critique and defence session)	A classification of different types of qualitative research is presented based on a paper by Tesch: Tesch, R. (1990) Qualitative Research: Analysis Types and Software Tools. Falmer Press. The Different approaches to qualitative research are described including phenomenology, grounded theory, ethnography etc. an interactive task to test understanding is included: http://www.nottingham.ac.uk/toolkits/play_1070	Technical problems with loading the OER.
Criminal Justice	1. **Online QDA** is a set of learning materials which address common issues of undertaking qualitative data analysis (QDA)	• Real people engaged in research discussing the practice of research • Engaging to the learners – an alternative/supplement to the lecturer's own	1. **Ethnography – an introduction:**an introduction to the key characteristics of ethnographic research:	• Tutor had not realised that the Prezi can be easily repurposed.

	and beginning to use Computer Assisted Qualitative Data AnalysiS (CAQDAS) packages. University of Huddersfield, content by Graham Gibbs: http://onlineqda.hud.ac.uk/index.php 2. The Experiment (**iTunesU**video file). A discussion of an experiment based in prison on guard-prisoner relationships. The experiment is compared to the controversial Zimbardo study (1971): http://dl.dropbox.com/u/9786447/1-05%20The%20Experiment.m4v 3. National Centre for Research Methods (NCRM)	presentation • Use of multiple media • Addresses broader learning needs through providing visual/ audio content, an alternative from pure text. • Engaging for learners • Ease of use, however uncertainty around the ease of access. • In-depth resource; breadth of material • Easily searchable resource on a broad range of research methodologies • Legitimate content which has undergone peer review	http://prezi.com/6-ku0ktoaekg/ethnography/ 2. Some ideas to make your questionnaire more effective (**Dave Harris at MARJON**): http://www.arasite.org/mmedia/addvalquaire/index.htm	• Covers a single topic – this tutor's preference is for online resources which offer a broader coverage of research methods (granularity - significant resources, rather than smaller standalone resources). • 'not as academic' • 'like a fool's guide to travel'
Applied Social Science	4. Some ideas to make your questionnaire more effective (Dave Harris at MARJON): http://www.arasite.org/mmedia/addvalquaire/index.htm 5. The Experiment (**iTunesU**video file). A discussion of an experiment based in prison	• Supplements lecture delivery well • Appropriate for self directed learning • Provides interdisciplinary links to external content (allows discovery) • The visual delivery stimulates interest and engagement in learners. • Narrative form useful in aiding conceptual	An audio slideshow including two interactive activities, introducing the differences between qualitative and quantitative research. Ensure to click on the arrow inside the visual slide in order to listen to the audio: http://www.nottingham.ac.uk/nmp/sonet/rlos/ebp/qvq/	• Poor sound quality • Not as interactive as others (Ppt. and sound mostly) • Would need repurposing - interactive quiz covered material which tutor had not covered with

	on guard-prisoner relationships. The experiment is compared to the controversial Zimbardo study (1971): http://dl.dropbox.com/u/9786447/1-05%20The%20Experiment.m4v	understanding		these learners at this level of study
	6. **Open Learn**: Working with Charts, graphs and tables. An introduction to working with charts and graphs. Using a series of examples from charts used in journalistic writing this OER shows students what to be aware of, what to avoid and how to read charts and graphs more effectively: http://openlearn.open.ac.uk/course/enrol.php?id=2880	• Excellent as revision material and for self directed learning • Also suitable for working in pairs, in workshop time • Could be used across levels 4 and 5, as introductoryor revision material respectively.		
	7. Online QDA is a set of learning materials which address common issues of undertaking qualitative data analysis (QDA) and beginning to use Computer Assisted Qualitative Data AnalysiS (CAQDAS) packages. University of Huddersfield, content by Graham Gibbs: http://onlineqda.hud.ac.uk/index.php	• Highly visual information which the tutor feels would be difficult to provide herself • Suitable for self-directed study, flexible access		

Table .Tutors' OER choices

Appendix 2: Teaching scenario, lesson plan and temporal sequence for introducing Grounded theory and computer assisted qualitative data analysis in Social Science Research (Level 5)

LD_lite planning tool

(Littlejohn, A. and Pegler, C., 2007)

Pattern

(a quick overview of the teaching scenario)

Pattern title:
Introducing Grounded theory and its application through computer aided qualitative data analysis

Overview of problem:
Learners studying research methods in year 2 of an Applied Social Science Research course need to develop an understanding of qualitative data analysis procedures, including the principle of constant comparison, different stages of coding (open, axial, selective). Learners often experience conceptual difficulties, as those outlined in threshold concepts, when learning research methods and a way of addressing this and supporting the learners needs to be developed.

Solution:
Learners will be supported through a mixture of lecture type delivery, workshop sessions and guided self directed study. The resource needs are significant for this type of delivery and involve: a mixture of online resources (both OER and copyright protected material from the NVivo website), handouts and presentations produced by the tutor and access to a computer suite with the NVivo software installed. Part of the solution proposed involves utilising the OER available on this topic effectively, as stimulus material and as guided learning and revision material for self directed study.

Aim:
To provide gradual support for the learners particularly in the places where they are likely to experience difficulty with threshold concepts.
To support learners in developing practical research data analysis skills, including applying coding and developing analysis around the coding applied.

Objectives:
By the end of this module assessment learners should be able to:

- Understand the theoretical principles and practical processes involved in applying grounded theory analysis;
- Apply different types of coding in the analysis of qualitative data (provided by the tutor), and develop analytical explanations of the qualitative data, based on the coding.

Lesson Plan

Time	Mode	Tutor roles	Student roles	Resources (content)	Resources (courseware)	Feedback and assessment
1 week	Face to face, lecture delivery – principles of grounded theory (constant comparison, types of coding, coding hierarchies) Online (self-directed)	Lecture type delivery, aid conceptual understanding of learners in class through active questioning and explanation.	Explore the theoretical and procedural principles and rules of grounded theory	OER: Online QDA, Huddersfield: interactive coding tasks; narrative description, video material.		
1 week	Face to face, lecture and workshop; Self directed study	Introduction to computer assisted data analysis with NVivo (interface, applying coding)	Familiarise yourself with the NVivo interface. Complete the practical coding exercises with NVivo, following the session handout.	• OER: Video material, online QDA. • Open data: ESDS • NVivo corporate website material	PC suite with NVivo software installed.	Tutor feedback in class; peer support.

2 weeks	Face to face: NVivo workshop session: applying coding. Self-directed learning	Directed workshop session; provide feedback on students' progress with the tasks in class.	NVivo workshop session: apply coding using the dataset provided. Self directed learning – work towards assessment, applying the principles of grounded theory and using NVivo.	• OER: Video material, online QDA. • Open data: ESDS • NVivo corporate website material	PC suite with NVivo software installed.	Summative assessment

Temporal sequence for a rule based design for introducing Grounded theory and computer assisted qualitative data analysis in Social Science Research (Level 5), based on Oliver et al., 2002