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Introduction

The theme and scope of EDENRW8 reflected the current challenges facing researchers and the intersection of their work with 'doing better things' for key stakeholders. EDENRW8 was very focussed on you the researcher and what you can learn from and with your peers. It took place in an intimate setting where researchers including postgraduate students could share research, connect with peers and have adequate time to discuss the challenges of their work. EDENRW8 was suitable for researchers and postgraduate students and particularly those wishing to actively connect with peers and debate Challenges for research into Open & Distance Learning: Doing Things Better: Doing Better Things.

Antonio Teixeira EDEN President invited EDENRW8 rapporteur Tony Bates to share his perspective on the discussion trends and conclusions of the remarkable event.

A Report on the State of Art of European Research into Open and Distance Learning

I had the privilege this year of being the rapporteur for this intense and highly engaged and interactive workshop, held in the historic city of Oxford, and hosted by the UK Open University.

There were almost 150 participants from more than 30 countries, mainly European, although there were also participants from Canada, Australia, USA, Argentina, Israel, Barbados, Mexico and Iceland.

The workshop was deliberately organised to enable participants to meet and discuss their research. The workshop included: 6 keynotes, followed by group discussions of the keynote topics, 7 interactive parallel sessions, with discussions centering around the 42 papers accepted for the conference, and plenary reports on the sessions, an award for the best research paper submitted for the workshop, 7 interactive workshops, poster session with 13 posters, an Oxford-style debate on the impact of open educational resources on higher education, 4 small groups walked and talked along the edge of the river Thames about current issues around open and distance education, a wrap-up plenary session where participants posed questions about research in ODL, and answers were offered by other participants and an optional full-day visit to the Open University.

The result was an immense amount of discussion, questioning and networking.

Open and distance learners/online learners are much more heterogeneous than on-campus students: social background, institutional differences, prior education/learning experiences, all influence their readiness for online learning as a result, ODL students need much more personalization or individualization of their learning: one size does not fit all special attention needs to be paid to 'at risk' students very early in their studies: intense personal/tutor support is critical for such students. It can be seen that such findings are important not only for the design of for-credit programs but also for MOOCs.

Concerning course design, we should be working to use technology to decrease faculty workload, not to increase it, as at present this will probably require team teaching, with different skills within the team (subject expert, learner support staff, course designer/pedagogue, technology specialist) to individualize learning increased use of adaptive technology will be necessary.

From the papers, it seems that a 'European' style of MOOC is slowly evolving, somewhere between xMOOCs and cMOOCs.

Main lessons (or, to be fair, more questions) in this field: what does awarding badges of certificates for MOOCs or other OER actually mean? For instance will institutions give course exemption or credits for the awards, or accept such awards for admission purposes? Or will the focus be on employer recognition? How will participants who are awarded badges know what their 'currency' is worth? Can MOOCs be designed to go beyond comprehension or networking to develop other critical 21st century skills such as critical thinking, analysis and evaluation? Can they lead to 'transformational learning', are there better design models for open courses than MOOCs as currently structured? If so what would they look like? Is there a future for learning object repositories when nearly all academic content becomes open and online?

In quality and assessment, research may inform but won't resolve policy issues. Quality is never 'objective' but is value-driven, the level of intervention must be long and significant enough to result in significant learning gains. There's lots of research already that indicates the necessary conditions for successful use of online discussion forums but if these conditions are not present then learning will not take place.

There were surprisingly few papers on the use of social media in ODL. The use of social media needs to be driven by sound pedagogical theory that takes into account the affordances of social media (as in Sorensen's study described earlier under course design)

Tony Bates is an EDEN Senior Fellow and the President and CEO of Tony Bates Associates Ltd., Canada, a private company specializing in strategic consultancy and training in the planning and management of e-learning and distance education. Having been a founding member of the British Open University, he has developed an intense international career in the last two decades. Tony is acknowledged across the world as one of the best known, respected and influential personalities in the international open, distance and e-learning field.

Dr Ulrich Bernath
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Ulrich Bernath Foundation
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Feedback on Academic Essay Writing through pre-Emptive Hints: Moving Towards "Advice for Action"

Denise Whitelock, Alison Twiner, John T.E. Richardson, The Open University, Debora Field, Stephen Pulman, University of Oxford, United Kingdom

Best Research Paper Award Winner

Abstract

This paper adopts an "advice for action" approach to feedback in educational practice: addressing how provision of "hints" to participants before they write academic essays can support their understanding and performance in essay-writing tasks. We explored differences in performance by type of hint, and whether there was a transfer of better performance in subsequent essays. Fifty participants were recruited, consisting of eight men and 42 women aged 18-80. Participants were assigned in rotation to four groups, and asked to write two essays. Groups 1 and 3 received hints before Essay 1, whilst Groups 2 and 4 received hints before Essay 2. Groups 1 and 2 received essential hints; Groups 3 and 4 received helpful hints. Essays were marked against set criteria. The results showed that an "advice for action" approach to essay-writing, in the form of hints, can significantly improve writers' marks. Specifically higher marks were gained for the introduction, conclusion and use of evidence: critical components of "good" academic essays. As the hints given were content-free, this approach has the potential to instantly benefit tutors and students across subject domains and institutions and is informing the development of a technical system that can offer formative feedback as students draft essays.

Keywords: assessment, essay writing, feedback, hints

Introduction

Feedback is a common feature of educational practice (e.g. Black & Wiliam, 1998), and one that has been widely researched but not necessarily implemented or understood to its full potential in practice. This has led to a large amount of research attempting to define what feedback is, when it should be used, and how it could be made more beneficial for students and tutors. Beaumont, O'Doherty and Shannon (2011) for instance identify the "fundamental aim of feedback practice, which is to progressively and explicitly develop students' self-evaluative skills through engagement in the process" (p.683). From this we can see that feedback should have the intention not just of reporting back on finished work, but also of offering advice to self-motivated learners on where they can improve in future work.

This paper reports a study on the computerised provision of "hints" to participants on how to write academic essays, before they begin their essays. We will address this with a view to how this pre-emptive feedback, or "feed-forward" (e.g. Hattie & Timperley, 2007; Price, Handley & Millar, 2011), can have a significant positive impact on participants' work. This study was used to inform and reinforce feedback features being developed for a technical system that could provide an appropriate level of formative feedback on draft academic essays. The topic of the present paper is a response to our overall research question: how does the provision of hints affect the essay being written and essay writing in the future?

As Evans (2013) explained, "Even when "good" feedback has been given, the gap between receiving and acting on feedback can be wide given the complexity of how students make sense of, use, and give feedback (Taras, 2003)" (p.94). Therefore feedback needs to be viewed by tutors and students as an ongoing activity within the cycle of course learning, which feeds into further learning, rather than as an add-on or end point of summative assessment: the aim is that feedback should be seen as "advice for action" (Whitelock, 2010). This is the concept that other researchers have referred to as "feed-forward" (Evans, 2013; Hattie & Timperley, 2007).

Hattie and Timperley (2007) elaborated on this re-framing of feedback as feedforward:

> *To be effective, feedback needs to be clear, purposeful, meaningful, and compatible with students' prior knowledge and to provide logical connections. It also needs to prompt active information processing on the part of learners, have low task complexity, relate to specific and*

> *clear goals, and provide little threat to the person at the self level. (p.104)*

Thus feedback must be presented in a way that participants can understand, and that they can interpret in terms of where improvements can be made in the future. Hattie and Timperley argued that feedback must be a follow-up to information given to learners, so that they are aware of task requirements before their work is judged against them:

> *It is important to note, however, that under particular circumstances, instruction is more effective than feedback. Feedback can only build on something; it is of little use when there is no initial learning or surface information. Feedback is what happens second, is one of the most powerful influences on learning, too rarely occurs, and needs to be more fully researched by qualitatively and quantitatively investigating how feedback works in the classroom and learning process. (p.104)*

Therefore, feedback is a central part of the teaching and learning process, but one that must follow task instruction and be followed by space for reflection and scope to implement suggestions. In this regard, Narciss (2013) identified the functions of feedback as cognitive, metacognitive and motivational. Nelson and Schunn (2009) also claimed that feedback involved motivation, reinforcement and information. These collective functions of feedback may be particularly important for students who are returning to study after a period of time in employment, who may find it more difficult to understand and access Higher Education study discourses (Scott et al., 2011).

In terms of the purpose of feedback, Chickering and Gamson (1987) outlined seven principles of good practice for undergraduate education, of which the third was "encourages active learning". Likewise, Nicol and Macfarlane-Dick (2006) stated that students should be urged to be proactive rather than reactive with regard to feedback, using it as a springboard for improvement rather than a stop point. Therefore, feedback or tutor input must do more than just identify misconceptions in students' work. It must motivate learners to engage with the topic and the task, so that their work comes from and demonstrates understanding rather than just doing enough to get a mark. Pursuing this point, Nicol and Macfarlane-Dick concluded that too much

focus on final marks could be demotivating for students and encourage effort to be placed just on passing and looking good rather than understanding the subject.

In a similar vein, Graesser and McNamara (2010) concluded that metacognition – awareness of one's own knowledge, abilities and learning strategies to approach a task (drawing on Quintana, Zhang & Krajcik's, 2005 definition) – was important for learning. This means that in practice students need to be supported to reflect on their current understanding of a topic, and how they can best fulfil task requirements. Through this they can direct their learning and task activity more optimally, and feel for themselves whether they are on the right lines.

Following a sociocultural perspective, learning can be considered as a cultural process, using cultural tools. In this sense, metacognition includes an interpretation of cognition which is "distributed and mediated by the world in which we live through voices, books, papers, computers, rules and other cultural artefacts" (Baggetun & Wasson, 2006, p.453). With this in mind, as well as considering the task and type of feedback it is important to address the medium in which tasks are presented to students.

For some years now, many courses and universities have made increasing use of technology to support assignment delivery and submission, as well as the medium for offering feedback. Learning has become radically more open and self-regulated, as well as hugely evolved with the innovative uses of new technology. As Steffens (2006) highlighted, "In parallel to the rising interest in self-regulation and self-regulated learning, the rapid development of the Information and Communication Technologies (ICT) has made it possible to develop highly sophisticated Technology-Enhanced Learning Environments (TELEs)" (p.353).

Computer-provided feedback and assessment has some way to go to catch up with these innovations, particularly where courses cater for large numbers of students. The ability to offer automated guidance and feedback at the point of student need to large numbers could help to revolutionise the experience and performance of teaching and learning in higher education. This is particularly pertinent as many universities, including the institution where the study reported in this paper took place, are increasingly catering for distance and round-the-clock learners, many of whom are out of the practice of academic writing.

Chi et al. (2001) also assert that "suggestive feedback" is helpful to learners, by highlighting an area that may be in need of work and so encouraging students to reflect on their work without directly giving the answer. The need to avoid simply giving the right answer, and the potential for plagiarism, is particularly important within computer-based learning environments. This view is reinforced by Banyard, Underwood and Twiner (2006), who state that "enhanced technologies provided enhanced opportunities for plagiarism" (p.484). Therefore in many instances use of technology makes plagiarism easier: more users have access to information that is portable (easy to "copy and paste" without attribution to a source), but if they do not understand what they find or are not motivated to cite or process it, this may not necessarily help them to use it appropriately. Thus students need guidance and support on how to make appropriate use of the sources of information they find – the cultural tools around them.

Within the study to be reported here, the hints given to participants prior to their essay-writing refer to general guidance on how to structure an academic essay. The hints provided were content-free, and so broadly appropriate to all academic writing in any subject without extra strain and time demands for tutors. This has the advantage that they can be shared with large numbers easily, but the disadvantage that they are not tailored to learners' current subject understanding and individual learning needs.

In other research, hints have been used but have been given as responsive prompts, when students have requested help for a certain task or problem (e.g. Aleven et al., 2010), rather than as broad supportive information before starting tasks. In the study by Aleven and colleagues, the researchers focused on "help-seeking behaviour", in considering when students requested the hints in order to gradually arrive at the answer, compared with those who were using hints to understand the question and how best to respond.

Work with secondary-school-aged pupils by Narciss (2013, 2014) reported a randomised control trial on the automated provision of hints within short Maths tasks. In her research, hints were offered to pupils after errors had been made in a task, but prior to a further attempt at the same task. The hints were therefore pre-emptive, to support future performance and learning, but were also a direct response to an error. In doing this work Narciss recognised that there is little research, theoretical or empirical, on "automatic feedback adaptation", which is similar to our interpretation of the existing literature. Given the nature of the tasks tested within Narciss' studies,

being in the Maths domain and specifically working with fractions, students' responses were relatively easy to identify as correct or incorrect. As Narciss acknowledged, this is not the case in less-structured tasks such as essay writing, the context we address in our work, so the nature of feedback needed is significantly different.

In the study to be reported here, we uniquely offered broad macro-level guidance to participants on how to write a "good essay" before they wrote their essay, rather than focusing on the aspects that might identify their work as a "bad essay". Participants each wrote two essays. For one essay they were given hints before writing. Half of the participants received "essential" hints before writing one of the essays (and no hints before writing the other). The other half received "nonessential" or "helpful" hints before writing one essay (again receiving no hints before writing the other essay). Participants' performance was marked against set criteria. This enabled us to explore whether there was an effect of giving hints for the immediate essay, and also whether there was a lasting effect of this provision.

To explore this context, we investigated the following research questions:

1. Is there a difference between participants' performance due to giving or not giving hints?
2. Is there a difference between participants' performance due to the type of hint given?
3. Is there transfer evident in participants' performance due to the point at which hints are given?

Method

Participants

Fifty participants were recruited from a subject panel maintained by colleagues in the Department of Psychology consisting of people who were interested in participating in online psychology experiments. Some of them were current or former students of the University, but others were just members of the public with an interest in participating in psychological research. The 50 participants consisted of eight men and 42 women, who were aged between 18 and 80 with a mean age of 43.1 years.

Procedure

The participants were assigned in rotation to one of four groups. Each participant was asked to write two essays, and in each case they were allowed two weeks for the task. The first task was: "Write an essay on human perception of risk". The second task was: "Write an essay on memory problems in old age". Participants who produced both essays were rewarded with an honorarium of £40 in Amazon vouchers.

Groups 1 and 3 were provided with hints for Essay 1 but not for Essay 2. Groups 2 and 4 were provided with hints for Essay 2 but not for Essay 1. Groups 1 and 2 were provided with essential hints. Groups 3 and 4 were provided with helpful hints (see Table 1). Appendix A shows the essential and helpful hints. Otherwise, the participants were provided with no feedback on their essays.

Table 1: Research design

	Group 1	**Group 2**	**Group 3**	**Group 4**
Essay 1	Essential hints	No hints	Helpful hints	No hints
Essay 2	No hints	Essential hints	No hints	Helpful hints

Two of the authors who were academic staff with considerable experience in teaching and assessment marked the submitted essays using an agreed marking scheme and without reference to the groups to which participants had been assigned. The marking scheme is shown in Appendix B. If the difference between the total marks awarded was 20 percentage points or less, essays were assigned the average of the two markers' marks. Discrepancies of more than 20 percentage points were resolved by discussion between the markers.

Data analysis

A mixed-design analysis of variance was carried out on the final marks that were awarded to participants who submitted two essays. This employed the within-subjects variables of hints (hints versus no hints) and marking criteria (1–10) and the between-subjects variables of hint type (essential versus helpful) and hint order (hints on Essay 1 versus hints on Essay 2). Post hoc tests were carried out to identify the marking criteria on which any significant changes in marks had arisen as a result of providing hints.

Values of partial h^2 (eta squared) were calculated as measures of effect size. These represent the proportion of variance in the dependent variable that is explained by each independent variable or interaction when the effects of other independent

variables and interactions have been partialled out (see Richardson, 2011). Cohen (1988, pp.285–287) suggested that values of partial h^2 of 0.0099, 0.0588 and 0.1379 would constitute small, medium and large effects, respectively.

Results

All 50 participants submitted Essay 1, although only 45 participants submitted Essay 2. The correlation coefficients between the marks initially awarded by the two markers were .81 for Essay 1 and .77 for Essay 2. In six cases, the discrepancy between the two markers was more than 20 percentage points, and these discrepancies were resolved by discussion between the markers. The mean final mark for Essay 1 was 56.9 (SD = 15.1), and the mean final mark for Essay 2 was 54.5 (SD = 15.9). Table 2 shows the mean marks awarded for essays with and without essential and helpful hints.

Table 2: Mean marks with and without essential and nonessential hints

	n	No hints	Hints
Essential hints	23	54.8	56.5
Nonessential hints	22	53.6	60.0
Overall	45	54.2	58.2

The main effect of hints was statistically significant using a directional test (equivalent to a one-tailed Student's t test), $F(1, 41) = 3.23$, $p = .04$, partial $h^2 = .07$. Table 2 shows that on average essays written with hints received 4 percentage points more than essays written without hints. This constituted a "medium" effect based on Cohen's (1988) benchmarks.

There was no significant effect of hint type, $F(1, 41) = .08$, $p = .78$, partial $h^2 = .00$, and no significant interaction between the effects of hints and hint type, $F(1, 41) = 1.09$, $p = .30$, partial $h^2 = .03$. Thus, there was no difference between the benefit of essential hints and that of helpful hints. In fact, Table 2 shows that if anything the benefit of helpful hints tended to be greater than the benefit of essential hints.

There was no significant effect of hint order, $F(1, 41) = 1.24$, $p = .27$, partial $h^2 = .03$, and no significant interaction between the effects of hints and hint order, $F(1, 41) = 1.68$, $p = .20$, partial $h^2 = .04$. In other words, there was no difference between the benefit of hints provided for Essay 1 and the benefit of hints provided for Essay 2. This in turn implies that there was no transfer of the effect of hints provided for Essay 1 on the writing of Essay 2.

There was no significant interaction between the effects of hint type and hint order, $F(1, 41) = 0.94$, $p = .34$, partial $h^2 = .02$, and no significant three-way interaction between the effects of hints, hint type and hint order, $F(1, 41) = .09$, $p = .76$, partial $h^2 = .00$.

The main effect of criteria was statistically significant, $F(9, 369) = 20.86$, $p < .001$, partial $h^2 = .34$, which is unsurprising since different numbers of marks were awarded against the ten criteria. However, there was a significant interaction between the effect of hints and the effect of criteria, $F(9, 369) = 2.25$, $p = .02$, partial $h^2 = .05$. Thus, the benefit of hints varied across the ten criteria. This too constituted a "medium" effect based on Cohen's (1988) benchmarks.

Post hoc tests were carried out to identify where the increase in marks as a result of providing hints had arisen. Directional tests showed that there was a significant increase in marks on Criterion 1 (introduction) from 5.43 to 6.77 out of 10, $F(1, 41) = 4.59$, $p = .02$, partial $h^2 = .10$, a significant increase in marks on Criterion 2 (conclusion) from 6.10 to 7.43 out of 10, $F(1, 41) = 12.50$, $p < .001$, partial $h^2 = .23$, and a significant increase in marks on Criterion 4 (evidence) from 8.00 to 9.03 out of 20, $F(1, 41) = 3.22$, $p = .04$, partial $h^2 = .07$. These constituted medium or large effects on Cohen's (1988) benchmarks. Otherwise, there were no significant differences between the marks awarded to essays written with and without hints.

Discussion and conclusions

In reviewing our findings and their implications we return to our overall research question: how does the provision of hints affect the essay being written and essay writing in the future? In this context hints are contained within the broader category of "feedback", which has been widely researched and reviewed. We particularly draw on research regarding feedback that has a proactive and forward-looking agenda, viewing feedback as "advice for action" (Whitelock, 2010). From this we build on the view that feedback works best when given before submission of a piece of work, as "feed-forward" (Hattie & Timperley, 2007; Price, Handley & Millar, 2011).

Such feedback can be provided either before starting a task or during task activity, so that it can be utilised straight away (e.g. Butler & Winne, 1995; Hattie & Timperley, 2007; Nicol & Macfarlane-Dick, 2006).The aim here is that the advice can be incorporated by participants within subsequent actions, to bridge the gap between expectations or goals, and performance. Such a conception corresponds well with notions of self-regulated learning and metacognition, requiring participants to set

their own goals for learning, and to monitor their progress toward these goals (Quintana, Zhang & Krajcik, 2005).

As mentioned, one way that such pre-emptive feedback can be given is through the provision of hints. Hints can identify where goals need to be set, where participants may need to direct extra learning and research, and enable participants to focus their monitoring in reducing this gap between goals and performance, through learning and understanding. Effective use of technology is one vital resource available to participants in reducing this gap.

In responding to suggestions from previous research that feedback can have both positive and negative effects, it was important in the current study to experimentally observe and analyse the effects of provision of hints for academic essay writing. Thus, we needed to rigorously assess whether hints had the potential to support participants in setting goals for their task, and offering guidance on how to work toward these goals, and in doing so gain higher marks (drawing on Hattie & Timperley, 2007).

A crucial difference between the current study and previous research on provision of hints includes that we gave hints prior to essay writing, whereby the hints were framed as positive aims rather than reports of error. In this approach there was no perception of participants having got it wrong before receiving input. This is in contrast to Aleven et al.'s (2010) work, where hints were provided as requested by students, with the aim of supporting reflection, but often as short responses to mistakes, omissions or misunderstandings which potentially allowed students to progressively guess their way toward an answer. Within our study hints were also content-free, making them relevant and potentially transferable to all contexts of academic writing. This design is advantageous for participants studying a range of subjects and modules, and also for tutors and courses to resource a variety of subject and assignment areas.

Furthermore, our study incorporated an experimental trial of the effects of providing hints prior to essay writing and in terms of transfer to subsequent essay writing. The effects of such provision have been queried and conjectured by many researchers, but have not been investigated and reported as statistically significant in this way before. This was a crucial addition within our research design. This enabled us to reach the confident conclusion that there was a positive, significant effect on performance of giving hints for the immediate essay being written, evidencing that a "feed-forward", "advice for action" approach to feedback can indeed positively influence performance.

We also report that higher performance was noted regardless of the order of hint provision, meaning that there was no evidence of transfer of improved performance on the second essay for those who received hints on the first essay. Further research is therefore needed to investigate how transfer of this higher performance to subsequent academic writing activities can be supported, to facilitate a greater longevity of "advice for action".

When considering where the higher marks were gained for essays written with hints, we did find a significant difference accorded to the individual marking criteria. Specifically higher marks were recorded for the criteria concerning the introduction, conclusion and use of evidence. This is of vital importance in terms of the quality of academic writing, as good essays require a strong beginning, a middle that is coherent and an end that brings the whole essay together, and the statistics reported here reflect that these elements significantly improved with provision of hints.

Crucially these results have fed into the development of a technical system to support the drafting of academic essays, as part of the same research project. As we found that providing pre-emptive hints supports the achievement of better marks overall, and specifically on the introduction, conclusion sections and use of evidence, a system interface has been designed and trialled with different textual and visual representations that offer guidance to users to reflect on how connected and progressive the concepts raised in these sections are. The system is still designed to be used on draft essays (and so before users' work is submitted and graded), so that suggestions from system representations can be implemented in the current work. The system, as with the hints provided in the study reported here, is also designed to be content-free, and so usable within any subject domain that requires the writing of academic essays. Analysis of system usage is the subject of another paper, but its design has been largely informed by the key empirical finding from this paper: that providing "advice for action" on how to write a good academic essay can significantly improve participants' performance on the current task. This finding has broad implications for feedback practice and research, which has the potential to benefit tutors and students across subjects and institutions.

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Appendix A

Six essential essay writing hints

1. Read the question carefully and underline keywords in the question to focus on the main areas that you need to address for the essay.
2. Make a plan for your essay. For example, create a list of salient points that will address the key points from hint number 1.
3. Remember, an essay is telling a story. A good story has a beginning, middle and an end. These are also known as introduction, discussion points and conclusion. Ensure this structure is explicit in your answer.
4. The introduction should set out a basis for your discussion/argument.
5. The discussion section picks up on the introduction, elaborates upon it and provides evidence for the points mentioned within it.
6. The conclusion should summarise the discussion points and ends with a decisive stance towards the essay topic that you've been asked to write about.

Six helpful essay writing hints

1. When you have written your first draft, pick out 10 words or phrases that you think are the most important ones in your essay. Do you think they convey the ideas you want to express in this essay?
2. Topic sentences are those that give an outline of the contents of a paragraph. Do you have topic sentences to cue the reader into the major points you are trying to make in this essay?
3. Read your draft and identify any supporting sentences. Their function is to cue the reader into details of one of the arguments in a paragraph.
4. Ensure that your conclusion is a summary of the main argument of the essay. The conclusion may often have an opinion or a recommendation too.
5. Check your word count. If you have too many words, see if any of the paragraphs in your essay discuss things that aren't directly relevant to your assignment question. If so, delete them.
6. Are any of the paragraphs in your essay longer than 7 sentences? If yes, consider carefully whether all the sentences are necessary for you to clearly make your point.

Appendix B

Marking criteria

Criterion	Definition	Maximum marks
1. Introduction	Introductory paragraph sets out argument.	10
2. Conclusion	Concluding paragraph rounds off discussion.	10
3. Argument	Argument is clear and well followed through.	10
4. Evidence	Evidence for argument in main body of text.	20
5. Paragraphs	All paragraphs seven sentences long or less.	5
6. Within word count	Word count between 500 and 1000 words.	5
7. References	Two or three references Four or more references	5 10
8. Definition	Provides a clear and explicit definition of risk or memory.	10
9. Written presentation	Extensive vocabulary, accurate grammar and spelling.	10
10. Practical implications	Understanding of practical issues, innovative proposals.	10
Maximum total marks		**100**

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Student Perspectives on the Use of their Data: Between Intrusion, Surveillance and Care

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Best Research Paper Award Winner

Abstract

The advent of learning analytics means that many institutions are increasingly collecting, analysing and using student data to impact the student experience with the aim of improving student satisfaction and success. The Open University (OU) is a large, open distance learning institution with more than 200,000 students. In common with many other higher education institutions (HEIs), the University is looking more closely at its use of learning analytics.

The use of a learning analytics approach to inform and provide direction to student support within the Open University is relatively new and, as such, existing policies relating and referring to potential uses of student data have required fresh scrutiny to ensure their continued relevance and completeness (Prinsloo & Slade, 2013). In response, The Open University made the decision to address a range of ethical issues relating to the University's approach to learning analytics via the implementation of new policy. In order to formulate a clear policy which reflected the University's mission and key principles, it was considered essential to consult with a wide range of stakeholders, including students.

Representative student views were collected over a three week period addressing a number of specific questions relating to the uses of student data. The resulting range and complexity of the discussions has informed policy development and will feed into the ways in which communication of both the policy and the implementation of learning analytics will be rolled out across the Open University. This study has offered an opportunity to explore how students might react to increasing uses of their personal and study data, and to facilitate a more considered and informed response.

Keywords: learning analytics; policy, stakeholder views, students

Introduction

The Open University (OU) is a large, open distance learning institution with more than 200,000 students. In common with many other higher education institutions (HEIs), the University is looking more closely at its use of learning analytics. Learning analytics has been defined as the collection and analysis of data generated during the learning process in order to improve the quality of learning and teaching (Siemens, Dawson & Lynch, 2013). In the context of the Open University, learning analytics is the use of raw and analysed student data to, inter alia, proactively identify interventions which aim to support students in completing their study goals. Such interventions may be designed to support students as individuals as well as at a cohort level.

The use of a learning analytics approach to inform and provide direction to student support within the Open University is relatively new and, as such, existing policies relating and referring to potential uses of student data have required fresh scrutiny to ensure their continued relevance and completeness (Prinsloo & Slade, 2013). In response, The Open University made the decision to address a range of ethical issues relating to the University's approach to learning analytics via the implementation of new policy. In order to formulate a clear policy which reflected the University's mission and key principles, it was considered essential to consult with a wide range of stakeholders, including students.

Literature review

Amidst the hype surrounding the potential of Big Data and more specifically the use of student data in learning analytics (Booth, 2012; Wagner & Ice, 2012), there are increasing concerns regarding the ethical implications of the harvesting, analysis, use and storage of student data (Prinsloo & Slade, 2013). Central to the general concerns regarding the protecting of privacy and informed consent, is the notion of "privacy self-management" which has its origins in the Fair Information Practice Principles (1973) which covers, amidst other issues, "individuals' rights to be notified of the collection and use of personal data; the right to prevent personal data from being used for new purposes without consent; the right to correct or amend one's records, and the responsibilities of the holders of data to prevent its misuse" (Solove, 2013, p.1882).

Most of the current strategies regarding the harvesting, analysis, use and storage of student data focuses on issues surrounding informing students of the harvesting and

use of their data, but as Solove (2013) and others indicate, most of these initiatives to inform individuals don't work because of the fact that

> *"1) people do not read privacy policies; (2) if people read them, they do not understand them; (3) if people read and understand them, they often lack enough background knowledge to make an informed choice; and (4) if people read them, understand them, and can make an informed choice, their choice might be skewed by various decision-making difficulties" (Solove, 2013, p.1888).*

Although many HEIs have adopted learning analytics to some extent, there is little formal evidence that students are aware or explicitly consulted on the broader uses of their data beyond research. Despite various claims regarding the success of learning analytics to improve student success and retention (e.g., Arnold, 2010; Clow 2013), Watters (2013) warns that "the claims about big data and education are incredibly bold, and as of yet, mostly unproven" (par.17).

At Purdue University, students can access a video which explains how their data is used to produce predictions of their success and alerts them to potential progress problems using the Course Signals tool (Pistilli et al., 2012).The University of Maryland (UMBC) introduced a Check My Activity tool which gives students more control of their own data by allowing them to compare their online activity and grades to those of other students. UMBC has promoted awareness of this tool and its purpose. It plans to track which students engage with this tool (but provide an opt out facility for students who don't want their usage to be tracked) (Fritz, 2010).

More generally, there is broad discussion on the issue of transparency and the possibility – or even the desirability – of an opt out option, but little to suggest that HEIs consult directly with, or inform students explicitly regarding, the ways in which their data is used. In the light of the literature that indicates that we need to move "beyond privacy self-management", we should perhaps rethink issues such as consent and the unequal power-relationship between the institution and students, the advantages of opting in rather than opting out, addressing privacy's timing and focus and the codification of privacy norms and developing substantive rules for data collection (Solove, 2013).

Research design and methodology

This study takes a directed content analysis approach. The "goal of a directed approach to content analysis is to validate or extend conceptually a theoretical framework or theory" (Hsieh & Shannon, 2005, p.1281). Directed content analysis is therefore much more structured than conventional approaches to content analysis. Using a deductive, directed content analysis approach entails identifying key concepts of variables as initial coding categories, defined by theoretical frameworks and published research (Hsieh & Shannon, 2005).

The purpose of the study was to inform the development of new policy relating to how student data is used to shape student support by sharing an early draft and providing a number of structured questions for consideration. Data was collected over a period of 3 weeks in 2014 from the University Students' Consultative Forum. The role of the forum is to enable students to consider and discuss matters affecting study at the OU and potential changes to University strategy and policy. It comprises 50 volunteered members who each participate for a minimum period of a year, appointed from the following categories:

- A core of representatives from the Open University Student Association, to include three central representatives, one from each of the four UK Nations, and two international students;
- One student from each of the curriculum-based consultation forums (17 in total) and one student from the University postgraduate research students consultative forum; and
- Student representatives on the various committees that make up the University governance structure.

Student representatives are asked to constructively contribute their personal views (as individual students rather than as formal representatives of other groups of students) to separate online discussions on matters affecting study and the student experience. The topic forums are limited to forum members for discussion purposes, but are open to all staff and students to read.

Details of the discussion questions

In preparation for the discussion, all forum members were given access to the draft policy which outlined the context and background to the University's historical data collection, potential use of learning analytics, definitions of activity and data types which would be in or out of scope, and the set of eight overarching principles which

would form the basis for the University's approach to making more effective use of student data. Nine questions aimed at exploring both student awareness of the issues associated with a learning analytics approach and their reactions to those issues were posted online in a phased manner to the University Students Consultative Forum. One author had access to the forum as an invited moderator to support the discussion and to provide clarification where needed. In the review of the posts, moderator posts were not considered.

Students were asked to explore issues around keeping their information up to date, transparency issues (why the University collects data and how it is used), to discuss their experiences of receiving student support messages during their studies, and to consider concerns regarding data collection and storage. The questions posted over the period are given below:

1. Do you regularly keep your StudentHome profile and other information such as study goals up to date? Is there anything the OU could do to make it easier to do this?
2. How often should the OU give you opportunities to check and update your data, and give consent to its use? What would be the most effective way of doing this?
3. Do you think the OU makes clear enough how and why it collects and analyses data? How do you think the OU should communicate its approach to students in the future?
4. Can you think of occasions when the OU has actively used data it has built up about you to offer you support tailored to your needs? Have these initiatives effectively used the information the OU holds about you?
5. Have you ever been offered support that you felt has not been based on relevant, up- to-date and accurate information the University holds about you?
6. Have you any other concerns about data collection, storage, updating and that you think the OU should address?
7. Do you think there is any information that the OU doesn't collect or use at present which it should do in the future?
8. Is there any information which the OU currently collects that you think is not relevant to supporting you as a learner?
9. Is there anything else you would like us to consider?

Limitations of this study

The forum is a recognised means of allowing students views to be reflected, and, as such, consults on matters relating to policy affecting students. It would be difficult to argue that the views of forum members can be accepted as representative of the whole of the OU student body. Their views can, at most, represent an initial basis for further research.

Analysis and Findings

Over the 3 week period, there were over 300 posts. 35 forum members made at least one post and six students made 16 or more posts. The questions and resulting discussions fell into four broad categories: keeping student information up to date; transparency issues, discussion of student support experiences; and data collection, storage and analysis storage. A summary of the discussion is captured below.

The need for accurate information and a shared responsibility

The term 'student profile' caused some initial confusion. The discussion was intended to explore how students felt about updating information initially collected at the point of registration – mostly demographic data around ethnicity, disability, academic history etc, but including other information aimed to help provide relevant support, for example, study goals, reasons for study, etc. This information can occasionally become outdated, for example, if a student's financial circumstances or geographic location change, but several students first interpreted this as referring to their visible forum profile (their photo or other picture and released contact details). Once clarified, it was agreed that the process of updating held demographic information was straightforward, although some felt that there needed to be clear, persuasive reasons given to keep the profile up to date. The purpose of collecting some data was not always understood. For example, study goals were felt to be liable to change, but if students were unaware of the use that is made of that information, there would be less of a driver to keep it up date.

> *"I have not yet seen any persuasive argument for reviewing my profile on any basis, regular or otherwise."*

Many students felt that the collection of this 'core' information was both irrelevant and intrusive, and resented being prompted – often several times – to update it and fill any gaps in University records.

> *"I do not approve of the OU holding personal details on file about me other than those very specifically related to my studies. Some questions I view as impertinent and intrusive. Is the University hell-bent on gaining a reputation as an intrusive busy body?"*

This view was expressed by other students, suggesting that most were unaware that the Open University, like other HEIs, routinely collects a wide range of data for regulatory and reporting purposes.

Generally, there was no single consensus on any of the issues flagged here – rather than developing an understanding that students have a responsibility to ensure that their personal information is accurate and relevant, the discussion appeared to provoke further concerns and bring to the surface unease and irritation. In developing the idea of how often students might be prompted to review their personal information, many felt that students could do this at any time, others felt that an annual reminder to check (or at module registration) would be sufficient. The discussion began to unearth concerns about the implications of registration itself

> *"and any registration such not depend on giving consent to be part of – choose your words here [tailored support; a research project; marketing data; alumni communications]."*

One contributor felt more comfortable with broader uses of his data, posting

> *"it should be just an advisory indicating that it would be useful to update your profile both from the student's own perspective and to aid the OU in its analytical exercises for the benefit of the university as an institution and to future students. Perhaps some sort of opt out clause for any data that some might have objections to, although I can't imagine there would be anything that controversial that might produce flag waving student protests of epic proportions."*

Transparency of purpose

The issue of purpose perhaps raised the most emotive discussion over the period, generating more posts than any other topic. Students were clearly concerned that any data collection would be a new activity ("*didn't know they used the information for stuff, so yes, I would appreciate knowing what it's being used for*"), and that as a result, actions might be applied to them ("*some students have been appalled that an*

educational establishment has been collecting data that they didn't expect. For example, monitoring their use of websites and how far they have progressed through a module.") or they might be prevented from making particular study choices. The general view was that more could be done to make clear what data is being collected, how it is being collected, where it is being collected from, the uses for which it being collected and who will have access.

Although contributors did recognise the positive intentions associated with a learning analytics approach, there were some murmurings of disquiet, perhaps best summarised by this student:

> *"There's a huge difference IMO between anonymised data to observe/monitor large scale trends and the "snooping" variety of data collection tracking the individual. I'm happy for any of my data to be used in the former; with the latter I would be uncomfortable about the prospect that it would be used to label and categorise students in an unhelpful or intrusive way".*

There were a number of suggestions for communicating the approach to students in the future, for example

- stating exactly how information is used, with links to the detail;
- providing a basic summary of the key points on the student's home page;
- communicating the approach at the point that a student is about to supply any data that is to be used;
- providing a fairly inclusive set of examples of what information is gathered and how it may be used.

Experiences of student support

At this stage, contributors were more aware of the background to the discussion (the wish to make greater use of student data to tailor student support) and many had begun to voice concerns around how such an approach might lead to assumptions and generalisations. Against this background then it was a little surprising to have a largely consensus view that their experiences of student support to date did not appear to have been based on relevant (to them as individuals), up to date and accurate information. Indeed, there was a clear view that, as a result of generalisation, the volume of emails received from the University was excessive, with the result that

potentially important (to them as individuals) messages could be overlooked, for example,

> *"I get strange emails from time to time that are just not targeted at me (I tend to hit delete fast now). I concluded that the OU doesn't make best use of data on what modules people have done/ what quals they already have." and "The problem with an apparent blunderbuss approach is that it devalues the credibility of OU postings, so that any useful information is quite likely to end up under the delete key."*

One student did spot the conflict here with other discussions relating to intrusiveness by posting:

> *"Difficult for the University though to flag issues like this to students without holding data about what we do/how well we do/whether we use the forums/need advice..."*

This small post generated lots of useful discussion about how data could and perhaps should be used to provide a more personalised and relevant support service, with students suggesting that a learning analytics approach applied in conjunction with support delivered by a personal tutor might ameliorate the risks of labelling students incorrectly. Others felt that the involvement of tutors could effectively prejudice the tutor:student relationship by impacting on the tutor's expectations of that student. Another set of students felt that if the analysis of their data resulted in a 'false positive' identification, the risk of mislabelling could be managed if the consequence were limited to the offer of a service (which could be declined) rather than the removal of study options.

Data collection, storage and analysis

Views around the issues of data collection and storage were fairly non-contentious. Generally contributors expressed similar views which may be best summarised below:

- It is important to have a clear purpose for data collection and to communicate that purpose effectively ; to explain what data will/won't be used for, and who can see it (e.g. on each student, in aggregate).

- A set of frequently asked questions developed for staff dealing with declaring personal information around diversity could usefully be replicated for students.
- There should be transparent policies about how long data can be held for and what the process is for handling requests for deletion of data.
- Data should only be shared on a 'need to know basis' – particularly where it is personal/sensitive
- There should be strong and transparent governance in this area with a focus on ethics.
- Data handling protocols are important and should be enforced effectively.
- There should be periodic data audits.
- There should be an up-to-date data dictionary.
- It is important to address any concerns about the sharing of information with other organisations or the processing of information by other organisations.

The issue of analysis of that data caused more interesting discussion though with students flagging the differences between raw data and 'derived information'. This theme cropped up in many of the separate discussions with concerns flagged about the reliability of the models used ("*people simply cannot draw the conclusions that they want to on the basis of a data pattern*") and the ways in which model results might be employed ("*I have a concern that increased data-richness resulting in over-reliance on data and 'computer says no' responses. Catering for the individual is what's needed. If data collection is used to help appropriate questions to be asked, fine – if it's providing answers, very much not so*."). Several students also flagged the need for staff involved in data analysis and in the delivery of intervention based on that analysis to be well-informed and appropriately trained.

Discussion

The range of issues flagged in direct response to the questions posted has provided useful additional understanding of the student perspective. In addition, the discussions have occasionally touched on aspects of the application of learning analytics within higher education that were not explicitly sought. The two most prominent topics of debate centred around third party data sources and the issue of informed consent/opt out.

Students were quick to flag the dangers of data protection and privacy in relation to having their data passed on – e.g., where a third party undertakes a service on behalf of the University. These issues were assumed to be neatly dealt with by existing policy.

However, there was also a view expressed that the University should not attempt to draw in information from third party sites for its *own* purposes. One post stated

> *"I don't object to somebody at the OU who I have seen fit to add to a Facebook group commenting. That's why they have added to a group. But I don't add The OU as an entity to a group. And I don't expect it to go wandering about the web picking up snippets about me and feeding that in as data to be used in an analytical programme."*

This student felt that such information could be easily misconstrued and would overstep the boundaries of acceptable permissions.

The most dominant issue raised across all of the questions posted though concerned the need for consideration of informed consent and/or opt out. This was flagged several times with students stating that

> *"I think an opt-out option is essential for students who do not want to share data for whatever reason. No one should feel compelled to provide data if they don't want to and they should be able to keep their reasons for this, which may be very personal, private."*

and

> *"Basically informed consent should be required. A right to refuse without compromising study ought to be built in."*

Perhaps the view was expressed best by one post which observed the apparent correlation between certain study behaviours (the behaviour cited was lack of online engagement in the early stages of study) and success in a module. The author also noted the argument for a duty of care to advise people against making a potentially costly mistake by continuing on a course they might not complete. S/he concluded this by stating "*But it is ultimately their choice*."

Interestingly, the Open University has approved the policy which will establish its position on the ethical use of learning analytics, but has not implemented the provision of an opt out clause. The background to this is complex reflecting the need to fully explore both the practical issues associated with enabling full (or partial) opt out, but most importantly to establish where the duty of care primarily lies. It is this

latter issue that has led to a further consultation to establish what lies at the heart of supporting its students: to assume a moral responsibility for employing information which aims to provide more effective and relevant support for all students, or to recognize students as informed individuals with the right to choose not to receive targeted intervention and support based on their own information.

Conclusion

The use of a forum to gather representative student views to feed into the development of policy covering a learning analytics approach to student support proved to be hugely useful. The range and complexity of many issues flagged has helped to inform and more clearly define the policy document and will feed into the ways in which communication of both the policy and the implementation of learning analytics will be rolled out across the Open University.

The direct involvement of the student voice in shaping a policy dealing with the ethics of learning analytics has offered a unique insight into the ways in which students regard their data - as a valuable entity to be carefully protected and even more carefully applied. In progressing the development of learning analytics in higher education, it is crucial to explicitly address the benefits and potential pitfalls of some an approach from the perspectives of all key stakeholders. This study has offered an opportunity to explore how students might react to increasing uses of their personal and study data, and to facilitate a more considered and informed response.

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An Exploration of Tutor Feedback on Essays and the Development of a Feedback Guide

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Abstract

Feedback on student essays is a central aspect of learning in higher education, and feedback quality is important. An evaluation of existing tutor and student feedback was carried out to determine the relationship between tutor feedback summaries and students' notes to their tutors, regarding their efforts in response to the feedback. An analytic framework was developed in conjunction with content analysis of these naturally occurring data. Categorising and mapping the categories of feedback longitudinally revealed diverse feedback patterns and trends of diminishing future-oriented feedback during the course. Personal qualitative engagement with the data also revealed examples of unclear feedback. Subsequently, a guide was developed in order to unpack the language surrounding academic writing skills. The guide was piloted with ten volunteer tutors. The study concludes that unpacking the academic language that is frequently applied to writing skills, will support conversations between tutors and students as well as amongst academics.

Keywords: academic essay; assessment; feedback construction; distance learning; content analysis

Introduction

The provision of appropriate feedback on assessed work to students in higher education has long been a topic of concern. Now that universities are ranked according to responses to the National Student Survey, student ratings of their feedback have acquired a new salience. It is possible, via the Unistats (n.d.) website to compare how many students responded positively to the statements 'I have received detailed comments on my work' and 'Feedback on my work has helped me clarify things I did not understand'. In 2014, inspection on the Unistats website of a sample of 40 English higher education institutions offering health and social care courses indicated that receiving detailed comments usually, but not always, outscored the ability of feedback to clarify understanding. This reflects the finding of research (e.g. Sadler, 2010) showing that feedback does not necessarily lead to improvement and that more is not always better.

The Open University has a reputation for excellence in the assignment feedback provided to students (Gibbs, 2010); however, ongoing experience of Open University academics is that students do not always appear to be responding to, or even in some cases reading, the tutor feedback. As established by Hattie and Timperley (2007), an essential aspect of providing feedback is discovering how students have interpreted it. In the [organisation] distance-learning context, students typically do not contact their tutors to discuss the feedback on their assignments and frequently tutors are working somewhat in the dark with respect to how their feedback is received. This paper discusses some of the challenges raised by this situation typically experienced within the Open University distance-learning model and reports on an investigation of patterns of tutor feedback in the context of written assignments in a health and social care module.

A second stage of the project reported here is the testing of a tool or guide intended to support tutors to unpack the academic language surrounding feedback on academic writing in student essays. For example, what does it mean if an essay needs 'more depth' or a student's writing is 'too descriptive'? How can a student replicate 'good structure;' next time if it is not clear what they did well last time? The tool aimed to meet three outcomes for students: to understand the rationale for their marks; to know what to work on next time and how to do it; to feel motivated to take control of and continue their studies. This paper will discuss the issues raised by a pilot study with a sample of tutor volunteers.

Background literature

In Higher Education, the essay is valued for affording explicit presentation and evidencing of ideas (Andrews, 2003). Therefore, essays should allow students to demonstrate their level of understanding and tutors to assess this. The academic essay, however, occupies contested ground. Read, Francis and Robson (2005), for example, called into question the validity and reliability of essay assessment when they found wide variation between academics in the marking of the same student essays. Tomas (2013) identified flaws in criterion-based marking systems, observing that tutors commonly applied norm-referencing alongside criterion-referencing as a form of self-monitoring. Moreover, students recognise variation between markers and can become sceptical about the credibility of feedback they receive (Poulos & Mahony, 2008). There is also potential for miscommunication between students and academics. For example, we cannot assume that students will understand the language that academics and tutors use in guidance on academic skills (Higgins, Hartley & Skelton, 2002). Despite the many reservations, academic essays have been found to support deep learning approaches, extending opportunities for students to demonstrate their intellectual skills (Scouller, 1998).

For feedback on essays to be effective, both staff and students need to share an understanding of its purpose, whether for correction, behavioural reinforcement, diagnosing problems, benchmarking or longitudinal development (feed-forward) (Price et al., 2010). According to Price et al. (2010) in their study of three university business schools, both students and tutors aspired to give or receive forward-feeding developmental feedback, although in reality diagnosis and benchmarking predominated. This observation was partly attributed to the linkage of formative and summative assessment: summative assessment is more likely to demand that feedback provides justification for the marks. Moreover, there is evidence that tutors are just as likely to write their justifications for external observers as for students (Bailey & Garner, 2010; Tuck, 2012) and therefore their feedback is not only tailored to a student's requirements. One can infer that in order to improve feedback effectiveness, a starting point is to ensure that all concerned share an understanding of the expectations of academic writing in a particular discipline (Itua et al., 2014).

Numerous scholars have explored how to improve feedback on essay writing. Walker (2009), for example, claims that tutors need to pay more attention to explanations to qualify their positive or negative comments on the script. Structured feedback is also promoted as good practice. Part of the success of Norton's structured Essay feedback

checklist, for example, is attributed to helping steer students with greater precision and to help students understand assessment criteria (Wakefield et al., 2014). Further studies of feedback on student assignments have highlighted retrospective feedback (feedback on the specific content and skills demanded by the assignment) outweighing that which is future-altering (feedback on generic skills and content), and a deficiency in feedback on skills (Chetwynd & Dobbyn 2011). It has been argued that such imbalances may impair students' chances to respond positively in developing their academic writing skills (Walker, 2009) as well as their broader learning strategies (Lizzio & Wilson, 2008), and therefore that much more attention needs to be paid to skills.

In addition to the technical and structural aspects of written feedback, there is also widespread recognition of the influence of the affective domain in feedback practices (Carless, 2006; Molloy, Borrell-Carrió & Epstein, 2013). Cramp, Lamond, Coleyshaw and Beck (2012) found that potent emotions associated with assessment can be disabling for students. Emotions such as fear of failure or a sense of actual failure can interfere with a student's interpretation of feedback (Knight & Yorke, 2003), and awareness of this student vulnerability can also result in tutors delivering feedback designed to preserve a student's dignity (Molloy et al., 2013). Moreover, it has been established that 'first-year' students particularly need to be supported in the emotional aspects of learning, such as when receiving and interpreting assignment feedback (Cramp et al., 2012; Poulos & Mahony, 2008). Barnett (2007) has offered further insights, suggesting that there is performance involved in the act of assignment writing. The 'performance' is two-fold: 'reaching out to an audience' (mainly the tutor) and the performance involved in using language to create academic arguments (Barnett, 2007 p.79). Barnett also discusses the element of personal investment in academic work, proposing that submitting an assignment is an act of proffering a gift. His suggestion that students are vulnerable to fear of rebuke and criticism in response to the 'gift' of an essay provokes further reflection on the transactional nature of assessment.

The context of the study

K101 'An introduction to health and social care' is a core introductory undergraduate module for the Faculty of Health & Social Care at The Open University. As well as providing an overview of experiences and practices in health and social care and introducing theoretical concepts, K101 also has a role in developing study skills in a way that is accessible to a non-traditional audience. The continuous assessment

strategy, involving seven written assignments over an eight-month period, was designed explicitly to provide frequent opportunities for students to practise academic writing and obtain both formative and summative feedback. Additionally, K101 is a component of The Open University's social work degree, in which the professional body mandates that all tutors provide feedback to students on the standard of writing in their assignments. During a project aimed at providing targeted writing development support for K101 students who were particularly challenged by academic essay writing, it became apparent that the technical aspects of essay writing could not be separated from students' personal struggles to understand the content of the module, the expectations of assessed work, and what it means to study at HE level.

We realised that K101 students might not always understand or be able to respond productively to the written feedback. It became clear that there was a chain of communication events, each of which was vulnerable to misinterpretation, from the intentions of the central academic writing the question (including the student guidance and tutor marking guidance) to the diverse understandings of the genre of essays in HSC and what constituted a good essay. Small-scale investigations of the student experiences of writing essays and tutor experience of supporting essay writing at the Open University (e.g. Donohue & Coffin, 2012), indicated that students, central academics and tutors could potentially make very different sense of the requirements of an essay task.

In 2011/12 the introduction of self-reflective questions in two K101 tutor-marked assignments (TMAs), aimed at encouraging students to engage with their tutors' feedback and reflect their responses back to the tutor, provided an opportunity to evaluate an aspect of the student-tutor dynamic within this process. The questions, included in TMA02 and TMA07, focused on students' perceptions of their responses to their tutor's feedback. In both TMAs, students were asked to give very short answers to the questions 'What aspects of your tutor's advice from previous feedback have you tried to use in this assignment?', 'What have you found most difficult about this TMA?' and in TMA07 only, 'How do you view your progress since you started K101?' The focus of the first part of this paper is on the observable distance-tuition interface between student and tutor. It analyses the tutor feedback and the insights students reflected back to their tutors. The second part summarises a pilot implementation of a tool to facilitate structured explicit and meaningful feedback in K101 essays.

Stage 1: exploring feedback practices and explicit student responses

Aims

This first stage aimed to evaluate the relationship between tutor feedback summaries on student essays and student responses to the self-reflective questions. Trends in retrospective and future-oriented feedback, and content and skills feedback were explored through the course.

Method

In this longitudinal evaluation study using naturally occurring data, random samples of tutor feedback summaries were systematically content-analysed for 'content and skills' feedback and their retrospective or future-altering orientations (Chetwynd & Dobbyn, 2011). Table 1 shows Chetwynd and Dobbyn's (2011) matrix indicating four main feedback domains: retrospective on content or skills, and future-altering on content or skills, which has been applied to tutor marking guidance on an OU technology course. In addition, student responses corresponding explicitly to their tutor's feedback were analysed according to the particular content or skills orientation. This was essentially a qualitative, interpretive process resulting in some quantifiable cohort data and individual student-tutor 'cases'. The frequency with which the tutor sample commented on a particular feature, and the mode (whether retrospective or future-oriented) were mapped over time (per TMA) and against the students' self-reflective notes. A further mode of engagement with the data involved the single investigator making personal judgements about the clarity, meaningfulness and navigability of the feedback.

Table 1: A feedback matrix, from Chetwynd and Dobbyn (2011)

	Retrospective	**Future-altering**
Content		
Skills		

Analytic framework

Taking Chetwynd and Dobbyn's (2011) matrix as a starting point, the 'skills' element was further subdivided during engagement with the feedback samples to take account of the range of writing skills being developed in the course and the clear distinctions being made by the tutors in their feedback. Note that tutors also provided comments on the script, but these were not included in the study because the purpose of the summaries was to draw together the observations of the scripts and present the tutors' overall impressions of the work. The original 'future-altering' category was rebadged

as 'future-oriented' in recognition of the limitations of the content analysis activity, namely that the explicit future effects of individual elements could not be determined and to recognise that all feedback was potentially future-altering. The final analytic framework applied eight 'content and skills' categories (see Table 2).

Table 2: Analytic matrix of content and skills categories in feedback

Content and skills	**Tutor retrospective (focused on the marked essay)**	**Tutor future-oriented (framed as work for future assignments)**	**Student Self-Reflective notes**
Study skills: self-organisation, study strategies, providing a word count (as good academic practice), signposting to/offering further resources or support			
Referencing: all referencing skills			
Cognitive skills: ways of handling content – interpreting/answering the question, defining terms, using concepts, and developing an argument			
Content: use of evidence and course materials, including case material			
Style: flow, signposting, clarity (beyond basic grammar issues), word contractions, and 'voice' (such as use of first/third person)			
Structure: organisation of the essay, word count (whether the appropriate length), and paragraphing			
Grammar and spelling: sentence construction and spelling			
Presentation: layout and choice of font			

Sampling

Electronic tutor-marked assignments (eTMAs) were sampled by hand via the eTMA monitoring system, which itself had already randomly selected marked scripts for quality assurance monitoring. Rules applied during hand sampling were to select different tutors each time and to achieve a geographical spread across the UK. An initial sample of 52 students became depleted, due to some not submitting self-reflective notes, not downloading some feedback, or ceasing to submit TMAs. The final sample of 25 students (about 1.5 per cent of all course completers), each with different tutors, provided a complete data set for the purposes of the study. In total, the data comprised 125 samples of tutor feedback on five essays per student/tutor pair, and 50 samples of student self-reflective notes. Although there were seven TMAs altogether, TMA05 was omitted from the study because it was based on a team project

rather than material related to the course content. The only element of TMA07 included in the study was the student self-reflective notes referring to previous feedback.

Selecting and coding the data

The text of the tutor feedback was interpreted and coded according to the eight content and skills elements, and further differentiated into retrospective and future-oriented feedback (see Table 2). The detailed attributes of the skills categories were developed inductively through working with the samples. The categories of students' reflective notes were similarly documented. Counting of each category of feedback was conducted at the level of present or absent in each feedback summary. The number of times a tutor made a comment in the same category was not recorded, and seemed less relevant than recording *which* skills were mentioned and *how* they were framed. 'Cases' were created to map the 'feedback journey' of individual students and to determine any relationship between tutor feedback patterns and the student's reflections.

Findings

With regard to clarity, meaningfulness and navigability of the feedback, there were notable variations in layout, organisation of feedback themes, and sentence composition. Some tutors had separated their retrospective and forward-feeding feedback on the page. In other cases, tutors had combined retrospective and future-oriented feedback into one paragraph or even within sentences. Surprisingly few tutors had actually cross-referenced their summaries to script comments, or signposted their script comments. Despite the great expertise in providing students with useful and constructive feedback, it was also apparent that there was scope at times for increasing the clarity of feedback summaries through improving the structure and by unpacking the jargon. For example, what does it mean if an essay needs 'more depth' or a student's writing is 'too descriptive'? How can a student replicate 'good structure;' next time if a tutor did not explain what exactly was good about the structure last time?

Application of the analytic framework revealed that retrospective tutor feedback mostly outweighed future-oriented feedback, particularly for cognitive skills and content. Tutors paid much more attention to future-oriented feedback in the early parts of the course than in the later TMAs. Student self-reflective notes submitted in TMA02 were generally well matched to the categories in tutor feedback on TMA01, as

shown in the cohort charts in Figures 1 and 2 and in the individual 'cases' represented in Figures 6-9.

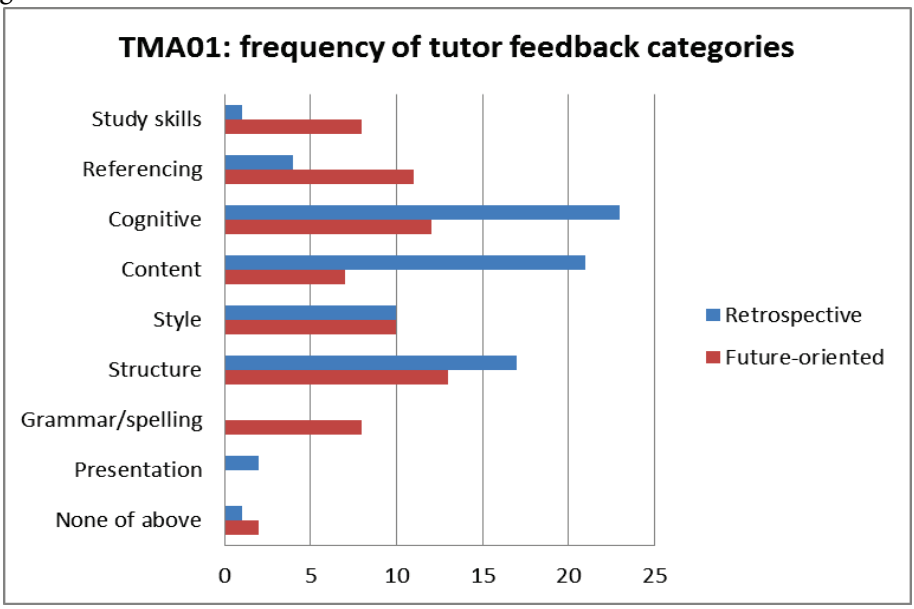

Figure 1. Number of tutors (max 25) referring to the analytic categories in TMA01 feedback

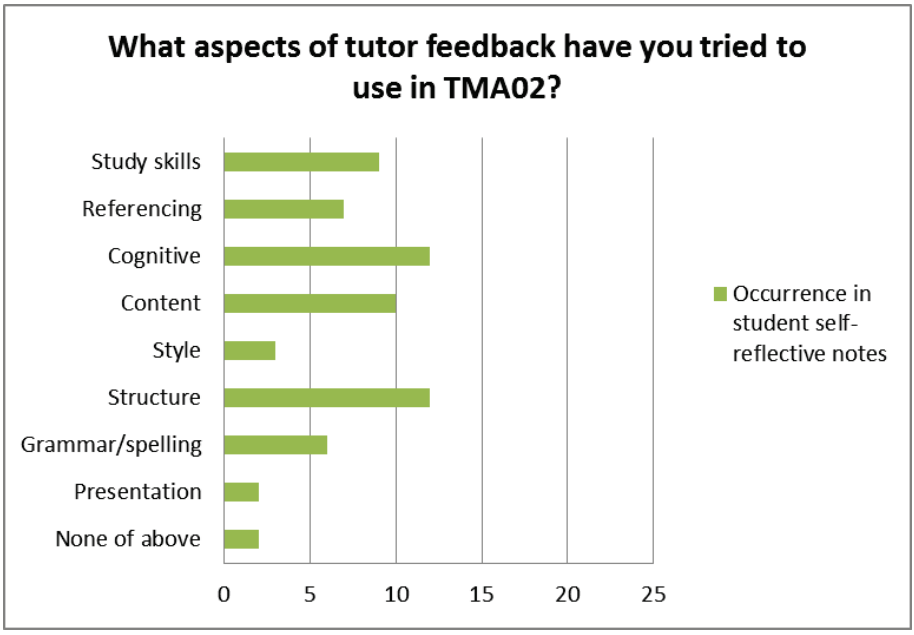

Figure 2. Number of students (max 25) referring to the analytic categories following TMA01 feedback

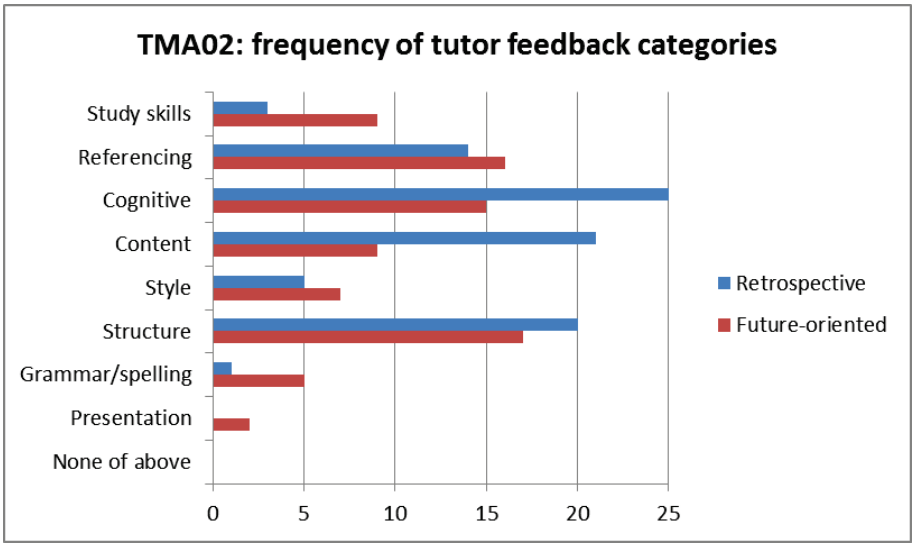

Figure 3. Number of tutors (max 25) referring to the analytic categories in TMA02 feedback

Figure 4 shows the contrasting patterns of feedback for the penultimate TMA. Future-oriented feedback was much reduced at this point and was completely absent in seven cases. At the end of the course, the most popular category reflected back by students was referencing, closely followed by study skills and cognitive skills (see Figure 5).

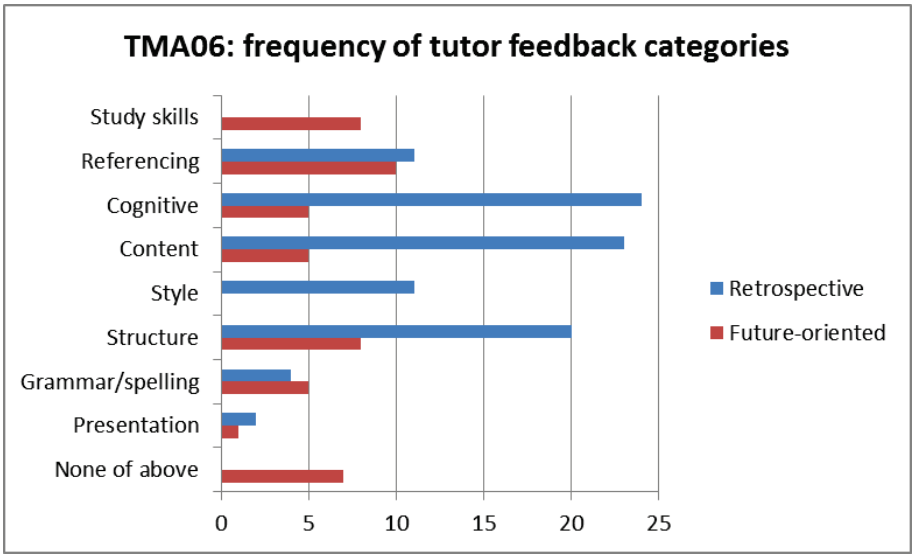

Figure 4. Number of tutors (max 25) referring to the analytic categories in TMA06 feedback

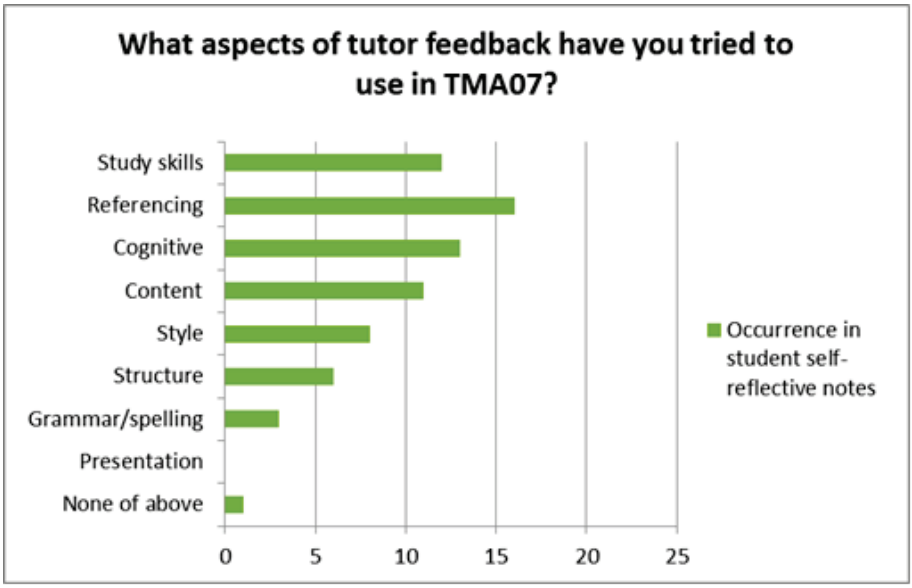

Figure 5. Number of students (max 25) referring to the analytic categories in TMA07

Overall, the tutors appeared more inclined to give future-oriented feedback on referencing, study skills and essay structure. Content and cognitive skills, which are perhaps more heavily dependent on context, were less likely to be framed as points for future work than as retrospective justifications for the marks given. The following examples of 'cases' show differing patterns of tutor feedback and student responses in their self-reflective notes. They indicate the range of feedback patterns observed in the sample through plotting the categories of feedback observed in individual student-tutor pairs.

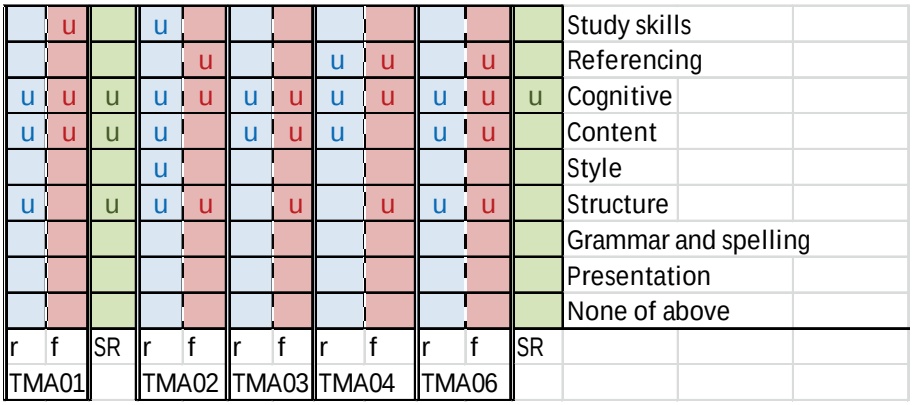

Figure 6. Student whose writing did not progress smoothly, yet who seemed to recognise the paramount need to develop cognitive skills (r = retrospective tutor feedback; f = future-oriented feedback; SR = student self-reflective notes after TMA01 and 06)

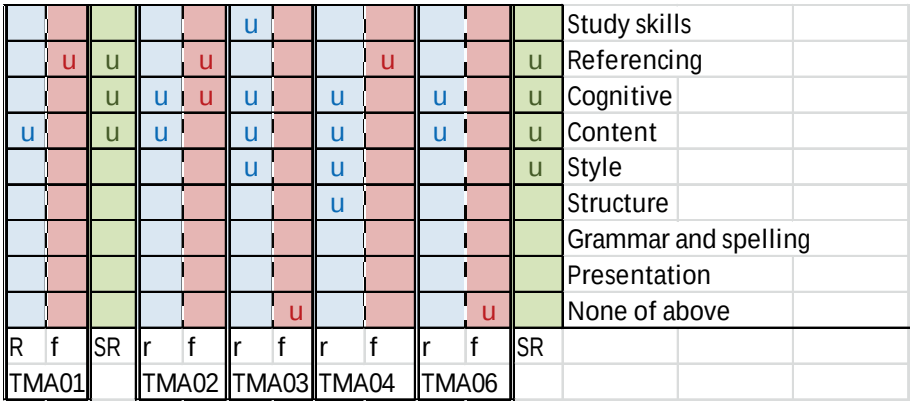

Figure 7. Student who made good progress and seemed responsive to retrospective feedback on content and skills (r = retrospective tutor feedback; f = future-oriented feedback; SR = student self-reflective notes after TMA01 and 06)

TMA01 R	TMA01 f	SR	TMA02 r	TMA02 f	TMA03 r	TMA03 f	TMA04 r	TMA04 f	TMA06 r	TMA06 f	SR	
				u							u	Study skills
	u	u						u				Referencing
u		u	u	u	u		u		u			Cognitive
					u							Content
				u								Style
							u					Structure
				u							u	Grammar and spelling
												Presentation
						u				u		None of above

Figure 8. Very selective tutor feedback, where a student reflects superficial engagement with writing in TMA07, despite early engagement with cognitive skills (r = retrospective tutor feedback; f = future-oriented feedback; SR = student self-reflective notes after TMA01 and 06)

TMA01 R	TMA01 f	SR	TMA02 r	TMA02 f	TMA03 r	TMA03 f	TMA04 r	TMA04 f	TMA06 r	TMA06 f	SR	
	u					u					u	Study skills
	u		u	u	u	u	u	u	u	u		Referencing
u	u	u	u		u		u		u		u	Cognitive
u	u	u	u		u		u		u			Content
u	u		u		u		u		u			Style
u			u	u	u	u	u	u	u			Structure
	u			u	u	u	u		u			Grammar and spelling
												Presentation
												None of above

Figure 9. Very systematic feedback justifying the marks and focused mainly on referencing, structure and grammar in future-oriented feedback (r = retrospective tutor feedback; f = future-oriented feedback; SR = student self-reflective notes after TMA01 and 06)

The four sample cases shown here demonstrate a range of patterns within tutor-student pairs, and indicate a range of tutor practices. Qualitative engagement with the tutor feedback samples has reinforced this impression of variability and prompted an effort to introduce some practical measures to facilitate a more consistent approach. Personal impressions included concerns that lack of structure, use of jargon, or too much information (even if based on sound judgements about the essay) could be confusing, overwhelming or demotivating. It seemed judicious to offer tutors further guidance on how to develop more future-oriented feedback (Robinson, Pope & Holyoak, 2013), even though retrospective feedback also appeared to have a future-altering impact in some cases (see Figure 7, for example).

Stage 2: developing a tutor feedback guide

A feedback guide, which focused on the tutor's feedback summary, was developed following the analysis of tutor feedback and the corresponding student self-reflective notes reported here. A list of ten principles was proposed, driven by a desire to meet three outcomes for students: to understand the rationale for their marks, to know what to work on next time and how to do it, to feel motivated to take control of and continue their studies. This closely reflected Nicol and Macfarlane-Dick's (2006) principles of good feedback practice. Space on the feedback forms was premium, and tutors were requested to steer away from complicated sentence padding such as 'You do need to focus on ensuring that...'. The guide also specified a consistent structure and urged tutors to double-check their own spelling and sentence construction. The recommended feedback sequence comprised motivational opening, retrospective feedback on strengths, retrospective feedback on weaknesses, and future-oriented feedback on how to develop skills in future work. The detailed attributes of the skills categories, which were developed inductively through working with the feedback samples discussed in Stage 1, informed the organisation and specific content of the guidance.

Principles – The feedback summary should:

1. Be clearly structured, and written in clear, simple language.
2. Contain a prominent motivational element.
3. Be appropriate for the stage of the student journey.
4. Be meaningful to each individual student.
5. Signpost to script comments where appropriate.
6. Include 'retrospective' feedback on the submitted work: strengths and weaknesses.
7. Include 'future-oriented' feedback.
8. Provide feedback on both content and skills.
9. Flag appropriate events and/or resources.
10. Make the implications clear if a student is failing.

The bulk of the document featured examples of wording for the feedback summary, for example, 'you showed your understanding of the question partly by defining the important terms' (cognitive skill), or 'You achieved a good balance in length/word count between the different elements of your answer' (structure). Future-oriented feedback included: 'Try to adopt a more formal writing style, by bringing in more of the specialist language and the concepts discussed in the module' (style), and 'When you plan your essay, try linking some K101 source material (e.g. video, a resource, or discussion in the Block) to each part' (content).

The tool was piloted in 2013/14 and feedback gathered from ten tutor volunteers. All pilot tutors enthusiastically embraced the principles and adjusted their feedback practice to varying degrees. Participants were asked to fill in a questionnaire and return it after they had marked the final TMA. Table 3 displays the questions posed and representative tutor comments. Salient issues arising out of the pilot included layout of the document, the degree to which the feedback suggestions should go beyond phrasing for writing skills to suggesting motivational openings/closures and links from strengths to weaknesses, and the degree to which the suggested structure and phrasing should be formally adopted or remain as a staff development aid.

Table 3: Tutor participant responses to the pilot questionnaire

Please comment on the scope and content of the guidance. Is there anything you would change, add or remove? Is there anything you particularly liked or disliked?	*Phrases and sentences that are quite relevant and focused on performance so that feedback can be made very tailored to students as individuals. I liked this.* *It was good to have some examples of phrases that could be used in feedback, particularly when commenting on TMAs in lower grade bands, as it can sometimes be difficult to think of supportive phrasing!* *It would be helpful to have a few suggestions on how to move from the strengths paragraph to the opening of the weakness paragraph.*
Please comment on how the tool is presented. Would an alternative format work better?	*I think it is fine but would make it easier to follow by using better layout. Actual content was very helpful.*
Is the style suitable for a K101 Associate Lecturer audience?	*Yes I think it is pitched at the right level and encompasses the knowledge, understanding, core values and skills that I have found in the module so far.*
How easy was it to apply the guidance?	*Very, I'm using it on my next cohort too* *It would be good to have some help with feedback to students who are consistently unable to take feedback on board.* *I did not find it that easy to adapt from my previous style in TMA 1 and TMA 2, however along with the pilot guidance careful reading of the marking guidance was very helpful and TMA 3 was the changing point and by TMA 4 I had found the style and pitch easier to put into practice.* *I occasionally found it difficult to address all aspects of feedback for individual students (i.e. structure, clarity etc) as I didn't want the negative paragraph to look quite so long and detailed in comparison to the positive one. I therefore selected a couple of points to comment on in this paragraph, which occasionally meant I felt that the justification for the grade wasn't quite so obvious.*
To what extent does it represent a change to your usual practice?	*It is a much more structured format than I used to use* *I identified where I was using phrases that included reference to style or structure without properly explaining what this was* *Quite a big change. My usual practice was to provide feedback on the introduction; main body; and conclusion of the student's essay.*
Is there anything in your students' work or communications with you to suggest the impact your feedback has had? Do you think this is at all associated with your use of the tool?	*I was quite heartened and humbled to see that quite a few students actually put my advice and supportive comments into action. I credit this to clear guidance and I was helped to supply this by using the tool.*
Has your monitor identified any issues associated with the use of the tool?	*I noted that she was using the same phrases from the tool and I think she was influenced by the tool in balancing the feedback.*

Discussion

Students value feedback that is clear and has future applicability (Price et al., 2010), and such clarity should benefit students of all abilities. The investigation reported here has indicated that even within a system that has a reputation for excellent feedback practices, it is possible to identify areas for improvement, with these two qualities in mind. This is the first time that the tutor feedback summaries have been systematically analysed according to their specific skill or content focus and their retrospective and future orientations, although there have been similar investigations of written tutor feedback in distance learning (Chetwynd & Dobbyn, 2011; Fernández-Toro, Truman & Walker, 2012). It should be emphasised that the feedback summaries were not the only source of information for students, and some student comments may have been in response to tutor or peer input beyond the TMA feedback summaries. A limitation of this study is that it was unable to take account of all sources of feedback available to the students, and that Stage 1 relied solely on naturally occurring data rather than engaging directly with the individuals concerned, which would have supplied further insights.

The analytic framework developed from Chetwynd and Dobbin's (2011) original work seemed well suited to the task and to the writing skills focus that prevailed in K101. One of the most difficult aspects of the content analysis was in determining whether an element of feedback was focusing on content or cognitive skills. In the framework, cognitive skills were defined as 'ways of handling content', and tutors quite often combined their feedback on content and cognitive skills. This difficulty was usually resolved by determining the actual focus – was it about the inclusion of particular content, or how the student engaged with it, or both? This natural coupling of cognitive skills and content often meant that they were mentioned together in a sentence.

Longitudinally mapping the relationship between tutor feedback and student's responses to the feedback documented in their self-reflective notes, revealed a range of patterns. The trend in diminishing future-oriented feedback over the course is interesting, although it is difficult to determine its significance without further investigation. Tuck (2012) reported that tutors could be disheartened by seemingly fruitless efforts to create dialogues with students in the marking process, especially when tutors believed that students were only really interested in their grades. According to Tuck, tutors would adopt divergent strategies in response to poor student response, from writing more feedback to resorting to a more superficial,

sketchier engagement. The lower level of future-oriented feedback towards the end of the course could also simply be a feature of high energy levels at the beginning when tutors invest early effort to instil good writing practices in their students.

It is possible that students with a highly internalised locus of control may be better able to respond to retrospective feedback in the absence of future-oriented feedback, as they tend to be less reliant on a tutor in bridging the gap between their current performance and their desired goals (Fernández-Toro & Hurd, 2014). Further research into this relationship between locus of control and feedback responsivity would be valuable. A better understanding of the relationship between personal characteristics and student engagement with educational feedback could enable further tailoring of feedback to individuals.

The intended purpose of the feedback guide in this study was to facilitate clarity and meaningfulness. It can be argued that opening up the language can facilitate dialogue, which is highly desirable for feedback to be effective (Nicol, 2010). If students are unable to interpret usefully the written feedback they receive, they will be unable to act on it productively (Carless, 2006; Sadler, 2010). Clarity of language and meaning is also important amongst academics during conversations about students' written work, if we are to achieve common understanding of a 'well written essay'. Bailey and Garner (2010) warn that standardised institutional proformas can lead to unhelpfully formulaic approaches to feedback. One of the challenges is to find a balance between proformas that depersonalise feedback relationships and structured guidance that liberates academics and students from unhelpful jargon.

Conclusion

As an evaluation of the observable relationship between tutor feedback summaries on student essays and student responses to the self-reflective questions, the study succeeded in identifying patterns and trends in retrospective and future-oriented feedback, and content and skills feedback. Although the necessary resources were not available at the time, the study would have been greatly enhanced if the individual students and tutors were asked to share their personal experiences of the processes of giving, receiving, and responding to the feedback studied here. Widening the scope of the study to include other sources of feedback would also have been informative.

Development of the analytic framework proved to be valuable in defining the characteristics of an academic essay and the skills demonstrated within. Qualitative engagement with the actual feedback and the analytic categories led to deeper insights

into how language can lack transparency of meaning, especially in cases where ongoing dialogue may not occur. Pressing on in attempts to improve clarity of verbal communications regarding the quality of student writing is especially important with a 'widening participation' student body. Moreover, students of all abilities should benefit from clarity in feedback.

The longitudinal perspective provided in Stage 1 of this paper has offered an insight into tutor feedback trends, both as a cohort sample and individual tutor-student pairs. The decline in future-oriented feedback over time is worthy of further investigation, as it may result from tutor fatigue or demotivation if students do not appear to be responding. Also, accepting that future-oriented feedback can be more challenging to write, supportive devices such as the feedback tool discussed in Stage 2 could be part of the solution. As dialogue is clearly an essential mechanism in feedback processes, a tool that unpacks the meaning of academic concepts frequently applied to writing skills is suggested to be an aid in conversations between tutors and students as well as amongst academics.

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Developing Critical Perspectives on Technology in Education: A Tool for MOOC Evaluation

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Abstract

The main aim of the study has been to provide students with the opportunity to approach online learning in a structured way, which can be applied in a variety of contexts. The goal is to overcome short term, instrumental learning which fails to exploit the educational potential of MOOCs. This paper is part of a wider research project, carried out within the Laboratory for Experimental Research – UniRomaTre, and focuses on the model adopted for evaluating the impact and effectiveness of online teaching and learning, enabling students to adopt a critical approach which could be extended to any online resource which they may use for their lifelong learning. It does not explore the quality of learning in online environments. Rather, it investigates how students should approach the online resources at their disposal, facilitating their critical and reflective skills and adopting a model for analysis. Hypothesis tested, methodology adopted and some results collected are described here.

Keywords: Online learning, MOOCs, Evaluation, Critical thinking, Lifelong Learning.

The Context

The Laboratory for experimental pedagogy (LPS) based at the Department of Education – Roma Tre University has been working, since 2010, on research focusing on the enhancement of students' critical thinking skills to foster the development and promotion of the critical use of technology in education. A series of departmental projects, coordinated by LPS researchers, have been funded from 2011 to achieve these aims (Poce et al., 2011; Poce, 2012; Poce, 2014). The projects use specific models and coordinated approaches to teaching and learning across a range of disciplines. Students are invited to engage in learning activities, which involve analysis and reflection, individually and in groups, taking into considerations the differences in learning, according to the specific situation. Students work on the different tasks focusing on the identification of cultural and disciplinary contexts, within the *lectio magistralis framework*:

1. *Distinctio* – presentation of the context;
2. *Divisio textus* – analysis of the text;
3. *Collatio* – discussion;
4. *Quaestio* – critical interpretation.

The same analytical method is used on a variety of texts, including Descartes and Rousseau, working online on a dedicated platform. The same technique has then been applied to studying other disciplinary subjects and concepts accessing MOOCs, as described in the present contribution. Students are asked to evaluate the effectiveness of a massive open online course (MOOC) through their experience of learning online as outlined above. *Massive Open Online Courses (*MOOCs) are open access online courses, designed for distance learning involving large numbers of users. The term was employed for the first time in the "Connectivism and Connective Knowledge" module by George Siemens and Stephen Downes (2008), from the University of Manitoba (USA) and involved about 2200 online students, who did not pay any fees for their registration and attendance. As time went by, the number of open courses increased significantly, raising issues like the reliability of sources, correctness and quality of contents (Daniel, 2012, Stracke, 2014).

The main aim of the study has been to provide students with the opportunity to approach online learning in a structured way, which can be applied in a variety of contexts. The goal is to overcome short term, instrumental learning which fails to exploit the educational potential of MOOCs. This paper is part of a wider research

project and focuses on the model adopted for evaluating the impact and effectiveness of online teaching and learning, enabling students to adopt a critical approach which could be extended to any online resource which they may use for their lifelong learning. Otten and Ohana, in their *The Eight Key Skills Competences for Lifelong Learning* (2009), a document issued under the support of the EC DG Education and Culture, focus on the identification of a set of skills needed to overcome present youth unemployment and social exclusion in developed countries. The central concepts referred to are: "critical thinking, creativity, initiative taking, problem solving, risk management, decision taking and managing feelings in a constructive manner" (p.10). There should be a closer connection between the above skills, education and digital education in particular. Technology plays a fundamental role in everyone's life and must be approached critically, especially by young people entering the labour market for the first time. In the information society, the amount of online content is constantly increasing, and more content is becoming readily available online. Open Educational Resources (OER) are assuming an ever increasing importance in national educational policies. Between 2005 and 2007 UNESCO identified priorities for the spread of OER (OECD, 2007). As part of the aim to broaden the availability of a range of multimedia digital content, MOOCs arguably represent the most interesting digital products. The number of MOOCs is expected to grow rapidly over the next few years.

This paper describes how giving students the tools to carry out an evaluative analysis of MOOCs can enable them develop their analytical and critical thinking skills. It can also help them to gain insight into the importance of 'learning to learn'. These students also gain the ability to characterise the impact of OERs on Higher education teaching and learning. The main scope of the present research project is that students could independently evaluate the quality of online digital resources both as learners and future educators. Doing so it is possible to overcome "brief term instrumental characteristics" of tools and promote long term evaluation processes (Vertecchi, 2012). This proposal concerns an area of research into distance learning which has not been explored in this way previously. The study does not explore the quality of learning in online environments. Rather, it investigates how students should approach the online resources at their disposal, facilitating their critical and reflective skills and adopting a model for analysis.

Hypothesis research questions and objectives

Taking into consideration national and international literature, the wider project, where this study is set, aims to design and test a new evaluation system of open access multimedia educational products such as MOOCs. The goal is to identify tools which enable the user critically to evaluate online resources and their impact on Higher Education teaching and learning.
The research tests the following hypothesis: Students who use a specific system to evaluate the quality of MOOCs are able to deepen their understanding of online teaching and learning in higher education and acquire sharper critical and analytical approaches to the evaluation of online learning.
Research objectives are the following:

- to define an innovative system for the evaluation of MOOCs;
- to define new quantitative and qualitative indicators to evaluate the impact of MOOCs on Higher Education teaching and learning;
- to give students, as learners and future educators, quantitative and qualitative tools to freely assess a range of open access online resources;
- to teach students contents about entrepreneurship education, as described, later on, in the specific example.
- As mentioned above, here the focus is limited to the tool for the analysis of the effectiveness of specific examples of MOOCs.

MOOCs description

The MOOCs under investigation were created in the context of another research and training activity, carried out by LPS – Università Roma TRE, in cooperation with Salento University and DhiTECH (Apulia High Tech District). DhiTECH is a consortium established through the scientific research framework agreement signed in 2005 by the Italian Ministry of Education, The ministry to the Treasury, Region Apulia Local Authority, University of Salento, The National Centre for Research, and different private companies in the field of engineering and new technologies development. The aims of DhiTECH included training young professionals to develop their profiles as high tech innovators and entrepreneurs. The MOOCs, under investigation, here, were designed by graduate engineering students, under LPS researchers' guidance. The aim of the MOOCs was to develop principles and generic competences, which are central to entrepreneurship education. Graduate engineers were asked to create MOOCs on a set of areas of entrepreneurship education as part of their research and training programme. The aim was to provide the engineers with the opportunity to develop their profile as high tech innovators and entrepreneurs,

specialised in specific fields of knowledge. They developed and demonstrated the skills and approaches, which enabled them to transform technology or generate research results based on a new business model. The ultimate goal was to create economic and business value through technological entrepreneurship. The student engineers were divided into groups and they produced six different MOOC prototypes, but just three of them were selected for the further evaluation process to be carried out by the Education students, based in Roma Tre University. They were the following: "Social innovation and entrepreneurship", "Business Model Canvas" and "From the business idea to the elevator pitch". The first topic is bottom up social innovation practices in developed countries. The course is addressed to young learners interested in developing an innovative idea within cooperative learning spaces, like *Fablab* or *Coworking*. The second enables learners to use a particularly helpful tool, the *Business model,* to define successful business strategies. It focuses on how to draft an effective business model, which is meant as a starting point to develop new entrepreneurial ideas. The third refers to successful techniques in fundraising and how to approach a possible funder: the focus is driven on the characteristics of the so called "elevator pitch".

Methodology

30 students, attending the first level university degree in Education – Roma Tre University, were involved in the research, on a voluntary basis and all of them participated actively in the task and filled in the evaluation questionnaire being piloted. Students were asked to participate in the three selected MOOC prototypes, as part of a compulsory internal training module (30 hours' work), after approval of the Education degree course governing body. The task formed a compulsory curriculum module, which contributed to final certification. After taking part in the course, they had to carry out an evaluation, according to the *ad hoc* model devised by LPS researchers and described below.

The complete methodological plan was the following:

- Students' background variables questionnaire administration;
- MOOCs completion;
- Evaluation form, defined according to specific indicators created to assess the impact of MOOCs on Higher Education teaching and learning;
- Final focus group with participants in order to record students' opinions, attitudes and evaluations on the realisation of the project, and to obtain

possible suggestions for improvements for a further iteration of the training module;
- Final questionnaire on the experience.

The evaluation form can be considered an innovative qualitative research tool, based on specific indicators to assess open access multimedia products, like MOOCs. It was realised by adapting categories taken from the model for the assessment of critical thinking skills by Newman, Webb, Cochrane (1997). It, therefore, represents a tool which analyses the characteristics of MOOCs with reference to those generic competences which are increasingly demanded by the labour market.
The questionnaire is divided into four sections.

1. The first is devoted to Newman et al. (1997) categories of *relevance* and *importance* and contains indicators linked to formal characteristics of course content (e.g. comprehension, feedback effectiveness, video lecturing length and so on).
2. The second section is related to the categories of breadth *of understanding*, *argumentation* and *justification* and consists of a series of statements. Students indicate how far they agree with the statements using a five point Likert scale. The statements focus on issues such as level of understanding, step by step learning, growing difficulty, lack of information and explanation, etc.
3. The third section is devoted to *critical evaluation*, as students were asked to critically assess content, proposing issues for discussion and reflection, according to The Eight *Key Competencies for Lifelong Learning* (2009). Questions, here, were related to self-assessment of the competencies acquired.
4. The last section was designed to identify *novelty*. This is the only open ended section. The aim is to enable students to reflect and express their own opinion/evaluation, adding elements on already identified indicators (e.g. "briefly describe strengths of the course you participated in"; "briefly describe weaknesses of the course you participated in" "how could the course be improved" and so on).

Some Results

Some results regarding one of the MOOCs attended by Roma Tre Education students are presented and commented on below. Figures reproduced in this section refer to the evaluation of one of the MOOC prototypes under investigation: the "Business Model Canvas". The other two MOOC prototypes under investigation were evaluated by the Education students using the same tool and received different evaluations, which are

not inserted here for space reasons. These will be included in a further publication where comparisons and differences will be highlighted.

Findings presented here are mainly related to the employment of the evaluation form (questionnaire), because, according to the research group that carried out the work, it represents an innovative tool for investigation and it is a result in itself, because it could be employed to evaluate the impact of various technological instruments used in education and training.
Data from the first section of the questionnaire in this case highlighted that content was easy to understand, correct, effective, complete and quality of design and presentation were judged very positively.

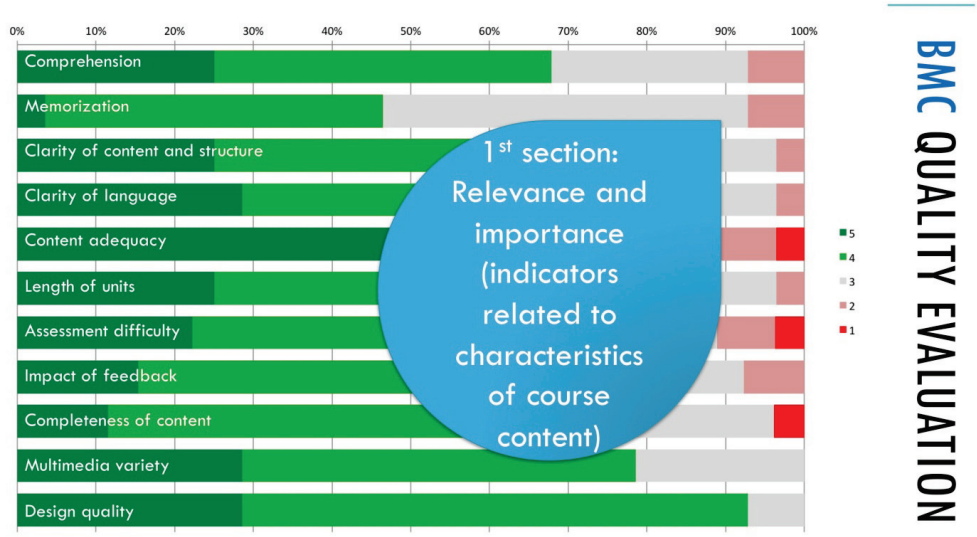

Figure 1. Quality Evaluation – Relevance and importance (indicators relate to characteristics of course content)

As regards breadth *of understanding*, *argumentation* and *justification* general evaluation was positive: almost 90% of the students strongly agree or agree with the statements "I learnt what I expected", "I learnt step by step (growing difficulty)", "The course raised my curiosity and I deepened some topics".

They do not agree, with negative statements, highlighting how the quantity of information was adequate and analysed correctly.

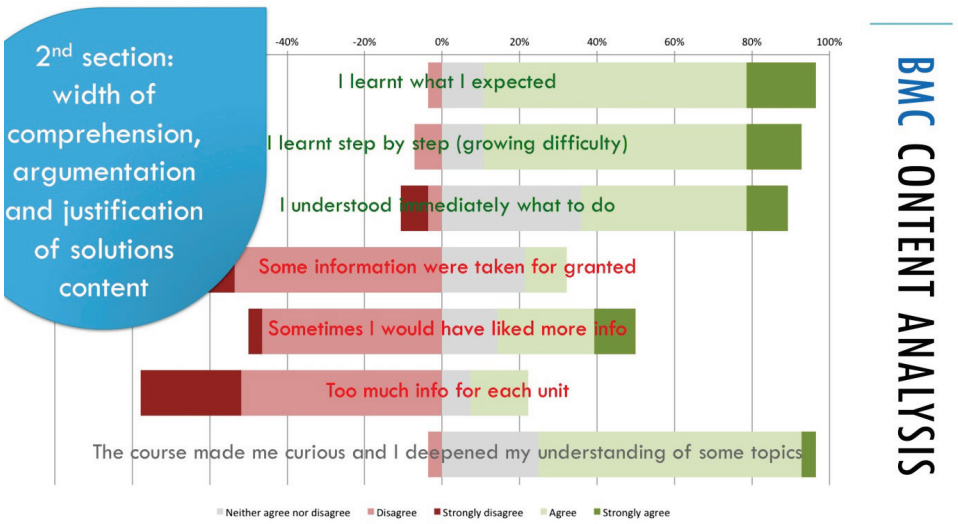

Figure 2. Content Analysis – Width of comprehension, argumentation and justification of solutions content

As far as *critical evaluation* is concerned, it is entrepreneurial "frame of mind" the transferable competence (see Otten & Ohana, 2009) which was facilitated by the course participation, followed by creativity, innovation and problem solving. Memorizing is considered less involved in these sort of learning processes.

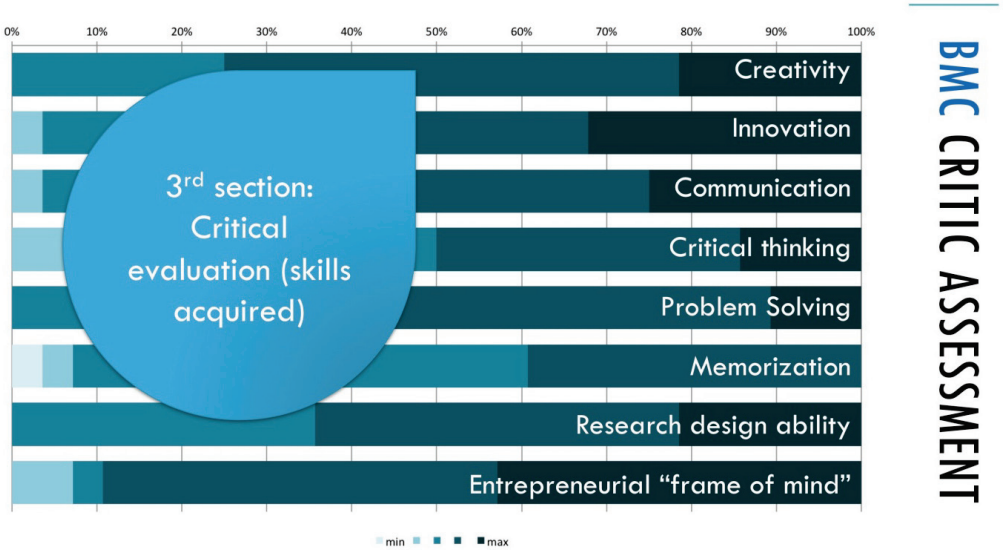

Figure 3. Critical evaluation (skills acquired)

As mentioned above, the analysis carried out through the evaluation form was enriched by a focus group activity organised by the research group at the end of the whole experience. All the students participated and three sessions were set to discuss their experience. They showed appreciation for the initiative and gave suggestions for the improvement of the development of the activities, taking into consideration a further release of this sort of teaching and learning activity. Though in Italian and taking into consideration that the meaning of words in isolation can be confusing if out of context, it is interesting to notice the results from the word tag cloud obtained, analysing the focus group's contributions, which are still under detailed processing activity. Most frequent words are "corso" (course), "molto" (very much, a lot), "interessante" (interesting) "gruppo" (group), "esperienza" (experience), but also "difficoltà" (difficulty) which is often linked to the concept of *solution identification*, thanks to the cooperative work ("gruppo") foreseen in the various courses provided. This last piece of evidence was considered very positively by the research group, because it means that every obstacle encountered was overcome thanks to the support of the group, interacting with other subjects engaged in the same task.

Figure 4. Tag cloud – focus groups' contributions

Conclusive remarks and further research

Data on assessment of critical thinking skills carried out through Newman et al. (1997) adapted model, already tested by the research group in other analyses (Poce et al. 2011; Poce, 2012) are being processed and will be communicated in further publications.
The aim of the present contribution is to report on the evaluation system, as well as on the evaluation products devised and obtained through this research, which represents, as a whole, an innovation in the field of distance education, in general and in Higher Education, in particular.
Promotion of MOOCs is growing in different forms and settings, showing their wide educational potentialities. Actually, the same wide spread and openness, which characterize them, raised high standard methodological, evaluation and qualitative issues to be faced.
The project described here helped to define a system, which tends to match the intrinsic characteristics of MOOCS (widespread and openness) with those generic competencies, increasingly demanded by the labour market (critical thinking skills, in particular). 'Focus group results indicate that the experience of participating in this project has made a significant contribution to the personal and professional development of students. Their ability to adopt a critical approach to technology for teaching and learning has grown.
More than half a century past by since the debate on the use of technological devices in education started and LPS – Università Roma Tre has been engaged in a deep reflection on the use of technology in Higher Education, since the very beginning. The development and the diffusion of these instruments are centred especially on the physical and affective characteristics of the technological tools, often neglecting a true scientific analysis and the application of pedagogical models and theories. This is also due to an "emphasis put on the educational potentialities of the instrument, which is too often based on light analogies and suggestions" (Vertecchi, 2012).

The educational reflection, instead, needs to overcome the instrumental short term level, in order to examine developments and implications of the long term, drafting a theoretical description, which could cover the various aspects engaged.

The insertion of technological devices in educational environments should, especially in time of crisis, aim at investments, which should be included and organised in detailed research programs. These programmes should define clear and consistent realization deadlines and evaluation methods for the sake of the costs-benefits-

relation, if we want to keep in mind Comenius' principle: *omnia, omnibus, omnino* (teaching everyone everything fully).

On the contrary, depending on affective aspects and not developing any didactical project, technology introduction in teaching and learning prompts a sort of "forced modernisation" (Vertecchi, 2013a) in educational practice.

Therefore, the risk of failure tied to the insertion of digital instruments in teaching and learning is very high, like many field studies demonstrate (Philip & Garcia, 2013) and investigation should concern various educational environments (sociology, psychology, linguistics, pedagogy, etc.).

That is why our research group has been working on a model for evaluation of MOOCs that could be helpful also for the development of critical thinking skills in university students, who are about to enter the hopefully productive labour world.

The LPS – Università Roma Tre group will carry on with the development of the evaluation tool and will extend the application of the system to other contexts and environments. The Department of Education – where LPS is based – has funded another term of experimentation, which will take place in the year 2014/2015.

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Mobile Learning Delivery via Social Networks: What platforms do First-Year University Students Prefer?

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Abstract

Latest technology based distance learning and mobile learning delivery platforms include smartphone based SMS as well as Facebook based learning delivery technologies that provide access to learning materials without being limited by space or time. Ongoing up-to-date technological advances have upgraded learning delivery systems and have highlighted some psycho-pedagogical variables which contribute to higher levels of affective learner sensitivity in the learning process.

In the present study two groups of first year university students who studied historical and cultural Jewish concepts in a mandatory 15 week long (semester) course were exposed to two different modes of concept delivery. The first group of students received weekly lists of historical and cultural Jewish concepts sent via SMS messages to their smartphones and the second group received weekly lists of historical and cultural Jewish concepts sent via internet to the Facebook course homepage. The definitions of historical and cultural Jewish concepts studied via smartphone based SMS messages or via the course Facebook homepage were identical and the students received 30 historical Jewish concept definitions on a weekly basis for a period of 15 weeks. In addition identical relevant power-point presentations and other digitized learning materials, such as videos were sent to both groups of students on a weekly basis. At the end of this period the students in the two groups were tested on a cognitive standardized historical and cultural Jewish concepts achievement test and responded to a questionnaire that examined learner self-regulation, learner creativity and learner technological mastery, key affective psycho-pedagogical variables related to the learning process.

Results of the study indicate that there were no significant differences between the achievement scores on the standardized historical and cultural Jewish concepts achievement test attained by students in the smartphone based SMS delivery group or

in the Facebook course homepage delivery group. All participating students in both delivery groups passed the course with similar mean achievement scores. However, there were significant differences between the students in the delivery groups regarding their levels of learner self-regulation, learner creativity and learner technological mastery. The students who received historical and cultural Jewish concepts via SMS messages to their smartphones exhibited a significantly higher level of learner self-regulation, a significantly higher level of learner creativity and a significantly higher level of learner technological mastery than their counterparts who received lists of historical and cultural Jewish concepts via the Facebook course homepage.

The results of the study indicate the potential evident in up-to-date technological learning delivery platforms, and most especially a smartphone based SMS delivery platform, regarding enhancement of students' attitudes toward affective psycho-pedagogical variables such as learner self-regulation, learner creativity and learner technological mastery. Thus the smartphone based SMS learning delivery platform can in fact become a practical technological mobile delivery system in the university learning process and serve as a routine methodology for the delivery of relevant learning materials.

Introduction

Distance learning is an increasingly popular solution to campus overcrowding and student requirements for flexible schedules. Changing the traditional environment of the university classroom has encountered enthusiasm from many groups of faculty and students but it has also met with pockets of resistance. A primary potential benefit for institutions is more efficient use of technology based resources, through which students may potentially benefit from increased critical thinking, leadership, communication, and problem solving skills (Spangle et al., 2002; Katz & Yablon, 2003). Hofmann (2002) confirmed that distance learning at the university level supplements and enhances traditional classroom-based learning because students are necessarily more active in distance learning than in face-to-face lectures. Since its inception distance learning has progressed through delivery systems such as television broadcasts, videoconferencing and email, and at present focuses on digital delivery systems such as internet, mobile and social network learning platforms. Katz (2013) noted that almost all of the existing distance learning delivery platforms are used in different educational systems throughout the world. The present study will focus on smartphone and Facebook based learning delivery systems and the cognitive and affective outcomes for students receiving learning content via the two delivery platforms.

Technology-Based Distance Learning

Ismail et al. (2010) confronted the implications of university learning and instruction using technology based distance learning courses. They contended that technology based distance learning has moved formal instruction in these courses from the on-site setting of the university campus to the home of the student. Learning has become significantly more flexible and content sources more accessible. Creating, sharing and knowledge capitalization are all facilitated by distance learning. Wider sources of learning are provided in technology based distance learning courses and worldwide expertise can systematically be brought to the student's desktop. With the rapid development of distance learning courses for use in university level education, increasingly more research studies have been conducted in an attempt to evaluate different issues related to technology based distance learning. For example Abdallah (2009) found that distance learning courses contributed to improved quality of students' learning experiences and Chandra & Watters (2012) indicated that learning physics through the medium of technology based distance learning not only enhanced students' learning outcomes, but also had a positive impact on their attitudes toward the study of physics. Ituma (2011) confirmed that a large percentage of university

students who were enrolled in distance learning university courses had positive perceptions of the technology- based learning methodology and were in favour of joining additional distance learning courses that supplemented traditional face-to-face classroom instruction.

Valaitis et al. (2005) found that students who participated in technology-based distance learning courses perceived that the methodology increased their learning flexibility and enhanced their ability to process content, and provided access to valuable learning resources. Abdallah (2009) indicated that technology-based distance learning courses contributed to the enhancement of students' attitudes towards learning. Delfino et al. (2010) confirmed that student teachers who participated in technology-based distance learning teacher training courses developed self-regulated and motivated learning which provided them with the opportunity to flexibly cope with their academic assignments.

Mobile Learning

Many universities increasingly implement a variety of mobile learning methodologies as viable alternatives to traditional classroom instruction. Mobile learning via internet, email, regular cell-phones, smartphones and Facebook are increasingly penetrating the domain of academic learning and provide students with dramatically increased access to sources and subject matter relevant to their studies (Ward, 2010; Katz & Yablon, 2011; 2012; Back, 2013; Katz, 2013; Sela, 2013; Yang, 2013; Kee & Samsudin, 2014; Rui-Ting et al., 2014) confirmed that mobile learning contributes significantly towards a more comprehensive educational environment for learning.

Cell-phone and Facebook based learning has advanced rapidly and is becoming an integral part of the learning process in many universities throughout the world. Some research studies have indicated that the use of cell-phones as a delivery platforms for university learning is suitable for both cognitive and affective aims (Garner et al., 2002; Prensky, 2005) and other research studies have emphasized the suitability of Facebook for delivery of learning at the university level (Robbins-Bell, 2008; Isacsson & Gretzel, 2011; Harris, 2012).

Cell-Phone Based Learning

One of the emerging learning strategies that has developed in technology-based distance learning in recent years and is receiving growing attention from both students and teachers is in the domain of mobile learning, and more specifically, focuses on cell-phone learning technology (Prensky, 2005). It should be noted that the use of cell-

phones is multi-dimensional and smartphone technology now provides technological possibilities including voice, text, still-camera, video, paging and geo-positioning capabilities. These tools provide a rich variety of platforms that enhance the learning process. Cell-phone based learning projects managed by several universities worldwide have indicated the positive outcomes of such learning methods (Garner et al., 2002; Seppala, 2002). Kiernan and Aizawa (2004) described how vocabulary transmitted via cell-phone based SMS messages in a spaced and scheduled pattern of delivery contributed to student proficiency in English and in other languages Additional studies including Godwin-Jones (2011), Katz and Yablon (2011), Motallebzadeh and Ganjali (2011) and Zhang et al. (2011) confirmed the effectiveness of the use of cell-phone based SMS text messages for enhanced language and vocabulary learning.

Facebook Based Learning

Facebook has also become a learning resource within the domain of mobile learning. Harris (2012) indicated that university students who studied hospitality studies agreed that Facebook, as a learning delivery platform, is effective as well as stimulating for learning. Robbins-Bell (2008) indicated that Facebook provides students with benefits of open and collaborative learning beyond classroom and campus limits. Isacsson and Gretzel (2011) noted that university students valued Facebook for providing an informal and motivating learning environment. Other research projects have indicated the positive potential of Facebook as a learning delivery platform at the university level (Stutzman, 2008; Madge et al., 2009; Limbu, 2011; Lateh, 2014). Càrd and Planas (2011) and De Villiers and Pretorius (2013) found that when used as a learning delivery platform, Facebook enhances innovative learning, collaborative learning, critical collaborative thinking and learning motivation. Facebook has also been seen to enhance student-centred as well as social learning at the university level (Duncan & Barczyk, 2013). Mitchell (2012) indicated that Facebook based learning facilitated language learning as well as cultural learning of foreign students spending time studying at a US university. Kassem (2013) found that the use of Facebook in the Egyptian secondary educational system as a major learning delivery platform led to the narrowing of social gaps between students studying in general (more elite) and technical (less elite) high schools.

Research Issues in the Present Study

Recent research studies have indicated the existence of a robust relationship between learning delivery platforms and the intensity of students' attitudes including learner motivation, learner curiosity learner autonomy, learning flexibility, learner control of

learning, learner self-confidence, learner locus of control and learner technological self-confidence at the university level (Katz & Yablon, 2011; 2012; Katz, 2013). However issues such as the relationship between cell-phone and Facebook delivery of learning on the one hand and learner self-regulation, learner creativity and learner technological mastery on the other, has not been adequately researched and will be addressed in the present study. In addition possible similarities or differences between learning via cell-phone and Facebook learning delivery platforms and levels of academic achievement will be examined in this study.

Method

Research Population

The research sample consisted of 116 first year students enrolled in a 15 week semester-long mandatory historical and cultural Jewish concepts foundation course offered at one of the seven chartered universities in Israel. The students were randomly assigned to the two different research groups that were provided with lists of definitions of historical and cultural Jewish concepts as follows:

1. 62 students received their historical and cultural Jewish concepts lists via smartphone based SMS messages, power-point presentations and relevant videos
2. 54 were sent their historical and cultural Jewish concepts lists, power-point presentations and relevant videos via internet to the Facebook course homepage.

Instruments

Two research instruments were administered to the students in this research study. A standardized historical and cultural Jewish concepts test was administered to the participants in order to assess students' mastery of definitions of basic historical and cultural Jewish concepts. The test scale ranged from 0-100, the higher grades indicating higher levels of achievement on the historical and cultural Jewish concepts test. The second instrument administered was a 25 item Likert type response scale questionnaire (students responded to a five point scale with 1 = totally disagree and 5 = totally agree) designed to examine the students' perceptions of the affective psycho-pedagogical attitudinal research factors as follows: The first factor, learner self-regulation, contained nine items (Cronbach $\alpha = 0.84$), the second factor, learner creativity, consisted of ten items (Cronbach $\alpha = 0.80$) and the third factor, learner technological mastery, was made up of six items (Cronbach $\alpha = 0.85$).

Procedure

Students who were graduates of the Israeli state secular and religious school systems and who were enrolled in the mandatory historical and cultural Jewish concepts foundations course and possessed personal smartphones were eligible for participation in this study. Following the selection of the students who met the above criteria, they were randomly assigned to the two delivery platform groups. Students in the first group received historical and cultural Jewish concepts via smartphone based SMS messages and those in the second group received historical and cultural Jewish concepts via the Facebook course homepage.

The students in the two groups were sent weekly lists that contained concise definitions of the historical and cultural Jewish concepts studied in the course, each list containing definitions of 30 historical and cultural Jewish concepts delivered via the two respective learning delivery strategies. Thus each of the students received definitions of 450 historical and cultural Jewish concepts during the 15 week long course. On completion of the course the students in the two groups were administered a cognitive standardized historical and cultural Jewish concepts achievement test in order to asses their level of knowledge of the 450 historical and cultural Jewish concepts taught in the course. In addition they were administered the attitudinal questionnaire which examined their scores on the three affective psycho-pedagogical research factors, namely learner self-regulation, learner creativity and learner technological mastery.

Results

The main aim of this study was to examine the efficiency and effectiveness of two different digital social network learning delivery platforms. Two research issues were pinpointed: the first examined the acquisition by students of knowledge concerning historical and cultural Jewish concepts and the second investigated students' perceptions of psycho-pedagogical attitudes connected with the two learning platforms. The mean scores of each of the psycho-pedagogical factors were standardized in order to allow for a comparison between the factor scores. Standardized means and standard deviations of students' scores on the achievement test and on the psycho-pedagogical factors are presented in Table 1.

Table 1: Standardized Mean Scores and Standard Deviations of Students in the Smartphone and Facebook Learning Delivery Groups for Achievement, Learner Self-Regulation, Learner Creativity and Learner Technological Mastery

Factor / Group	Learner Self-Regulation Factor		Learner Creativity Factor		Lerner Technological Factor		Achievement	
	M	S.D	M	S.D	M	S.D	M	S.D
Smartphone Delivery N=62	3.64	0.71	3.28	0.45	3.50	0.96	84.17	7.71
Facebook Delivery N=54	2.92	0.75	3.06	0.30	3.01	1.02	83.89	8.16

Four one-way ANOVA tests were conducted in order to compare students' achievement and psycho-pedagogical attitudes as related to the two learning delivery platforms. While there were no significant differences between students in the two groups regarding their achievement scores, with students from the two groups achieving similar grades on the cognitive historical and cultural Jewish concepts achievement test, significant differences were found between students in the two delivery groups for learner self-regulation [$F(1,114) = 28.12$, $p < 0.001$, $\eta^2 = 0.198$], for learner creativity [$F(1,114) = 8.83$, $p < 0.01$, $\eta^2 = 0.072$] and for learner technological mastery [$F(1,114) = 20.77$, $p < 0.001$, $\eta^2 = 0.154$] In all cases students in the group that received their historical and cultural Jewish concepts via the smartphone SMS delivery platform were significantly higher on the affective psycho-pedagogical factors than students in the group that received their historical and cultural Jewish concepts via the Facebook delivery platform.

Discussion and Conclusion

Results of the statistical analyses of the data collected in this study indicate that neither of the two delivery platforms, namely smartphone based SMS delivery of learning and Facebook course homepage delivery of learning, had any significant advantage regarding academic achievement of students on the standardized historical and cultural Jewish concepts test. Students who studied via both strategies attained similar grades on the test. Thus it appears that achievement is a factor that does not distinguish between delivery strategies with measured achievement outcomes. Although this result contradicts evidence presented by Efendioglu (2012) and Guzeller (2012), namely that SMS delivery of learning enhances academic achievement significantly more than other digital or traditional delivery strategies, it is congruent with similar results that confirmed that academic achievement is not related to a

particular mode of learning strategies or delivery platforms utilized to facilitate the learning process (Dyer & Osborne, 1996; Katz & Yablon, 2009; 2011; 2012). This result confirms those indicated in a number of research studies that indicated that, on the whole, different delivery platforms do not significantly contribute to differential academic achievement (Katz & Yablon, 2011; 2012; Katz, 2013; Chu, 2014).

However, the findings of the study indicate that the different learning delivery platforms employed in the present study to provide weekly lists of historical and cultural Jewish concepts to students are associated with significantly differential levels of learner self-regulation, learner creativity and learner technological mastery. Scores attained by students on the psycho-pedagogical research factors confirm that SMS messaging to smartphones is associated more significantly to students' learner self-regulation, learner creativity and learner technological mastery than delivery of learning via Facebook. It appears that students felt more in command of the learning process and more focused on the learning content delivered via SMS delivery than students who received their learning content via Facebook. It appears that SMS delivery of content is more goal-directed than Facebook delivery where flexible and less controlled posts and social interaction may have negatively affected the focus of students on the learning material.

It may be concluded that the results of the present study indicate the positive relationship of SMS delivery of learning to smartphones to key psycho-pedagogical variables such as learner self-regulation, learner creativity and learner technological mastery. The results also indicate that although Facebook delivery is as advantageous as SMS delivery regarding cognitive achievement, it does not have the same potency as SMS to smartphone delivery when considering the psycho-pedagogical aspects of the learning process. Further studies need to be conducted so as to further explore the potential of Facebook as a delivery platform that could perhaps enhance psycho-pedagogical aspects of learning when better configured and more controlled in its presentation to learners.

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Internal Responses to Informal Learning Data: Testing a Rapid Commissioning Approach

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Introduction

There are several unique aspects to researching the behaviour and motivations of informal learners. Examining informal learning data can allow researchers to respond more quickly, and at a greater scale, than to data gathered through formal institutional research processes. Studies undertaken in 2013 (Law, Perryman & Law, 2013; Perryman, Law & Law, 2013; Law, Perryman & Law, 2014), in collaboration with The Open University's OER Research Hub (www.oerresearchhub.org) provided a set of recommendations for The Open University (OU) around informal learning. These primarily drove the OU's commissioning approach to scope new content for informal learning channels during 2014 and to improve the usability of OpenLearn – the key platform on which free resources are delivered by the OU (www.open.edu/openlearn). This paper reports on the impact of research undertaken in 2013 and 2014 into informal learning on the OpenLearn platform and shows how simple research models in the open can bring about change in a short period of time.

Background

OpenLearn and iTunes U

OpenLearn (www.open.edu/openlearn) is the OU's web-based platform for free educational resources and was launched in 2006. It hosts hundreds of online courses and videos and is accessed by over 5 million users a year; most of the resources are available under a Creative Commons licence. It also serves as the medium through which the OU promotes its partnership with the BBC and the related broadcasting and free open access courses and content that are created as co-productions with them. Since its launch, OpenLearn has received 33.4 million unique visitors (internal OU data) and has developed from being a platform that hosts units from decommissioned undergraduate and postgraduate courses, to one which hosts commissioned interactive games, videos, podcasts and free online courses. Much of the course extract content is developed using structured authoring tools and then made available to users

in multiple formats such as Microsoft Word and epub (that can be opened by ebook readers).

The development of OpenLearn was initially funded by the William and Flora Hewlett Foundation in 2006 along with its sister website OpenLearn Works, a platform where NGOs and philanthropically-funded projects can publish, remix and reuse courses targeted to specific populations. With the end of the Hewlett Foundation grant, OpenLearn and OpenLearn Works became mainstream activities for the OU and now form part of one of the University's strategic priorities – 'the Journey from Informal to Formal learning' – as part of The OU's commitment to widening participation. The OU aims that 5% of each of its courses should be made available on OpenLearn in whole, meaningful units, some of which are embellished with interactive quizzes and additional audio visual content.

For the period August 2013 to July 2014, The OU reports a 10.8% click-through rate from OpenLearn to the 'Study at the OU' webpage to learn more about becoming an OU student.

Since 2008, The OU has also made available hundreds of eBooks, courses, audio and video via its channel on iTunes U. Many of the audio and video files are elements of larger projects and courses produced for its fee-paying students, or specifically commissioned to be Open Educational Resources (OER) and shared across several open platforms i.e. OpenLearn and YouTube as well as iTunes U. As an institution specialising in producing higher education (HE) content for distance learners, the aim of this approach is a natural extension of the University's mission to further make available its OER, but also to reach a growing population of mobile device users.

At time of writing, there have been 67.1 million downloads and 8.6 million visitors to The OU on iTunes U. For the period August 2013 to July 2014, The OU reports a 0.8% click-through rate from iTunes U to an OU web domain (OU internal statistics).

Studies and recommendations from 2013

In 2013 a study was undertaken to analyse and compare the demographics of The OU's informal learners, students and educators who are using OpenLearn and/or iTunes U. In addition an analysis was made of what content these three categories of users were using, how they were using it and how using these OER motivated them or otherwise to progress to formal education. The objectives of the study were to:

- Understand as far as possible, how the content provided as OER through the OpenLearn and iTunes U platforms serves the demographic using them, and
- Understand more about how the widespread offering of OER is impacting learners' motivations to take up formal study.

These objectives aligned with two of the OER Research Hub project hypotheses, and hence could form part of the data set collected by that project (see oerresearchhub.org):

- Open education models lead to more equitable access to education, serving a broader base of learners than traditional education, and
- Open education acts as a bridge to formal education, and is complementary, not competitive, with it.

In addition to this research activity, pilot projects around digital badging at The OU were undertaken in 2013 on OpenLearn using the Mozilla Open Badge Infrastructure (OBI) (see openbadges.org). Digital badges were awarded via three entry-level *Openings* courses (access level): *Learning to Learn* and *Succeed with Maths Parts 1* and *2* for the successful completion of the course and passing of quizzes. The evaluation of these pilots was in alignment with the study of the wider OpenLearn and iTunes U platforms in that it gathered identical demographic data and asked questions about informal learner motivation.

Findings from both studies were reported in (Law, Perryman & Law, 2013; Perryman, Law & Law, 2013; Law, Perryman & Law, 2014) and recommendations were delivered internally to inform the business of informal learning commissioning at The OU. The studies concluded that:

- The two different informal learning platforms were being used by very different demographic groups with different motivations,
- Using OER during formal paid-for study can improve learners' performance and self-reliance,

- Learners' motivation is enhanced through the provision of digital badges,
- University-provided OER acts as a taster before embarking on formal learning,
- The same free content on different platforms can meet the needs of both professional and personal development but that work was needed to improve the learner experience, and
- The badged open courses attracted learners who were more inclined to become students and were key to meeting The OU's widening participation agenda (there were significant variations in relation to prior education, numbers of retired learners and numbers of learners reporting a disability compared to OpenLearn and iTunes U users overall).

Based on these conclusions, the recommendations that were made within The OU were as follows:

1. Create an entire Badged Open Course (BOC) curriculum targeting access students (work to be completed in October 2014, see Law, Perryman & Law, 2014),
2. Improve the usability of OpenLearn especially around the user experience of studying an online, unsupported course, and
3. Extend syndication to reach new audiences.

Contextualising 2013 data and building on it

Over the last year, a range of methods have been developed that allow organisations and individuals to create and issue digital open badges (Bull, 2014). The rise in such developments is largely in response to the demand to issue badges and the range of achievements that can be recognised digitally. Bixler and Layng (2013) note that digital badges in higher education 'hold great promise' but that 'policies on badges for higher education institutions do not exist'. This is still largely true although the Badge Alliance (a group of volunteers discussing the potential use of badging for different groups largely based in the US, see badgealliance.org), is, amongst other things, taking case studies and innovations from contributors to build a picture for badge use within HE.

This growing interest in soft assessment and badging was also identified by Grant and Shawgo (2013) and highlights that learners want recognition for informal study. This challenges the notion of informal learning described by Cross (2007) as one where "...no one assigns grades…" and "...no one takes attendance." In this age of paid-for certification for MOOC participation this notion has changed, as whilst learning is still

taking place as a supplement to formal learning there is a growing demand and expectation that informal learners want recognition for their achievements and engagement. This is reflected in the data from the 2013 and 2014 studies on OpenLearn (see Results).

The MOOC phenomenon has also impacted learners' expectations of OpenLearn. Of the 5.3 million users visiting each year, the majority are searching for course-related content over short interactive learning pieces, joint OU/BBC programme information and blogs, which the site also hosts. Table 1 shows the search criteria for learners visiting the OpenLearn homepage for the period August 2013 – July 2014 (data excluded where search term is not known) (internal data).

Table 1: Known search terms for learners visiting the OpenLearn home page

Known search terms	**Percentage**
open university / the open university / open university uk	47%
free online courses / open university free courses / online courses / free courses / free online courses uk / free open university courses	32%
openlearn / open learn / study skills	21%

By repeating the study undertaken in 2013, we were able to compare data to: i) evaluate whether demographic data from the 2014 study concurred with 2013 data, and ii) if any notable changes had occurred in attitudes towards informal learning provision, learners' expectations and goals.

Results

The following table shows a summary of the demographic data for studies undertaken in 2013 and 2014 on OpenLearn showing that 2014 data concurs with 2013 data. (There are some variations in age range following a revision for the 2014 surveys.) (Notable variations are shown in bold italics.)

Table 2: Comparisons of demographic data for OpenLearn

	2013 data (n=904)	**2014 data (n=741)**
What is your age?		
0-24 yrs / 0-25 yrs	14%	17%
25-44 yrs / 26-45 yrs	38%	***27%***
45-64 yrs / 46-65 yrs	38%	39%
Over 65 yrs / Over 66 yrs	10%	***16%***
What is your gender?		
Male	41%	41%
Female	58%	57%
Other* **	>1%	2%
Where do you live?		
UK	67%	61%
US	6%	6%
RoW	27%	33%
Is English your first spoken language?		
Yes	81%	79%
What is your highest educational qualification?		
School	16%	16%
Vocational	9%	6%
College	23%	24%
Undergrad	26%	24%
Postgrad	20%	20%
None	6%	5%
What is your employment status? (Tick all that apply)		
Employed (full or part time)	58%	52%
Voluntary	5%	7%
Student	14%	15%
Unwaged	16%	9%
Disabled and unable to work	4%	6%
Retired	15%	18%
Do you have a disability?		
Yes	19%	***23%***

* Other = 'transgender' and 'prefer not to say'.
** Other = 'other' and 'prefer not to say'.

Informal learners were asked again if they would be willing to pay for educational content online. The table below shows results for OpenLearn learners where there is a small rise from 2013 to 2014.

Table 3: Respondents indicating that they would be willing to pay for certification assigned to informal learning

OpenLearn 2013 (n=166)	**OpenLearn 2014 (n=394)**
81%	86%

Table 4: Responses to the question
Which of the following free educational sites or resources do you use in addition to OpenLearn?
(Learners could select more than one option.)

Platform	2013 responses	2014 responses
iTunes U	22%	16%
YouTube	25%	32%
TED	23%	25%
Khan	11%	15%
MIT OpenCourseWare	12%	13%
BBC Learning	45%	41%
Coursera	15%	17%
Open Yale	4%	5%
None of these	25%	13%

Internal response to research data

Within a period of three months of analysing the data from the 2013 studies, the researchers' recommendations were acted upon internally: the relevant governance approval to proceed was requested; the BOC project team was formed and the IT requirements were initiated. In this way, a close relationship and feedback between institutional research and the business of informal learning provision was developed. By repeating these studies in 2014, we were able to show concurrence between 2013 and 2014 data and be content that the recommendations following the 2013 were for the right reasons. New channels for syndication of content have been established to reach new learners: free eBooks are now distributed through Google Play (play.google.com) (and shortly through Kindle); audio files are now shared on AudioBoo (www.audioboo.com); and audio and video on Bibblio (bibblio.org) where thousands of new learners have found free educational content. Whilst we recognise that the majority of learners using educational content in English are educated and employed, we also recognise that a minority are not but that a small percentage of several million learners in this category is still a lot of learners.

This response to data, afforded by informal learning structures and created through simple research methods provides The Open University with a rapid response to changes in the focus of the informal learning curriculum that would be difficult to replicate in the formal curriculum. Additionally, understanding the usability challenges of learners using OpenLearn as a course environment has required the OU to make modifications to the Moodle platform, based on our understanding of

learners' interactions with it and with each other – information which can be fed back to the formal student learning experience. Our research evaluating methods of assessment in the open through the badged open courses project and exploring how underserved and less educated groups can be motivated in an unsupported environment, will again provide an opportunity to impact on informal learners' experience in addition to that of the OU's formal students.

Recommendations from the 2014 studies will the subject of future papers. However, whilst the approach to issue a suite of access-level badged open courses on OpenLearn was largely based on data and a desire to meet the needs of a widening participation group, the discussion has extended to how we might serve other groups and to challenge how we recognise informal learning achievements beyond the issuing of certificates. Whilst FutureLearn, Coursera and other MOOC platforms charge for their certification, The OU will maintain the issuing of badges as recognition of informal learning for free. One of the questions for us researching informal learning in 2014/15 will be understanding whether learners' perceptions of paid-for certification as a recognition of achievement in informal learning has a greater value than that which is provided for free.

Conclusions and next steps

We now have a good picture of our learners studying informally on OpenLearn and via third party platforms such as iTunes U. We recognise from both 2013 and 2014 data that our learners on OpenLearn are somewhere between Secondary and Tertiary OER users according to Martin Weller's iceberg model of OER engagement – i.e. that they do have an awareness of OERs in general (Secondary), but have little or no interest in licensing of content and are "consuming rather than creating" (Tertiary) (Weller, 2014). In fact, data from the 2014 study shows that awareness of free learning content is increasing (see Table 4). In the light of greater numbers of universities' participation in MOOC provision, availability of free informal learning content is increasing as is the understanding of what it means to deliver to open platforms and to third party platforms.

To research informal learning, assessment in the open (via badged open courses) and to gain a better understanding of who our learners are and what motivates them is ever more important. To exploit the rapid feedback from data to commissioning enables us to both positively influence the learning experience and to share findings openly.

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Learner Characteristics and Patterns of Online Learning: How Online Learners Successfully Manage their Learning

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Abstract

Online distance learning is a rapidly growing segment of the education market with many institutions adopting this form of delivery to increase their flexibility and competiveness in a global environment. Given its importance in providing different opportunities for both learners and institutions, the rapid growth in online distance learning over the last two decades has led to a considerable focus on researching a range of issues that impact on the online distance learner experience. These investigations have focussed primarily on instructional or learning design, interaction and communication in learning communities, learner characteristics and attrition. While much focus has been on the types of interventions that organisations might deploy to limit attrition and ensure a successful learning experience for online learners, it remains that learners cannot be easily classified into homogenous groups. There is a need to understand more deeply who they are and how they behave as individual online distance learners. With this in mind, the focus of the research reported on here was '*how do mature-age distance learners go about learning*?' by providing insight into the lived experience of individual learners.

The paper situates the research in the macro, meso, micro theoretical framework for researching online distance learning and focuses this study at the micro-level with a focus on learner characteristics. The paper explores the role of learner characteristics and learner behaviour patterns in online learning and discusses the general findings of the study including students' ability to orchestrate time and to ensure a feeling of wellbeing. The paper also provides four case studies that demonstrate the patterns that some distance learners have developed or adopted to support successful outcomes in online distance learning. The paper outlines the methodology used to uncover learner characteristics and patterns and their importance in supporting successful participation in online distance learning. The paper concludes with some suggestions for further research.

Introduction

The increasing adoption of online learning for a range of educational contexts has encouraged significant research into online distance learning, which has contributed considerable understanding of a learning mode that has grown in popularity over the last two decades (Allen & Seaman 2014; Zawacki-Richter & Anderson, 2014). While this work has undoubtedly contributed to improvements in online learners' experiences, online distance learning continues to be plagued by problems such as high attrition rates (Hart, 2012; Woodley & Simpson, 2014;), concerns about quality (Ehlers, 2012; Harvey & Green, 1993), poor understanding of how to teach effectively online (Maybery, Reupert, Patrick & Chittleborough, 2009), and the role of technology in online learning (Andrews & Tynan, 2012) amongst many other issues.

Researching online distance learning

These continuing concerns, as outlined above, highlight the importance of the need for ongoing research into online distance learning but equally importantly, identify the requirement to develop understanding within a framework that provides a more holistic view of the field, its truths and issues. Zawacki-Richter & Anderson (2014) have suggested that

> *"…research questions must be posed within a theoretical framework that is embedded within a holistic structure of research areas within a discipline. Furthermore, the structure, cultures, history and past accomplishments of a research discipline for the foundations for identifying gaps and priority areas for researchers." (p.1)*

In their work, Zawacki-Richter & Anderson identified three layers of research investigation in online distance education. These were identified as follows in Figure 1. Essentially, at the macro-level, the focus is on distance education systems and theories, at the meso-level the focus in on management, organisation and technology whereas at the micro level, teaching and learning issues and concerns are emphasized.

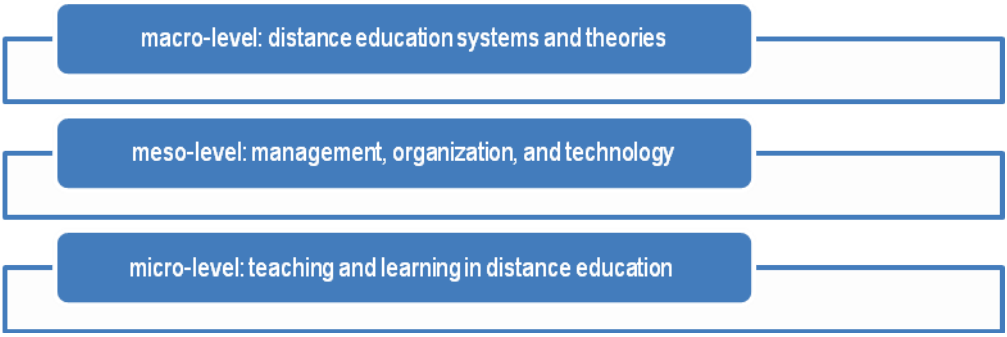

Figure 1. Characterisation of online distance learning research

Within these layers various topics are categorised as displayed in Table 1. The research reported in this paper has a focus at the micro level and specifically on learner characteristics. In particular the study explored the lived experience of online distance learners, their aims and goals, their different approaches to learning including their use of technology, their dispositions and how they manage their learning.

Table 1: Examples of topics within the Macro, Meso and Micro framework

Macro -level	**Meso-level**	**Micro level**
Access, equity and ethics	Management and organization	Instructional and or design issues
Globalisation of education and cross—cultural aspects	Costs and benefits	Interaction and communication in learning communities
Systems and institutional partnerships	Educational technology and infrastructure	Learner characteristics
Convergence of DE and blended	Innovation and change	
Theories and models	Professional development	
Research approaches, literature reviews and knowledge transfer	Learner support	
	Quality assurance	

Learner Characteristics

Understanding the characteristics of learners has long been considered essential to enabling successful participation in and completion of online learning courses. As Dabbagh (2007), points out:

> *"Determining the characteristics and educational needs of the online learner may not necessarily guarantee success in a distance education course or program (Galusha, 1997). It could, however, significantly help administrators, teachers, and instructional designers understand (a) who is likely to participate in online*

> *learning, (b) what factors or motivators contribute to a successful online learning experience, and (c) the potential barriers deterring some students from participating in or successfully completing an online course" (p.217).*

The focus of much of the research in to this area has been largely on mature age and lifelong learners who have, since the 1950's, expanded in larger numbers as education has become more accessible. In an increasingly technologically mediated world distance learners are a changing demographic and the characteristics of these learners are also changing and evolving (Dabbagh, 2007). Moving away form the traditional notion of the distance learner as independent and place-based, and given the widespread adoption of technology to support distance teaching and learning activities, Dabbagh suggests that digital literacy is an increasingly important characteristic for online distance learners. Confirming this, a research study conducted by Chun Yun Lau, (2008) found that students believed that positive self-efficacy in relation to computers and a positive attitude to technology were essential characteristics for online learners. In a study that explored self directed learning, Candy (2004) highlighted the importance of computer use and digital literacy in online learning and pointed out that institutions needed to recognize and address the fact that learners have considerable differences in their digital literacy, which is highly influenced by their personal and professional contexts. Successful online learners, regardless of their background and previous experiences, need to know how to communicate and interact in a variety of online learning environments and without these abilities will struggle in contemporary online learning environments (Dabbagh, 2007).

Along with digital literacy, Dabbagh (2007) also identifies other characteristics of successful online distance learners including:

- Having a strong academic self-concept.
- Possessing interpersonal and communication skills.
- Understanding and valuing interaction and collaborative learning.
- Possessing an internal locus of control.
- Exhibiting self-directed learning skills.

Stoter, Bullen, Zawacki-Richter and Von Prummer (2014) identify a similar list to Dabbagh and include entry point, learners personality traits and dispositions for learning, their self-directedness, level of motivation, time (availability, flexibility, space) and the level of interaction between their teachers, the learning tools they have

at their disposal and level of digital competency amongst many other characteristics. Time management is identified as a critical element in the research into learner characteristics (Hart, 2012; Hung & Zhang, 2008; Stoter et al., 2014). Most of the focus on time management in the research emphasizes the importance of students using their time wisely as well as suggesting that students need to engage in their studies frequently and from early in the semester. Hart, (2012) also suggests that students who exhibit good time management skills and had the ability to establish good relationships with other learners are more likely to be successful in their studies than those who don't. Hung & Zhang (2008) supports the notion of relationships as an important characteristic of online learners and found that learners who collaborating with other learners in online learning environments led to better learning outcomes and that learners needed to be not only independent, but interdependent

While the research into learner characteristics identifies behaviours and practices that can result in successful online learning experiences for learners, it is important to recognize that part-time online learners are not an homogenous group. While they may share an increasingly intertwined social, work and personal life within which learning is situated, they display behaviours that make each of them unique (Andrews & Tynan, 2012; Andrews, Tynan & James, 2011). Combined with the increasingly technological world in which learners live there are many influences on their individual goals and success factors when studying online distance education. The research however in these areas has been largely focussed on the traditional learner and while some work has been undertaken in the area of the online distance learner (Dabbagh, 2007; Hart, 2012), there remains a need for prioritising further work at the micro level of learner characteristics which draws upon the lived experience of individual learners in online distance learning modes. The need for this research is evident as online distance learning enrolments grow, attrition rates remain high (Allen & Seaman, 2010; Paterson & McFadden, 2009) and the world in which our learners learn is increasingly complex with many drivers impacting learner success.

Research approach

The key objective of the projects discussed here was to contribute to effective and positive learning experiences for the online learner in distance programs. Thus, the central research question of this study is '*how do mature-age distance learners go about learning*?' This research question fits well within the Micro context for research into online distance learning (Zawacki-Richter & Anderson, 2014) and to identifying learners' behaviours in relation to their learning activities. The project was conducted

in two phases. A pilot project involving 12 students conducted at one regional, dual mode university and a national project. The national project was funded by the Australian Government and the Office of Learning and Teaching (OLT) and involved four Australian universities – two research intensive traditional face-to-face institutions and two dual mode institutions offering both face-to-face and distance learning programs. Both projects also investigated the spaces and places (physical and virtual) within which distance learners participate in ICT supported teaching and learning activities.

The projects took a 'lived experience approach' (Groenwald, 2004) and collected 'student voice' data, to illuminate understandings of distance learners' experiences in relation to the ways in which they engage with ICTs, including mobile and social networking technologies. A uniform recruitment method was difficult to sustain across all participating institutions. Issues identified in the literature review regarding blurring of online and distance student identity and institutional terminology (Coates, Nesteroff & Edward, 2008; Moore, Dickson-Deane & Galven, 2011) were felt by all partners during the recruitment process. The study recruitment strategy was amended, adapted and in some cases required multiple approaches. Recruitment and participation information mounted on the project website was used to provide a consistent background. Mature age distance learners are time-strapped. The minimum time spent by participants on interaction with the study including data collection was around ten hours over a period of two to ten weeks, although many participants spent considerably more time on their contributions. Several initial respondents decided not to participate in both studies because of the time commitment required.

Within the phenomenological study frame, multiple methods were applied to collect data from students. Firstly, interested students were invited to join a Skype information session with a member of the study team. They provided particulars of their study, work and domestic circumstances, and received a study pack in return. The pack contained the detailed study information sheet, method guidelines and a consent form for return to the project. Participants were invited to provide two types of diary data in various textual, audio, video and photographic formats, Charting the Weeks activities and the Day Experience Method, photos of learning spaces and to participate in a focus group discussion. While participants largely provided print diaries, some chose to use audio and video to chronicle their study behaviours and patterns. In total 54 students from the 5 institutions represented in the two projects institutions completed the study.

Charting the Week's Activities

Charting the Week's Activities is a record of the amount of time participants spent, each day for a week they selected, on working, learning, personal, and social activities. Participants recorded the places they used for learning and the resources they utilised and could use video, audio or print diaries. This approach is well-suited to uncovering patterns in the ways in which online learners engage with their learning activities and resources.

The Day Experience Method

The Day Experience Method was developed for the Learning Landscape Project at Cambridge University (Riddle & Arnold, 2007) and adapted for this project. Participants provide a detailed record of their activities during an 18 hour period on a 'usual' study day. Irregularly timed SMS prompts are used to ask students to make a detailed record of their activity using either a video, audio or print diary immediately or as soon as possible after receiving the prompts.

Additionally, participants sent photos of their learning spaces and joined a focus group discussion conducted via Skype or, in some instances, teleconference. Focus group discussions were recorded for transcription. Email correspondence during the data collection period was also included in the dataset. The inquiry strategy provided a rich multi-media dataset from the perspective of the learner.

These kinds of data collection processes can be onerous for participants who can have difficulties in meeting the requirements (Ganeson & Ehrich, 2009). However, in almost all cases in both studies, all participants provided all of the data requested.

Results and discussion

The results of this study identified a number of leaner characteristics and patterns of learning behaviours for the learners in this study. With one exception, the participants in the two projects reported on here, identified as successful online learners who are highly motivated individuals developing unique patterns of learning and self organization to support their learning activities and complete study requirements. The student who did not identify in this way later dropped out of their studies. A significant learner characteristic identified in the study was orchestrating time, which is accomplished through managing self, using technology, learning on the go and participating in concurrent activities. While the theme of orchestrating time is consistent with the views of Stoter et al. (2014), Hart (2012) and Hung and Zhang

(2008), that time management is an important characteristic for persisting in online distance learning programs, it goes beyond the concept of simple time management as currently discussed in the literature. Other characteristics related to connectedness, and technology use. An interesting theme that also emerged was the focus on wellbeing, the need for students to feel that they were happy and enjoying the different aspects of their lives. While orchestrating time was an important part of maintaining a feeling of wellbeing, the spaces and places students chose to undertake their learning also played an important role. Notwithstanding the commonalities, students varied widely in the way they demonstrated these different characteristics, as found in a in the first study by the authors (Andrews & Tynan, 2012; Andrews, Tynan & James, 2011). As an example of the variability of individual students in relation to the characteristics outlined here, four case studies, Christine, Zara, Pam and Zack, are discussed in relation to the learner characteristics identified in the study and the different patterns of learning behaviours that successful online distance students display. Additional comments from other participants are also utilized to illustrate the learner characteristics and learner behaviour patterns identified in the study.

Orchestrating time

Finding ways to fit studies and learning activities in and around busy lives with multiple commitments was a major issue for 41 (95%) of the study participants. How participants managed their time for learning and other activities varied, highlighting the uniqueness of individual approaches, partly influenced by preferred learning style, partly course structure, but mainly by:

> *constantly juggling … different jobs. (Rosemary, 2013).*

Managing self, learning on the go and concurrent strategies were integral to orchestrating time. Being able to manage themselves and their time was remarked on by two-thirds of participants. Strategies to manage learning, and especially to fit learning around other activities, varied from structured planning, relying on routine, to preparing for opportunities during the day or some mix of these.

Table 2: Christine (Wednesday)

Times & Duration	Type of task relating to learning	Technology used	Location	Comments on context
Wednesday				
9.00am	Skim readings and lecture notes	Smartphone	Shops	Having a milkshake while watching kids play
11.00 am	Check what other students are doing	Laptop, Facebook, Skype	Lounge at home	Preparing for a collaborative quiz task
Midday – 4.00 pm	Talk with other students about quiz	Laptop, Skype	Lounge at home	'we all have kids so at times the numbers dropped to pick up kids from school, etc. 3pm had lunch while talking on Skype
7.00 pm	Helping others with quiz questions. Starting on assignment	Laptop, Facebook Skype	Lounge at home	
9.00 pm	Writing an assignment	Pdf & standard word processor	Lounge at home	Reference pdfs for assignment and reading these while doing assignment
11.00 pm – 11.30 pm	Complete online quiz	Laptop, Blackboard	Lounge at home	While taking a break (from assignment)
11.30 pm – midnight	Resumed assignment	Laptop, Pdf & standard word processor	Home	
Midnight – 2,00 am	Exchanging assignments via email	Laptop, Email, MSN	Home	At midnight talking to a student doing same assignment. Exchange assignments for editing. Realise they have tackled assignment in a different way – decide this is a good thing and insightful for both.

As can be seen in tables 2-5 Christine, Zara Pam & Zack are expert orchestrators of time, making use of opportunities as they arise and also planning time carefully while juggling different activities and responsibilities to manage their study. Table 2 demonstrates how Christine learns on the go and uses concurrent strategies as part of her learning behaviours. Zara & Pam (Tables 3 and 4) also make use of learning on the go and concurrent strategies, but in very different ways. Technology is an important enabler for learners in managing their learning (Dabbagh, 2007; Stoter et al., 2014). Zack (Table 5) makes us of blocks of time to mange not only his study, but his personal life.

Technology use

As demonstrated by the differences in Christine, Zara, Pam and Zack's experiences, learners vary greatly in the way they use technology to support their learning. Technology was a critical component of the participants' ability to orchestrate their time for maximum efficiency and there was a strong sense that they could not mange without it. Mobile technologies are increasingly integral to learners' orchestration of time. In particular, mobile technology enables learners to be opportunistic and to make the most of time when it becomes available, even a few minutes here and there.

> *What dictates what I do is time more than anything else 'cause that's what I have the least of. So it's not so much the mobility it's just the best way to use time for me. (Rosemary, 2012)*

Christine, Zara & Pam made use of these technologies not just to learn on the go but also to enable them to engage concurrently in learning and other activities. While Zack (Table 5) did not particularly use mobile technologies, he found that technology enabled him to fill perceived gaps in the materials provided by his institution and was able to complement his learning by making use of social media tools such as YouTube. Students appear to be well aware of the opportunities offered by the internet and social media and are quite active in using these to supplement their learning activities (Andrews, Tynan & James. 2011).

Table 3: Zara Tuesday and Wednesday

Times & Duration	**Type of Task relating to learning**	**Technology used**	**Location**	**Comments on Context**
Tuesday				
10.00 am – Midday	Deliver presentation + Study	Work laptop, no internet	Small town bowls club	Doing study in "downtime " from work activity
4.00 pm – 6.00 pm	Deliver presentation + Study	Work laptop, no internet	Small town bowls club	Doing study in downtime from work activity
9.00 pm	Check email		Motel room	This may be work related
Wednesday				
5.00am – 7.00 am	Study	Work laptop, hotel internet, Mobile personal iPhone	Hotel room	Details of study not provided. iPhone is personal tool
4.00 pm – 6.00 pm	Study	Work laptop, hotel internet, personal iPhone	Hotel room	Details of study not provided

Table 4: Pam, Sunday

Times & Duration	Type of task relating to learning	Technology used	Location	Comments on context
Wednesday				
5.00 – 6.00 am	Study – exam preparation –	Computer print out of powerpoints and summary typed up on computer	Study	Concentrated study tie for exam preparations
6.00 – 7.30	Walk – listen to lectures on ipad	Ipad	Outside	Orchestrating time – focus on exercise and well being
7.30 – 9.30	Breakfast, chores, notes on lectures intermittently	Hand written notes, computer	Home	Multi-tasking, wellbeing
10.30 – 11.45	Morning Tea			
11.45 – 12.30	Study – as above	Handwritten notes	Verandah – alternative learning area.	Focus on wellbeing
12.30 – 1.00	Lunch			
1.00 – 2.30	Study – as above.	Handwritten notes	Verandah – alternative learning area	
2.30 – 5.30				Personal activity
5.30 – 6.20	Study	computer and handwritten notes	Study	
6.20 – 7.20				Personal activity
7.20 – 8.30	Study – lectures and notes	computer and handwritten notes.	Study	
8.30				Personal activity

Connectedness was identified as a key characteristic of the learners in this study and moves away from the notion of the independent distance learner that was typical of more traditional distance learning prior to the widespread adoption on online distance learning. In this project connectedness was understood as distance learners' ability to interact and engage with the people and other learning resources that frame their learning spaces. The theme built on coding for the people that students' viewed as important to their learning experience, feelings (of inclusion or isolation) as well as the personal choices, technologies and strategies that made things work for them. While

relationships were important to many of the students, being able to connect to resources in flexible ways was also a key aspect of this characteristic. The four case studies discussed here demonstrate the very different ways in which learners exhibit connectedness. For Christine, this was achieved by using a range of social media and online communication tools to interact with other learners (Table 2). The relationships she established with other learners, enabled her to discuss her learning with peers and to receive feedback. This was an important aspect of Christine's learning activities and demonstrates clearly that she was an interdependent learner (Hung & Zhang, 2008). For Zara connectedness was demonstrated through accessing resources from remote locations when internet access enabled her to do this. For Pam, using her iPad while walking enabled her to connect to learning materials and to use technology to engage in learning tasks while undertaking other activities that contributed to her sense of wellbeing. Lack Christine, Zack also made use of social media to connect himself to a range of resources that he felt provides a superior learning experience. However, he did not particularly feel the need to connect to peers for this kind of learning activity.

Table 5: Zack, Thursday and Saturday

Times & Duration	**Type of task relating to learning**	**Technology used**	**Location**	**Comments on context**
Thursday				
7.30 – 4.30				Work
5.00 – 6.00				Arrive home, nap
7.00 – 10.00	Watch YouTube videos on macro economics from Berkley University			'Space not specified
Saturday				
7.00 am – 9.00 am	Study		Home study	Technologies not specified
10.00 am – 1.00 pm	Study		University library	Needs to be in quiet zone with no distractions Technologies not specified
1.00 – 6.00 pm				Family time,
6.00 – 11.00 pm				Dinner with friends

Wellbeing

A somewhat surprising characteristic that emerged form the study was that of wellbeing. Wellbeing identified as an important driver for many of the choices students make, not only about **when** but also about **where** and **how** they engage in their learning. Student wellbeing is defined here as a sustainable state of positive mood and attitude, resilience, and satisfaction with self, relationships and learning experiences. Participants used many different strategies to promote a sense of wellbeing including doing learning tasks concurrently with other activities, choosing to do some of their study outdoors or in some other alternative space than the home study, engaging in learning tasks while travelling or participating in exercise and interspersing study sessions with family and other personal activities. In Christine's case (Table 2) spending time watching her children play while she also did some study contributed to this sense of wellbeing. For Zara (Table 3) this was accomplished through concurrent work and learning activities (Table 3) while for Pam (Table 4) a sense of wellbeing was established through engaging in concurrent exercise and learning activities as well as using alternative spaces such as the verandah. Seeking spaces and places outside to engage in learning activities was common for many of the participants in the study and the comments below illustrates not only that it has an impact on well being, but also is perceived by some learners as having a positive impact on learning .

> *… the other place is out in the garden… I try to get outside as much as I can… that's where I do my good thinking for study … (Helen, 2012)*

> *I could sit out on the veranda and just listen to [the lectures]… Just to get out of the 4 walls, go outside and get some fresh air, clear your head a bit as well. (Zack, 2012)*

For Zack (Table 5) as well as finding alternative places to study, having a nap when he came home from work and ensuring family and social time on the weekend were important strategies for maintaining a sense of wellbeing.

Conclusions

Applying Zawacki-Richter and Andersons' (2014) macro, meso and micro framework to researching online distance learners enables holistic understanding of the relationships between the different aspects of online distance learning and the ways in which these elements impact on learner experience. This study, which focused on the 'lived experience' of learners provided deep insights into learner characteristics and patterns in learning behaviours and the ways in which individuals applied these to their particular circumstances in order to be successful online learners. The four cases presented here clearly show that while learners may have characteristics on common, they way they demonstrate these characteristics vary widely. The case studies also suggest that all learners may not necessarily have all the characteristics that are seen as necessary to successful online learning, but utilize the ones they do have in ways that ensure success for them.

Understanding the uniqueness and complexity of the different ways in which the students such as Christine, Zara, Pam and Zack, reported on here, orchestrate their time to manage their learning as well as recognizing the ways in which they use technology for learning on the go, engaging in concurrent activities and connectedness, while aiming for a sense of wellbeing, highlights the need for ongoing research into the micro level of online distance learners.

As the online distance learning environment continues to evolve with the ongoing and widespread adoption of technology, learner behaviours and characteristics will also change and evolve. This environment requires ongoing research to ensure that our understanding of learners keeps pace with these changes and universities can provide the kinds of learning experience that contribute to successful online learning experiences. Deep understandings of learner characteristics and behaviours can assist institutions in making the policy and practice decisions that can positively impact on student learning outcomes and encourage students to persist in their studies. Exploring the different dimensions of online learning using a framework such as the one discussed here (Zawaki-Richter & Anderson, 2014) can also contribute to institutions broad understanding of distance learning and to consider what other kinds of research can be of benefit in supporting successful online distance learners.

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Achieving Improved Quality and Validity: Reframing Research and Evaluation of Learning Technologies

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Abstract

A critical reading of research literature relating to teaching and learning with technology for open, distance and blended education reveals a number of shortcomings in how investigations are conceptualised, conducted and reported. Projects often lack clarity about the nature of the enhancement that technology is intended to bring about. Frequently there is no explicit discussion of assumptions and beliefs that underpin research studies and the approaches used to investigate the educational impact of technologies. This presentation summarises a number of the weaknesses identified in published studies and considers the implications. Some ways in which these limitations could be avoided through a more rigorous approach to undertaking research and evaluation studies are then outlined and discussed.

Keywords: Epistemological models; learning technology; research design; student learning; university teaching; validity.

Introduction

In recent years open and distance education (ODE) has increasingly been equated with digital learning technologies. Through the use of technology, universities in many countries now offer aspects of ODE, whether they are dedicated ODE institutions or campus-based. Although technology uptake has been considerable, it is reasonable to ask why research and evaluation studies of learning technologies have had so little impact on implementation decisions and teaching practices. Has research contributed to building a body of evidence that can inform and provide a firm foundation for subsequent developments in academic practice? Is evidence being generated and reported that can inform the future practices of university teachers and students? Innovation and change should be evidence-informed and we need to ensure that the research and evaluation of learning technology projects produces findings that can inform other practitioners and policy-makers.

While there are concerns about what types of evidence are considered during any implementation decisions (Price & Kirkwood, 2014), misgivings have also been expressed about the lack of a well-established body of evidence and about the quality and validity of many research and evaluation studies. Selwyn (2012) has described this area of scholarship as "notoriously sloppy" and "brimming over with lazily executed 'investigations' and standalone case studies, while also tolerating some highly questionable thinking" (p.213). In their literature review of studies on the use of technology in schools, Cox and Marshall (2007) identified many methodological limitations and uncertainties that "point to the need for a thorough, rigorous, and multifaceted approach to analysing the impact of [learning technologies] on students' learning" (p.60). Clearly there is much room for improvements to be made in the conduct of research and evaluation studies relating to technology and education.

We have reviewed research literature, reports and case studies relating to learning technology innovations at university level and identified many problems with the ways in which studies were conceived and conducted. Consequently, it is difficult to generalise any findings about effectiveness. We identified issues relating to assumptions and beliefs underpinning research studies and the approaches used to investigate the impact of technologies (Kirkwood & Price, 2013a). Frequently, there was a lack of clarity about the nature of the *enhancement* that technology was intended to bring about and what impact technology would have upon the student learning experience (Kirkwood & Price, 2014). Furthermore, relatively few published accounts of learning technology innovations at university level showed exhibited a scholarly

approach to teaching. Frequently, interventions appear to be technology-driven rather than being undertaken in response to an identified teaching and/or learning concern (Kirkwood & Price, 2013b).

Here we examine some implications of the shortcomings we identified in published studies. We then suggest ways of avoiding these limitations through taking a more rigorous approach to conceptualising, designing, conducting and reporting research and evaluation studies relating to learning technologies.

How 'fit for purpose' are the research methods utilised?

Research methods are not value-free or neutral: they reflect epistemological positions that determine the scope of inquiries and findings. In other words, there are assumptions and limitations associated with all research methods and approaches and these are often *implicit* or *unstated*. In reviewing published accounts of research and evaluation studies relating to the use of technologies for education we have identified:

- A lack of clarity and specificity about what outcomes were expected to be achieved and, therefore, what the focus of the research should have been;
- Narrow or inappropriate conceptions of what constitutes 'scientific' experimentation;
- Poorly conducted 'scientific' experimentation;
- Insufficient attention to the underlying assumptions and models associated with any method of enquiry;
- Unwarranted conclusions being drawn from research findings, often based upon inappropriate expectations.

Before discussing these shortcomings further we explore briefly what we mean by 'rigour' in such research.

What determines 'rigour' in educational research?

We are concerned that much of the published research on learning technologies has been undertaken without a rigorous approach. On the other hand, we are also troubled by the claims made by some researchers that only a highly constrained 'scientific' approach has any validity. A scientific enquiry involves the testing of hypotheses about *why* and/or *how* things happen. It is as much about framing the right questions as it is about adopting any particular approach or methodology. Testing is carried out by carefully collecting evidence that is both appropriate and sufficient to demonstrate whether or not the expected consequences of the hypothesis have happened. If not, the

hypothesis must be rejected and a revised hypothesis subjected to scrutiny in a similar manner.

In recent years there has been considerable debate (particularly in the USA) about the extent to which educational research should be more experimental, 'evidence-based' and be directed towards informing policy-makers about 'what works'. Ostensibly, the linking of research and policy-making for practice might seem fairly innocuous. However, it is necessary to examine the assumptions and theoretical positions that underlie the various claims in order to understand the nature of the controversy and debate.

Some people claim that generalisable results can only be obtained by the adoption of positivist experimental methods and approaches (Cook, 2002; Slavin, 2002; 2003; Torgerson & Torgerson, 2001). Randomised controlled experimentation, often found in medical research, is considered to be the 'gold standard' and proposed as the ideal to be emulated in educational research. It is claimed that research on the use of technology for teaching and learning should involve tightly controlled 'comparative studies' or other forms of experiment. A cumulative synthesis of results from many such studies can be developed through 'systematic reviews' and 'meta analyses' (e.g. Tamim et al., 2011). All studies of this kind require the adoption of a strict experimental approach, the use of quantitative data and statistical analysis techniques. They also relate only to certain types of educational innovation or intervention. Consequently, this narrow and prescriptive view of what constitutes 'scientific' research excludes consideration of any studies that do not meet strict criteria for inclusion. It also reflects just one view of what constitutes education, a highly contested concept.

Many educators and researchers contest that position for both practical and epistemological reasons (Biesta, 2007; Clegg, 2005; Howe, 2009; Reeves, 2011; Rowbottom & Aiston, 2006; Scriven, 2008; Simons, 2003). We cannot examine those criticisms in detail, but there are many problems to be explored by those aspiring to undertake rigorous experimental research in education. Questions should be asked, such as:

- How similar are the educational and medical contexts – Is it appropriate to equate teaching and learning processes with the treatment of medical conditions?

- How feasible and ethical is it to conduct randomised experiments within education contexts, particularly when (for example at university level) the number of participants tends to be fairly low?
- Exactly what part of the educational process is being investigated when strictly controlled experiments can be conducted?

In respect of research on the use of learning technologies there are further contested aspects. For example, the applicability of much-used 'comparative study' method, which so often leads to 'no significant difference' being the reported outcome. Can that experimental method be an appropriate way to assess innovations aimed at transforming students' learning (rather than maintaining the *status quo* in all respects other than the medium used) (Kirkwood, 2013)? Seeking a suitably rigorous 'scientific' approach, many researchers concentrate their attention on the wrong variables (e.g. instructional delivery modes) rather than on meaningful pedagogical dimensions (Reeves, 2011). Other research methods and approaches can be suitably rigorous (ibid.), without invoking narrow experimentation and technological determinism (Oliver, 2011).

Improving quality and validity

Better conceptualisation of the issues underpinning any study (i.e. the goals, aims and rationale of an innovation; the underlying assumptions about 'teaching', 'learning' and 'enhancement') are essential to improve the quality and validity of research. A better understanding can inform and influence the research approach adopted and the data collection methods involved. It will also clarify what interpretations of the findings are appropriate (or not) at the reporting stage. We suggest the following steps to improve the quality and validity of research.

1. Ascertain the aims and rationale of the e-Learning project

Why was a technology innovation initiated and implemented? What goals was it trying to achieve? These need to be understood before deciding on the most appropriate research approach and methods. Determine *what* precise form of enhancement is sought from this application of learning technology. For example, is the desired enhancement primarily concerned with issues such as:

- increasing technology use?
- catering for increased student numbers?
- improving the circumstances or environment in which educational activities are undertaken?

- improving teaching practices?
- improving (quantitatively and/or qualitatively) student learning outcomes?

Researchers must consider *how* any enhancement will be achieved and demonstrated (e.g. greater use, increased time on task, improved student satisfaction with teaching, quantitative and/or qualitative improvements in learning). If the intended enhancement involves 'improvements in learning' how are these conceptualised and how will they be operationalised and demonstrated? These are discussed further in subsequent sections.

2. Determine the pedagogic purpose of the e-learning project

A recent critical review of published research and evaluation studies of actual technology interventions (Kirkwood & Price, 2014) found that the primary purpose of each project could be assigned to one of three categories:

- Replicating existing teaching practices;
- Supplementing existing teaching;
- Transforming teaching and/or learning processes and outcomes.

Occasionally the stated outcomes expected of projects were inappropriate for the type of intervention being made. For example, projects that simply replicated existing teaching had unwarranted expectations about the transformation of student *learning*. Simply changing the delivery method does not alter the pedagogic function to any significant extent. A lecture remains a lecture (i.e. a primarily transmissive pedagogic method) whether it is delivered 'live' in a lecture-room, as a web-cast to be accessed synchronously and/or asynchronously or as an audio or video podcast accessed 'on demand'.

3. Recognise that technologies and tools can be used for multiple educational purposes

Researchers and practitioners must recognise that most technologies/tools (such as blogs, forums, podcasts and wikis) are not associated with just a single 'ideal' role, but can function in a variety of ways for many different educational purposes. The manner in which a technology is used for a particular type of learning activity and anticipated outcomes will reflect the teacher's epistemology and approach to teaching and learning (e.g. transmissive, constructivist, collaborative, etc.). Students' use of a technology in that specific context can differ from that experienced in other contextual circumstances. It is insufficient to describe a technology innovation as being about

students 'using a wiki' or 'using a discussion forum'. The educational *purpose* and *mode of deployment* must also be specified and explored.

4. Determine what benefits are expected to be achieved from a technology intervention and for whom

Try to determine the origins of any learning technology project being investigated. Why was the innovation considered necessary? How was the pre-existing situation to be improved by the use of technology? It is essential to clarify not only the nature of the benefit(s) expected from any project, but also the anticipated beneficiaries. For example, the use of pre-prepared and quality-checked materials and resources available from an institutional VLE or LMS can benefit learners, teachers and institutional managers by ensuring that greater consistency and standardisation is achieved. Some other technology-based interventions seek to achieve novel outcomes, their primary aim being to enable learners to acquire and develop knowledge and skills that are difficult to achieve by other means. Research and evaluation studies of technology projects should ensure that (a) the full range of relevant benefits and beneficiaries is considered and (b) the methods and approaches used are appropriate. It would be insufficient, for example, for measures of satisfaction to be used to determine whether students' learning had been improved (quantitatively or qualitatively) by a particular intervention. In much the same way, qualitative changes in students' learning are unlikely to be demonstrated by using quantitative measures alone.

5. If some form of learning or teaching enhancement is expected, how is conceptualised in relation to the processes and experiences of those involved?

Is learning enhancement conceived primarily in quantitative terms? For example, many studies make use of the scores or grades achieved by students on 'before' and 'after' tests, often devised specifically for an intervention. Others use the normal assessment requirements of a course, usually comparing the results of one 'with technology' cohort of students with another 'without technology' group. Such measures indicate that enhancement is conceived in *quantitative* terms: demonstration of enhancement requires determining whether the technology innovation is associated with more – or less – learning being achieved, through the proxy of test scores. (This, of course, assumes that all other variables are held constant, which can rarely be achieved unless strictly controlled experimental conditions are applied.)

Alternatively, an innovation might be seeking to achieve outcomes that are more *qualitative* than *quantitative*. For example, designing students' use of technology for the purpose of:

- Developing and deepening knowledge and understanding, not simply in terms of *knowing more* (facts, principle, procedures, etc.), but of *knowing differently* (more elaborate conceptions and theoretical understanding, etc.);
- Developing an understanding that knowledge is contested (legitimate differing perspectives) rather than absolute;
- 'Learning how to learn', developing greater self-direction and the capacity – and aspiration – to continue learning throughout life;
- Developing the capacity to participate in academic discourse and a community of practice related to their discipline or profession;
- Developing a range of 'generic' or 'life' skills, e.g. critical thinking, coping with uncertainty, ability to communicate appropriately with different audiences, working effectively with other people, capacity for reflection upon practice, etc.

In such circumstances it is very unlikely that quantitative measures alone could determine whether or not the desired enhancement had been achieved. Some form of qualitative data collection is almost certainly necessary to demonstrate that the desired qualitative improvement had been brought about.

Whether improvements were conceived in quantitative or qualitative terms, it would never be sufficient to simply ask students whether they felt that their learning had been enhanced. Not only does this fail to *demonstrate* that any enhancement has been achieved, it also unreasonably assumes that each student questioned shares their teacher's understanding of what that enhancement actually involves. For example, how can a single valid interpretation be deduced from aggregating students' responses to the questionnaire item "Do you feel that your learning has been enhanced by the use of x"?

Further, for desired outcomes to be achieved the contextual circumstances must be appropriate. Most notably, the assessment methods and criteria must support those outcomes. The assessment for a course or module constitutes the *de facto* curriculum (Brown, 1997; Havnes, 2004; Rust, 2002; Sambell & McDowell, 1998). Assessment determines what learners do when studying: not only **what** they attend to (and what they ignore), but also **how** they go about learning (Kirkwood & Price, 2008). When students are expected to make use of tools such as wikis, blogs, podcasts, etc. within

their normal studies, many will not bother to do so unless using the tool contributes in some way to the course assessment requirements. For this reason, intervention projects that focus on technology use that is not within the learners' normal study context are highly likely to be unrepresentative and will usually produce over-optimistic findings.

6. Establish what evidence is considered necessary or appropriate to demonstrate the achievement of enhancement(s)?

As already mentioned, the type(s) of evidence collected in any research or evaluation study must be appropriate for not only the overall purpose or pedagogic goal of an intervention (sections 3.1 and 3.2 above), but also for the anticipated benefits and beneficiaries (sections 3.3 and 3.4). Demonstrating improvements in learning, especially those of a qualitative nature, can be difficult and will usually require the use of several data collection methods.

Any research or evaluation study that aims to gather evidence of better student performance or learning improvement must ensure that relevant forms of data are attained. Kirkpatrick's four-stage evaluation model (Kirkpatrick, 1994) proposes that the effectiveness of education/training is best evaluated at four progressively challenging levels – *Reaction*, *Learning*, *Behaviour* and *Results*. It stresses that research and evaluation should aim to attend to all four stages. Students' reactions might indicate feelings of satisfaction or positive attitudes, but are never sufficient to determine what learners know or what they can do as a result of an intervention. 'Learning gains' can only be established by the gathering of appropriate evidence, for example by students demonstrating their understanding or their ability to perform desired tasks or actions.

If course assessment is to be used as one form of data collection for a project, it is vital to ensure that the assessment method(s) used is/are appropriate for the outcomes being sought by the intervention. For example, if a wiki or discussion forum is introduced to encourage students to work collaboratively, the associated course assessment will need to acknowledge and reward group working practices. If assessment remains wholly focused on the outputs of individual students, the 'backwash effect' of assessment (Watkins et al., 2005) will lead learners to revert to competitive rather than collaborative ways of working. In other words, the design of assessment is key to developing particular behaviours in students. So, if we want to change student experiences and learning outcomes, we need to change the assessment strategy and related activities accordingly. Research or evaluation studies need to

consider such wider contextual factors that can impact on the outcomes of an innovation.

7. Ensure that the findings justify the conclusions drawn and that no unsubstantiated generalisations or recommendations are made

It is important that any conclusions or recommendations resulting from a research or evaluation study should be substantiated by the findings. In our literature review (Kirkwood & Price, 2014) we found many articles in which this was not the case. Favourable reactions from learners (particularly if they are only in response to a multiple-choice question) should not be presented as the sole source of evidence for learning improvement. In situations where technology has been used to *supplement* existing teaching, any enhanced performance associated with a project could simply result from the fact that learners had received additional teaching resources or had spent more time on study activities. Similarly, where teaching has been altered significantly to accommodate the use of technology, researchers must be aware that because changes have been made to several variables it is inappropriate to claim that just one element (i.e. technology) has been responsible for bringing about any change in outcomes.

Over-generalisation is also of concern. It cannot be assumed that findings from research undertaken in one particular educational context can necessarily be applied in any other context. Often accounts of research or evaluation studies provide insufficient details about the context, the design of learning activities, the precise use made of technology (most can be used for a variety of purposes), the expected outcomes and the means by which learners were assessed for readers to be able to determine the extent to which findings might be of value elsewhere (Thorpe, 2008). Contextual differences reflect a combination of factors that include, among others, the beliefs and practices of individual teachers, the characteristics of students, the mode of education involved and the ethos, norms and culture of particular departments and institutions (Lindblom-Ylänne et al., 2006). Often the critical importance of contextual variability is underestimated in relation to how teaching and learning with technology actually takes place.

8. Maintain an appropriate perspective: clearly differentiate the complexities of the 'here and now' from the idealised 'potential' of any new technology.

Research and evaluation studies need to be open to forms of inquiry that are appropriate for the particular educational context and innovation being investigated. All aspects of the educational transaction need to be considered, not just the technology being utilised for teaching and learning. There are two major drawbacks when technology itself is taken as the focus of an investigation.

First, there is a tendency to consider the technology as the *agent* of any changes observed, rather than the agent being the design of teaching/learning activities and how use is made of the technology. A technology might seem to be highly effective in helping achieve the desired goals in one particular context where students with a certain set of characteristics undertook specific learning tasks. It does not follow that positive outcomes will necessarily arise when the same technology is used by different types of student when engaged with learning tasks of a dissimilar nature. The key is how teachers design learning activities appropriate for their students to enable them to achieve particular educational outcomes or goals. There are always dangers involved in trying to generalise from one specific context to another.

Second, it is always important to consider what innovative role any technology is playing. Is it providing a new means of delivering existing pedagogy (*replicating* or *supplementing* existing teaching), or does it contribute to new pedagogical approaches and changes in what and how students learn (*transforming* the learning experience)? If the former is the case, then it is essential to determine what is already known: the findings from relevant studies of delivery technologies should be considered. Often teachers and researchers are so enthralled by the potential of new technologies that their sense of perspective is impaired. Many investigations fail to take account of and build upon lessons learned from research into the use of educational media and technologies conducted over previous decades, much of which remains highly relevant.

Conclusions

We contend that research and evaluation studies of learning technologies should be conducted with greater rigour and validity. However, it is not a matter of simply following prescriptions about adopting specified research methods or approaches to achieve 'scientific' rigour. It is more about proceeding in a scholarly way, investigating the aims and goals of an intervention in order to pursue **all** relevant aspects of the

educational situation and circumstances. It is essential that explicit consideration be given to the assumptions and epistemological models underpinning both the approach to teaching and learning being adopted and the anticipated research methods. The investigation, including any literature review to determine what is already known, should not be focused primarily on the specific technology being used, but on all relevant aspects of the educational context. All conclusions and recommendations must be supported by evidence and not exaggerated in their claims for applicability in other contexts.

If the guidelines presented here are followed, it should contribute to research and evaluation studies achieving higher quality and validity and to results and conclusions that avoid many of the pitfalls and shortcomings that we – and many others – have identified. Consequently, the potential for determining valid judgements about impact can be realised.

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"Are They Ready?" Self-Directed Learning Readiness and Acceptance of e-Learning Tools: Comparing Non-Traditional and Traditional Students

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Abstract

Accommodating 'Non-traditional' students' (NTS) needs (Kerres, 2012) is an increasing concern for traditional brick and mortar universities. This also applies to teaching and learning in the online distance education context: "As the online learning environment is characterized with autonomy, self-regulation becomes a critical factor for success in online learning" (Barnard et al., 2009, p.1). This paper investigates the differences in self-directed learning readiness of non-traditional and traditional students in German higher education as well as the acceptance of digital teaching and learning approaches with respect to their self-directed learning readiness.

Keywords: Lifelong learning; Learner needs, perceptions and motivations; Learning effectiveness; improvement of learning experience; self-directed learning readiness; non-traditional students

Introduction

The profile of students attending traditional brick and mortar universities is increasingly diverse, which constitutes a challenge for the institutions that need to adapt their teaching practices, contents and learner support structures to accommodate these so called "non-traditional" students' (NTS) needs (Kerres, 2012). Albeit this challenge, taking this diversity and its changes that shape today's student profile into account to offer a successful learning experience to the students. Subsequently, Morrison, Ross and Kemp (2007) state: "As designers, we need to understand the relevant characteristics of our learners and how those characteristics provide either opportunities or constraints on our designs" (p.52). This also applies to teaching and learning in the online distance education context, for which the investigation of "the socio-economic background of distance education students, their different learning styles, critical thinking dispositions, and special needs" (Zawacki-Richter, 2009, p.9) was identified as a central research area. Successful and productive distance education depends on and demands learners – among other factors – to be intrinsically motivated and be capable of self-directed or self-regulated learning: "Individuals who are self-regulated in their learning appear to achieve more positive academic outcomes than individuals who do not exhibit self-regulated learning behaviors" (Barnard-Brak et al., 2010, p.61). This paper investigates the differences in self-directed learning readiness of non-traditional and traditional students in German higher education as well as their acceptance of web and e-learning tools and digital teaching and learning approaches. As self-directed learning is a crucial competency for students – and learners in general –, their attitude towards online tools and learning approaches may have consequences for the design of appropriate learning settings and environments. Whereas this study primarily focuses on one specific country, the consideration of results of international studies on the topic adds to situating this study within the broader discourse.

Theoretical Background

"Self-directed learning" and "self-directed learning readiness" are complex constructs and there are many different definitions. A well-known definition by Knowles (1975) describes self-directed learning as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes" (p.18). Consequently, self-directed learning readiness refers to the "attitudes, abilities and personality characteristics" (Wiley, 1983, p.182 as cited in Fisher, King & Tague,

2001, p.517) that the learner needs to apply to his or her learning process. Self-directed learning has been identified to be one of the central components in the theory of adult education (Merriam, 2001). In literature, several similar terms, e.g. self-regulated or self-organised learning, exist and are sometimes used synonymously for self-directed learning. This subsequent vagueness is addressed by e.g. Bucholc (2010), who attempts to distinguish more strongly between the terms and their different meanings. As early as 1978, Guglielmino developed a scale to measure this self-directed learning readiness, her scale being later subject of methodological criticism (Bonham, 1991; Field, 1989).

Despite being referred to a critical stance towards this topic can be observed as well (Kraft, 1999): "Theories on self-directed learning are not consistent, there is a lack of clear and precise theoretical definitions of terms and delineation, the arguments for this form of learning are of varying quality and plausibility, the empirical findings are diverse and the situation regarding data is diffuse and unclear" (translation by the authors) (p.834). This challenge cannot be addressed further in this study, but nonetheless has to be taken into consideration.

Studies on learners' self-directed learning (readiness) are being internationally conducted in different fields – ranging from learners in later life (e.g. Robertson & Merriam, 2005) to students in business and nursing education (Beitler & Mitlacher, 2007; Smedley, 2007). Beitler and Mitlacher (2007) analyze US-American and German business students' willingness and motivation to share information and conclude that, while there are no differences in willingness and motivation due to the country of origin, the extent of students' self-directed learning readiness accounts for the respective attitude. The authors also mention that in tendency, „Persons with above average or high SDLRS scores usually prefer to determine their own learning needs, plan their learning, and then implement their learning plan" (Beitler & Mitlacher, 2007, p.527). Dynan, Cate & Rhee (2008) researched the influence of structured and unstructured learning environments on students' SDLR development and argue that students entering a course with a higher SDLR, do indeed prefer unstructured learning environments, meaning less teacher-directed ones. Furthermore, in their case study on Malay adult learners' SDLR, Ahmad and Majid (2010) take the participants' cultural background explicitly into consideration and conclude „that culture could be a strong influence in the development of SDL readiness of the respondents" (p.261).

Transferring self-directed learning readiness to online distance education means to directly addressing the fact that "studying at a distance requires maturity, a high level

of motivation, capacity to multi-task, goal-directedness, and the ability to work independently and cooperatively" (Brindley, 2014, p.287). Thus, self-directed learning plays an important role (Song & Hill, 2007). As a general fact, knowing learners' characteristics and abilities proves to be important in online learning when designing and offering web-based courses meeting these needs (Morrison et al., 2007; Zumbach, 2010); even more so given the fact that today's student population is increasingly diverse regarding age, professional and personal background, and prior education experience (Thompson, 1998; Guri-Rosenblit, 2012; Stöter, Bullen, Zawacki-Richter & von Prümmer, 2014).

Nevertheless a clear definition of the so called "non-traditional student", does not exist. A range of understandings, however, share some common points as the following exemplary definitions show but also differ in focus. Ely (1997) delineates non-traditional students through the following characteristics: "I am your adult student, age 25 or older, who has returned to school either full-time or part-time. While attending school I also maintain additional adult life responsibilities such as employment, family, and financial commitments" (p.1). More characteristics are included in the definition by the National Center for Education Statistics (NCES) in the United States: "delayed enrollment into post-secondary education, attended part time, financially independent, worked full time while enrolled, had dependents other than a spouse, was a single parent, did not obtain a standard high school diploma" (Horn & Carroll, NCES, 1996, p.2). Having at least one of these characteristics classifies students as non-traditional students in US statistics. The definition by Teichler & Wolter (2004), which is predominantly used in the German discourse on NTS, advanceds three major categories to describe NTS: mode of study (part-time, distance, or alongside with paid work), alternative ways to access higher education (without formal entrance qualifications), and recurrent learners coming to university at a later point in life. Although this definition is helpful for understanding students' ways into und through higher education, it does not offer clear criteria, which help to understand this group's needs and expectations. In an international, comparative study, Schuetze and Slowey (2012) identified seven different types of lifelong learners:

- second chance learners,
- equity groups (from under-represented groups in HE),
- deferrers (who start their study years after completion of formal entrance qualifications to higher education),
- recurrent learners (who return to university for another academic degree),
- returners (e.g. former drop-out students),

- refreshers (who upgrade their knowledge), and
- learners in later life.

These types are based on various international descriptions of NTS' ways into the higher education system; however, they do not provide special characteristics of this group. Classifications as such serve to enable handling or researching specific phenomena; thus also the definitions of the group "non-traditional students" vary because of different perspectives and research interests. For this study, the classification by Zawacki-Richter, Hohlfeld and Müskens (2014) was used because it allows differentiating between the specific attributes more thoroughly and thus increases the accuracy of discrimination between non-traditional and traditional students. This is deemed necessary, because the distinction between traditional, distance and so-called non-traditional students (NTS) remains diffuse (Thompson, 1998; Teichler & Wolter, 2004; Kerres & Lahne, 2009).

Research Questions

The aim of this study is to analyse whether there exists a difference between the self-directed learning readiness of non-traditional and traditional students. Following the assumption outlined above, the diversity of today's students along the differentiation of being traditional or non-traditional possibly shows in their self-directed learning readiness.

Thus, the central research questions of this investigation are:

- Do traditional and non-traditional students show different levels of self-directed learning readiness?
- Does a relationship exist between the self-directed learning readiness of these two groups and their acceptance of e-learning tools?

If this is the case, then

- how can this difference be described and what consequences arise for the development of educational settings that rely on the extensive use of e-learning tools?

Method

Sample and Data Collection

Data in this analysis is taken from a large quantitative study on students' use of media, which was conducted in 2012 in the framework of "Aufstieg durch Bildung – offene Hochschulen", a large-scale program funded by the German Federal Ministry of Education and Research and the European Social Fund (Zawacki-Richter, Hohlfeld & Müskens, 2014). The study aimed at identifying university students' usage patterns when deciding on which (digital) media, tools, and services to use in the context of their studies. In total, 2,339 students from over eleven German higher education institutions answered the online questionnaire between April, 25th and June, 18th, providing information on diverse aspects of their media use in the context of their university studies, their learning styles as well as central socio-demographic characteristics.[1] With a gender distribution of 61% female and 39% male participants, aged 25 on average, one of the central characteristics of the participant group is their differentiation along the line of being considered a non-traditional student or not.

Non-traditional students were defined in this study as such when meeting at least one of the criteria of: enrolment in an (online) distance education programme, studying part-time, being employed for at least 19 hours per week, or being 30 years and older (Zawacki-Richter et al., 2014). Following this definition, 789 students of the sample (34%), were identified as NTS. With 30 years in the mean, they are significantly older than the traditional students (22 years) ($N = 2.310$), $t = -30.95$, $df = 2308$, $p < .001$. All traditional students are younger than 30 years, while NTS being 55% ($N = 433$) under and 45% ($N = 352$) over 30 years old. The range lies between 18 and 75 years. On average, the participants ($N = 2279$) have studied five semesters (including the present). 25.7% of the NTS have children, 4.6% are single parents. In comparison, only 1.2% of the traditional students have children, and 0.5% are single parents. On average, NTS work alongside their studies three times longer than traditional students (hrs. / week).

One central result of the study emerged to be the classification of four media user types, described by Zawacki-Richter and Müskens (2013, p.11) entertainment user (51.6%), peripheral user (20.1%), advanced user (20.4%), and instrumental user (7.6%) ($N = 1715$). Here, Zawacki-Richter & Müskens (2013) show that: "NTS had a much

[1] For an extensive description of the questionnaire used and participating students' profile, see Zawacki-Richter, Hohlfeld and Müskens (2014) or Zawacki-Richter and Müskens (2013).

greater mean class probability for the 'instrumental users' class than TS. Users considered as 'instrumental' showed to be the most active ones in using software and e-learning tools for their studies, whereas they do not use social media or others tools in their free time. For the 'peripherals' class the mean class probability of the NTS was significant higher, too. However, the NTS had significantly smaller mean class probabilities than TS with regard to the classes 'entertainment users' and 'advanced users'" (p.12). So far, the survey's data on self-directed learning readiness of the participating students has not been analysed further.

Attention needs to be paid to the fact that the study participants are enrolled in higher education institutions in Germany, the structure and environment of which is distinctly different from that of other countries. Thus, this context is to be taken into consideration when analysing the data. Assuming that also culture does to some extent influence learning and learner characteristics, it is nevertheless argued that findings of this study can be relevant for educational systems similar to the German one and for furthering the international discussion of NTS' characteristics.

Instrument

In the media usage study, questions concerning the participants' self-directed learning readiness were taken from Fisher's et al. (2001) self-directed learning readiness scale and were translated from English to German by the researchers. Fisher et al. (2001) developed their own self-directed learning readiness scale in response to the critique on the validity of Guglielmino's scale (Field, 1989) and Bonham's (1991) doubt on whether the scale measures readiness for self-directed learning or rather for learning itself (reliability of the scale). Primarily developing the scale for the field of nursing, they reviewed the existing literature and employed the Delphi technique to define and validate the scale's items. It was intended, however, that their scale be used in other contexts as well. The final scale comprises three subscales, "self-management", "desire for learning", and "self-control" and consists of 40 items related to these topics. Students can rate their perceived self-directed learning readiness on a five point Likert scale (ranging from 1 = strongly agree to 5 = strongly disagree).

Preliminary Findings

The three subscales "self-management", "desire for learning", and "self-control" were summarized as one and labelled as "self-directed learning readiness total". The mean of this new variable was calculated for both non-traditional and traditional students. Non-traditional students were operationalized as such when fulfilling at least one of

the criteria that were listed and already used by Zawacki-Richter et al. (2014); traditional students are students who did not fulfil any of these criteria.

Table 1: SDLR_Total for non-traditional and traditional students (1 = strongly agree, 5 = strongly disagree)

Student Type	N	mean	standard deviation
Traditional	1,531	2.120196	.4209775
NTS	789	1.975553	.4245370
total	2,320	2.071005	.4276279

The results show that with a mean of 2.0710, the level of total self-directed learning readiness is high for both groups. However, participants identified as non-traditional students perceived their self-directed learning readiness slightly higher (1.9756) than the traditional students (2.1202).

The group of non-traditional students was then more narrowly defined, operationalizing them through the fulfilment of the criteria of being 30 years and older **and** enrolled in an education program offered fully online in order to take into consideration that the various criteria of NTS may have a very different impact on students needs and learning styles.

Table 2: SDLR_total with 40 Items for NTS_narrow and TS+NTS_rest (1 = strongly agree, 5 = strongly disagree)

Student Type_NTS_narrow	N	mean	standard deviation
NTS_narrow	38	1.845308	.3820796
Traditonal+NTS_Rest	2282	2.074763	.4274123
total	2320	2.071005	.4276279

Using a definition of NTS, which includes more than one criterion, the difference to TS regarding the self-directed learning readiness is still very small, although the narrow definition results in even higher SDRL ratings for NTS. In order to investigate if there could be a relevant implication the effect sizes were calculated.

Effect sizes are a quantitative measurement tool to give an idea of the practical relevance of differences in means, therefore the results can be compared in a more differentiated way (Bortz & Döring, 2006). According to Cohen (1988), as a first orientation, effect sizes of under d = 0.20 can be neglected, from 0.50 on they are considered as medium and from 0.80 on as high. The effect size for NTS_narrow is calculated to be d = 0.56589663. Applying the broad definition of NTS, the effect size of 0.34 indicates an effect, even though a small one. When specifying this definition

("narrow" definition of NTS: only online students and those older than 29 years old), the effect size increases: The value is within the medium range, however, it needs to be taken into consideration that only 38 cases were included.

Interpretation

The results clearly indicate that differences in the self-reported estimate of self-directed learning readiness between the groups of NTS and TS exist, although they are rather small. In this case, this could be due to the fact that the criteria age and study format were used. Most likely, the fact of studying online accounts for this effect size. At the same time, the broad and initial definition of non-traditional students diminishes the difference between this group and the traditional students. It is possible that the definition of NTS used here is too broad to allow for discovering substantial differences to the TS group. This is supported by the result that, when using the narrower definition, a medium effect size (according to Cohen, 1988) can be found, i.e. a bigger difference concerning the self-directed learning readiness. It has to be recognized, that the criteria in the given definition of NTS do have different impacts: an age of more than 29 and being enrolled in an online-only-program is not the same and may indicate that inside the group of NTS a more differentiated approach is needed. Another explanation for these results could be that students in general show a rather high self-directed learning readiness. However, analyzing students' self-directed learning readiness is only the first step. An investigation of the domains in which this readiness plays a role when designing the actual educational settings and technology, is necessary.

Analysis of acceptance of digital learning approaches

Thus, in the following the acceptance of digital learning approaches will be analyzed. The study by Zawacki-Richter et al. (2014, p.20) used the differentiation for media and tools provided by Grosch and Gidion (2011) according to which digital learning approaches are summarized as follows:

> *"1) course-complementing materials, 2) interactive, multimedia learning materials, 3) virtual seminars and tutorials with tele-cooperation, 4) lectures in the form of pod- or vodcast, 5) virtual practice and laboratories, 6) online tests and tutorials (e-assessment), 7) web-based trainings / trainings in the intranet or internet, 8) e-portfolios / learning diaries in the intranet or internet."*

A 2-factor variance analysis with SDLR-scale (full) as independent variable and the factors „student type" and „acceptance digital learning approaches" (categorized) was conducted.

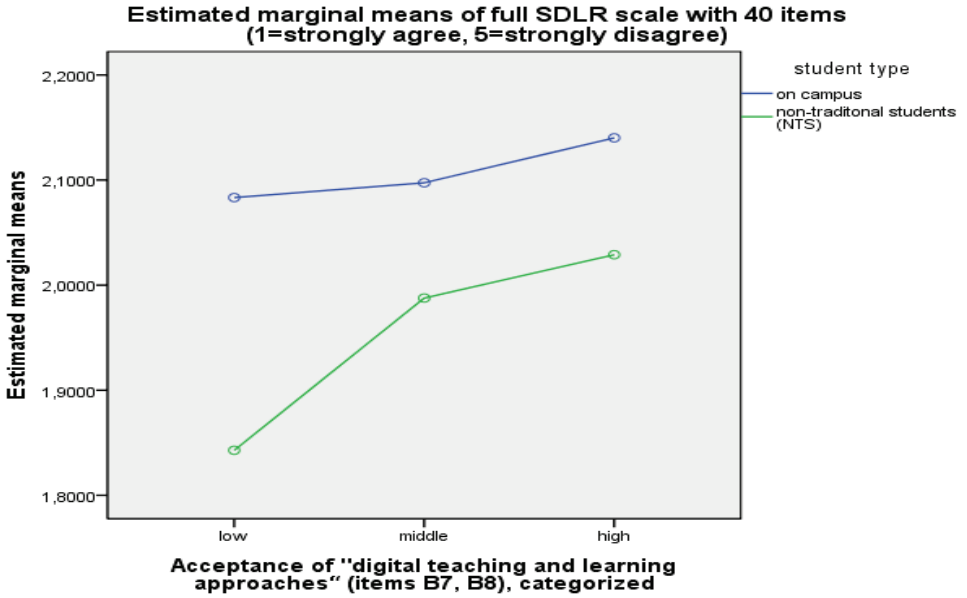

Figure 1. SDLR-scale as independent variable and the factors „student type" and „acceptance digital learning approaches"

The results show that there is a small difference, which is however not significant but does show some tendencies. NTS show more self-directed learning readiness whether the acceptance of digital teaching and learning approaches is low, middle, or high. Students with the lowest acceptance of digital teaching and learning approaches show the highest self-directed learning readiness. The higher the self-directed learning readiness, the lower the acceptance.

Analysis of acceptance of web tools and e-learning tools

In the study of Zawacki-Richter et al. (2014), the term web tools refers to online tools, which are not e-learning specific such as email systems, Skype, search engines, blogs and wikis; whereas e-learning tools explicitly refers to tools for the support of learning such as learning management systems, file deposition systems, virtual seminars and ePortfolios.

A 2-factor variance analysis with SDLR-scale (full) as independent variable and the factors „student type" and „acceptance of web tools" (categorized) was conducted (Figure 2).

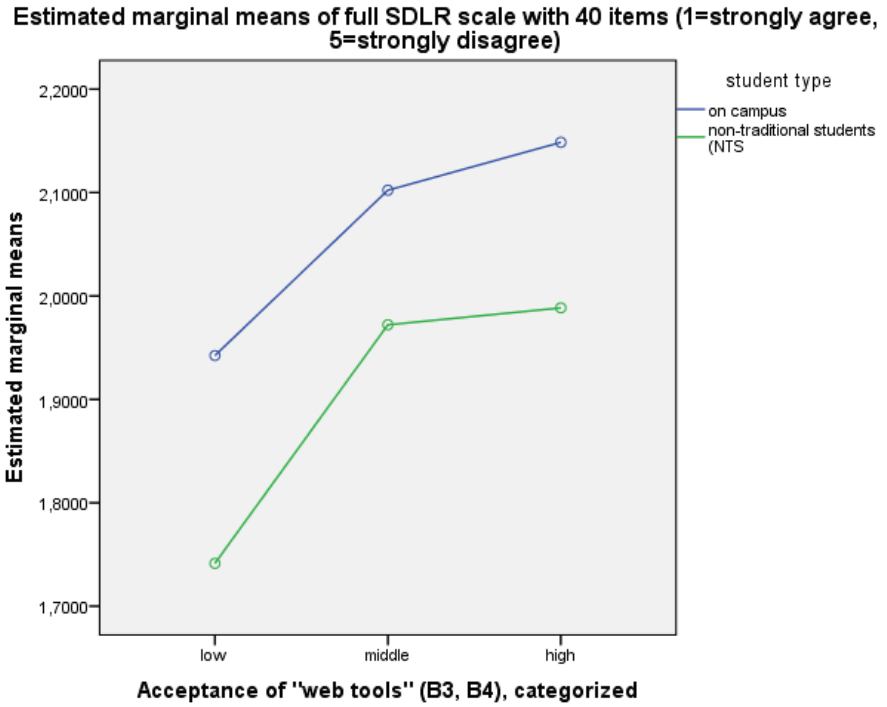

Figure 2. SDLR-scale as independent variable and the factors „student type" and „acceptance web tools"

Comparable to the results depicted in Figure 1., there is a small difference between the traditional and non-traditional students, again, not significant but indicating tendencies. NTS always show a higher SDLR, whether the acceptance of web tools is low, middle, or high. Again, students with the lowest acceptance show the highest SDLR, and there is merely a difference between middle and high acceptance. Finally, a 2-factor variance analysis with SDLR-scale (full) as independent variable and the factors „student type" and „acceptance of e-learning tools" (categorized) was conducted (Figure 3).

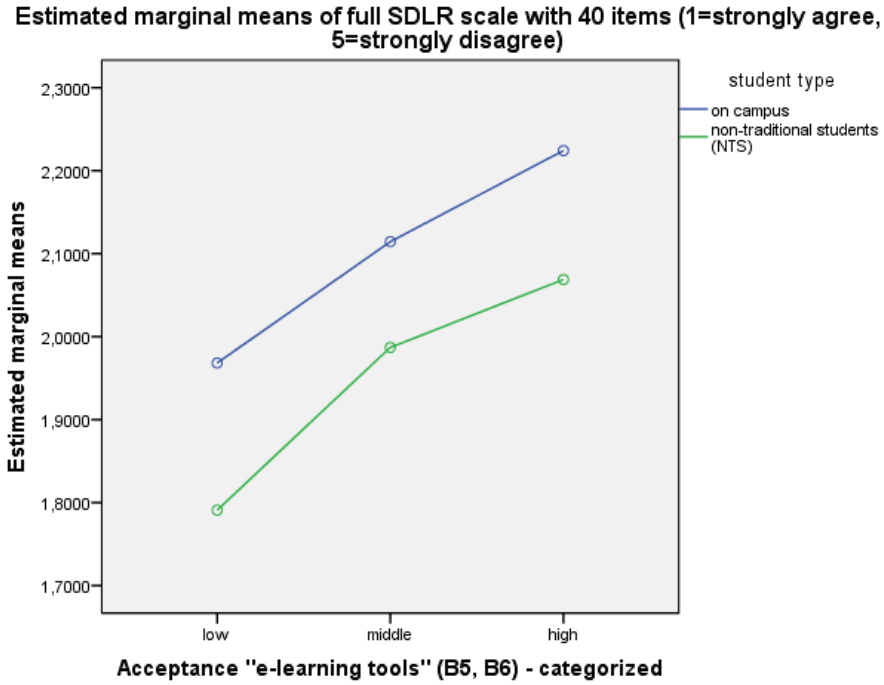

Figure 3. SDLR-scale as independent variable and the factors „student type" and „acceptance e-learning tools"

The difference between the traditional and non-traditional students is found to be even smaller than in the first two analyses. With respect to the e-learning tools, both groups seem quite similar: Again, with high SDLR, acceptance of e-learning tools is lower. Decreasing SDLR is attended by increasing acceptance of e-learning tools.

Interpretation

According to the acceptance of digital learning approaches of non-traditional students, it can be found that especially the students with very high SDRL rates have a lower acceptance for online learning formats. The small differences in the SDRL ratings between the two groups are not influenced by the acceptance of digital learning formats and the degree of acceptance is not an appropriate criterion to show differences of SDRL ratings within the groups. The same estimation applies to the acceptance of web and of e-learning tools. All results show a slightly higher SDLR for NTS and at the same time for both groups a higher acceptance with lower SDLR. According to Dynan et al. (2008) students with higher SDLR prefer less teacher-directed or less structured learning environments. Since e-learning programs are often

very structured, this study's findings on a higher SDLR related to lower acceptance (of el-learning tools/approaches etc.) do fit into Dynans results.

The statistical insignificance could be due to the broad definition of NTS, and due to the fact that results are obtained by analyzing data solely from students enrolled in German higher education. Thus, an internationally applicable generalization is not possible. Nevertheless, the tendencies indicated by the study findings could be a starting point for further research, and they additionally indicate which areas are of relevance for further analysis.

Conclusion

The results of this study allow for different conclusions and lead to further hypotheses: it is possible that the group of university students as such – and irrespective of being traditional or non-traditional – has (generally) a higher willingness to learn in a self-directed manner. Regarding the construct of self-directed learning, it would thus be interesting to compare the values/indexes of the students to those of other societal groups or learners in other educational settings (e.g. secondary schools, vocational education).

Considering the design of teaching and learning in higher education, this would mean that non-traditional and traditional students are or will be rather similar in some characteristics relevant for the instructional design and share a lot of the same needs regarding study modes; an example being the wishes for more e-learning tools from both groups that Zawacki-Richter, Hohlfeld and Müskens (2014) point out in their study. Increasing the flexibility of educational offerings in higher education will therefore be an advantage for all groups of students. The results of the study „STUBE"[2] support this interpretation by showing that traditional students, in addition to non-traditional ones, would like to have more flexible learning opportunities in terms of time and tools (e.g. Stöter, 2013).

As the study by Beitler and Mitlacher (2007) as well as the one by Dynan et al. (2008) suggest, SDLR is not an end in itself but rather serves as a component in shaping future behaviour, e.g. sharing information in working teams (Beitler & Mitlacher, 2007) or, in the case of Korea, being influential on affection-based commitment to one's employing organization (Cho & Kwon, 2005). Ahmad and Majid (2012) as well as Beitler and Mitlacher (2007) refer to culture as one aspect to also be taken into

[2] http://mediendidaktik.uni-due.de/stube [30.01.2015]

consideration when SDLR is concerned. Taking a closer look on how the relationship between SDLR and an individual's cultural surroundings is mutually influential is another step to be taken. Guglielmino and Guglielmino (2006) attempted such a comparative analysis between five different countries and based on Hofstede's model of dimension of culture. As culture also becomes influential when it comes to designing face to face and online learning environments, keeping in mind the interplay between SDLR and a student's cultural background is deemed necessary.

To what extent the construction of the scale might have influenced the results needs also to be taken into consideration. All items are positively phrased. (e.g. „I enjoy studying", „I learn from my mistakes", "I am able to focus on a problem" etc.), making a bias (in positive direction) predictable when rating the statements. A tendency to rate items according to social desirability is likely as well. Criticism that was already directed at Guglielmino's (1978) scale (e.g. Bonham, 1991) also leads to the question of what exactly is measured by the scale provided by Fisher et al. (2001): is it self-directed learning or rather e.g. the attitude towards learning itself? A subsequent review of this scale in terms of its validity and reliability should be considered, and if necessary, it should be adapted or modified accordingly.

Finally, future research could possibly include comparative studies on students' self-directed learning readiness who are enrolled in higher education systems other than the German one. Taking into consideration different learning styles, cultural aspects could here be a fruitful addition to investigate this important construct.

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Faculty Role Change: Adjustment to the Influence of Online Teaching and Learning

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Abstract

This paper presents an argument which rests on two interrelated premises about the influence of new pedagogies in higher education. The first is that the phenomenon of online teaching and learning is dramatically affecting faculty roles in higher education. The second is that the role of faculty member is saturated with requirements. Adding a teaching process that requires advanced teaching expertise and additional time commitments will not fit into the current role of faculty; this would be the case for web-based teaching and learning. Survey data from seventy-seven faculty at eighteen comprehensive academic research institutions in Canada provide evidence of changing faculty views and activities in reference to teaching, whether faculty are engaged in online teaching and learning or not.

Introduction

Technological advancement has a dramatic effect on every-day life in contemporary society and its many social institutions, from the workplace to entertainment. Higher education is not immune to these changes, but the exact impact, nature and scope of changes is still unclear (Gumport & Chun, 2005). According to Keller (2008), changes in many things including technology "constitutes [sic] the most consequential set of changes in society since the late nineteenth century, when the nation went from a largely domestic, rural, agrarian mode of living to an industrial, international, and urban economy" (Preface xi). Consequently, for higher education, "this set of circumstances is going to force all academic enterprises to rethink their place and purpose not just in philosophical terms but in very pragmatic ways as well." (Beaudoin, 2003, p.520). In the past decade, higher education has, if not embraced new technology, reached out to utilize the Internet and other forms of technologically-mediated learning. This has transformed interaction opportunities among students and between students and faculty, particularly through online learning.

Online learning offers the opportunity to examine and rethink the teaching and learning enterprise in education broadly. Online learning can be conceived of as the new pedagogy, where strategies such as interaction and dialogue are introduced back into the higher education model. But regardless of education delivery mode – face-to-face, online, distance or some combination through blended learning, teaching (and learning) is changing. Key to this change is new ways of being as a teacher in higher education, a central part of the role of faculty member in universities. Additional duties, responsibilities, and a changing role for faculty can create a high level of dissatisfaction, particularly if they feel they are not well supported (Satterlee, 2010).

This study is guided by the following research question:

> *To what extent, if at all, has the existence of online teaching and learning shaped the role and nature of teaching for faculty in higher education?*

Background Information

It is unrealistic to expect higher education faculty to have sound, current, content expertise, a productive research program, an active service commitment AND be expert teachers. The biggest lie in the academy is that the role of faculty, and its rewards and responsibilities, is made up of a seemingly balanced set of activities

around teaching, research and service (Atkinson, 2000). With some variation across type of institution, research is the most valued work and most notably rewarded. While this reality has not changed, online teaching and learning has emerged, and "…classroom teaching and course materials (have become) more sophisticated and complex in ways that translate into new forms of faculty work. … such new forms are not replacing old ones, but instead are layered on top of them, making for more work." (Rhoades, 2006, p.38). It is time to clarify this reality and consider how, if at all, changes in teaching are, or may be, integrated into the role of faculty member.

Externally, current economic and social agendas support improvements in education access and quality learning experiences afforded by online education delivery. The pressure is on. However, online learning involves the use of the Internet for interaction and collaborative engagement previously unavailable to teachers and students. What changes are required to the role of faculty member to allow engagement in online teaching? Any effective teacher must be true to the learning requirements of the subject-matter at hand while attending to the multitude of characteristics students bring to the experience. Effective teachers bridge content and student needs through appropriate student engagement; a tactic as old as education itself. The role of effective teacher in online learning environments is newer and more complex. Even more complex are the infrastructure requirements to add the new teaching agenda into the current role of faculty. All the teaching development and technology training in the world will not realize significant quantities of teaching change, even for the most motivated to do so, until the context changes to support and reward teaching in ways that it has not in the past and, in addition, support the increased requirements for teaching activity using online teaching and learning.

Even before the imposition of new technology, both excellent teaching and excellent research records were difficult to achieve. Fairweather's (2002) research suggests that new ways of teaching will make it more difficult for faculty to be exemplars of research and teaching. This study examines the myth of the "complete faculty member" – that is one who can sustain high levels of productivity in both research and teaching at the same time. Data from the 1992–93 National Survey of Postsecondary Faculty provided a representative sample of 29,764 part-time and full-time faculty in 962 American research universities, doctoral-granting universities, comprehensive colleges and universities and liberal arts colleges. For the purpose of that study, Fairweather identified faculty as highly productive researchers if refereed publications exceeded the median for program and institutional type over a two year period. Faculty members identified as highly productive teachers were those above the median in student

classroom contact hours. In the first instance, 22% of faculty in 4-year institutions met both criteria. However, adding collaborative instruction to the teaching criterion reduced the percentage of highly productive researchers and teachers to about 6%.

This time consuming collaborative instruction is central to the benefits of online teaching and learning. The individualization of communications, and the role of instructor as a facilitator of student participation and learning, adds to instructor workload when teaching online (Davidson-Shivers, 2009). A central advantage of online delivery is the opportunity to better engage learners in more active and collaborative educational experiences. Tomei (2004) proposes that online student expectations for on-demand, continuous feedback necessitates smaller class sizes relative to those in traditional classroom instruction. This is one option available to compensate for the imposition of time online teaching will impose. For Tomei, the 40-40-20 formula for allocating faculty time (40 percent teaching, 40 percent research, and 20 percent service) suggested by the American Association of University Professors (AAUP) is unrealistic for faculty teaching in an online environment.

As well as adjusted teaching practice, support for new online students requires adjustment for the instructors in reference to the learners. For example, one instructor said "I actually prefer online teaching because it can take time to think through responses to students, um, and you can do it on your own time, your own speed. So in other words, what's good for students in terms of asynchronous is, I think, good for instructors as well." This insight provides a closer view to the role of online teacher. In addition to these insights, past research identifies the need for instructor support in relation to student adjustment (Cleveland-Innes & Garrison, 2009). Instructors in this research were very forthcoming and descriptive about the many things that had to be learned and implemented in order to teach in the highly interactive and collaborative online environment. These findings included a great deal of discussion and excitement about challenges experienced in the transition to online instructor – and the adjustment to such a role (Cleveland-Innes, Sangra-Morer & Garrison, 2008).

The central goal of this research is twofold. Academic instructors, those teaching online and those who are not, will have the opportunity to describe the details of his or her teaching role under current conditions. Those not teaching online will describe what teaching online looks like from the position of observer; what challenges, limitations, benefits and interests are present for them. Most importantly, they will be asked to consider how they imagine such a change may be integrated into current teaching practice; i.e., how would online instruction change their role as teacher? This

will be repeated for those already teaching online. Those already teaching online will describe what teaching online is like from the position of participant; what challenges, limitations, benefits and interests are present for them. They will be asked to explain how such a change was integrated into past teaching practice; how does, if at all, online instruction change their role as teacher? How is the existence of online teaching and learning changing, if at all, the role of face-to-face teacher?

Methods

A population of 97 higher education institutions was identified across Canada. To fall into this sample, institutions have to offer baccalaureate-level courses, for completion in a degree at the institution or for transfer to another institution for degree completion. The objective was to obtain a nation-wide sample by reaching out to faculty from universities across Canada. A sub-sample from each region was selected: 11 Universities in the East Coast; 1 University in Quebec; 23 Universities in Ontario; 1 University in Manitoba; 4 Universities in Alberta and 4 Universities in BC were contacted to request faculty participation in the study. After discussion with all institutions, agreements were created with 13 institutions, representing all regions of Eastern, Central, Prairie, and Western Canada.

A total of 77 faculties from these 13 institutions completed the online survey; all regions were represented in the faculty sample. Sample demographics identify 62 full time faculty, 9 part time faculty, and 6 contract instructors from seventeen different disciplines. Thirty-one or had taught at least two sections of a course fully online (80+% of the content delivered online). Seventy had experience using the Internet for instruction that included more than email and/or posting course outlines on the Internet. Table 1 identifies the range of post-secondary teaching experience in years.

Table 1: Years of Experience Teaching Post-Secondary

11	0-5 years experience
19	6-10 years experience
18	11-15 years experience
08	16-20 years experience
11	21-25 years experience
10	26+ years experience

A survey approach was used to collect data from fixed-choice and open-ended questions utilizing an online survey. The survey consisted of 5 demographic questions, 3 open ended questions, 47 Likert-scaled statements and 14 closed questions.

Findings

Table 2 outlines responses to statements about current and future use of online delivery. The majority of respondents agree or strongly agree that online education is a critical strategy in their school; 75% indicate as such. Another nine percent are neutral, and 16% disagree or strongly disagree. Similarly, 85% agree or strongly agree that open education resources will be of value on their campus. Fourteen percent are neutral and one percent disagrees or strongly disagrees with this statement. The remaining statements indicate less agreement. Sixty-five percent agree or strongly agree that there is increasing competition for online students; 33% are neutral. Four percent disagree and no respondents strongly disagree. The last two items refer to the adoption of online learning at the respondents institutions. When asked if online education is significantly represented in their institution's formal strategic plan, 44% agree or strongly agree. Thirty-two percent are neutral and 23% disagree or strongly disagree. Thirty-one percent of respondents agree or strongly agree to the statement faculty at my school accept the value and legitimacy of online education. An almost equal number, 32%, are neutral, and 36% disagree or strongly disagree.

Table 2: Perspectives on Online Delivery

	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**	**Total**
Online education is critical to the long-term strategy of my school.	7.79% 6	7.79% 6	9.09% 7	**38.96%** 30	**36.36%** 28	77
Open education resources will be of value on my c am pus.	1.32% 1	1.32% 1	**14.47%** 11	**46.05%** 35	**36.84%** 28	76
Online education is significantly represented in my institution's formal strategic plan.	7.79% 6	**15.58%** 12	**32.47%** 25	**36.36%** 28	7.79% 6	77
There is increasing competition for online students in higher education.	0.00% 0	4.00% 3	**33.33%** 25	**44.00%** 33	**18.67%** 14	75
Faculty at my school accept the value and legitimacy of online education.	10.39% 8	**25.97%** 20	**32.47%** 25	**24.68%** 19	6.49% 5	77

Forty per cent of respondents are considered experienced online instructors (defined as having taught at least two sections of a course 80+% of the content delivered online. When asked, "Do you feel the phenomenon of online teaching has changed what you do as a faculty member?" 89% said yes, 11% said no. Table 3 outlines thematic areas of change faculty identified when asked "If yes, in what way(s)?" as a follow-up to the question answered above. These responses were text-based and open-coded with

support from data analysis automated word sorting. Responses categorized according to this automated process were then evaluated for consistency by two reviewers.

Table 3: Identified Areas of Change

Teaching	30%
Learning	22%
Content	20%
Materials	16%
Assignments	15%
Face to Face Interaction	13%
Use of Video	9%
Students Expectations	7%

Discussion

Our country-wide sample includes respondents from a wide range of disciplines. Close to half have experience teaching online courses. Those who haven't taught online report using the Internet for pedagogical support for courses delivered face-to-face. Almost all respondents report changes to their teaching because of online learning, and identify most aspects of course design and delivery as areas undergoing change. It is not possible to generalize to the wider population of faculty currently teaching in higher education from this small sample. This sample of faculty, however, indicates that, across a wide-range of teaching experience, the majority of faculty report change occurring in their teaching, and the type of change is widespread.

The vast majority of respondents (89%) said yes when asked "do you feel the phenomenon of online teaching has changed what you do as a faculty member." When asked what changed, text responses ranged for teaching strategies (30%), learning perspectives (22%), and content (20%). This applies whether respondents are teaching online or not. Changes to instructional materials and assignments were cited often. Other pedagogical elements of interaction, use of video, and expectations were also noted multiple times by separate respondents.

Learning

Twenty-two per cent of respondents identified learning as an area where they experienced change. Exposure to, and awareness of, online teaching and learning has affected their own personal learning. They also reported that they perceive changes in the learning activity of their students. In terms of personal learning, 31% stated that they learned new technology to deliver course content online. One participant stated "I

spent lots of time on learning technology or trouble shooting tech problems" and another "I have come to use LMSs to provide and deliver content ... must learn to use these technologies in combination." Participants noted the need to study new pedagogies used when delivering content online. One participant articulates this by stating "while I never took any courses in teaching before I taught post-secondary, when I shifted to online and blended teaching, I was inspired to go back to school to learn how to teach in the online and blended environment."

Forty-six per cent of the sub-sample who identified learning as a major change indicated that online learning has affected the learning of their students. These faculties feel they have transitioned to a student-centred approach to learning, where the students take more responsibility for, and are in more control of, their own education. This is evident in the following comments: "I put responsibility on all of my students to have them take more control of their learning, particularly where and how they learn" and "it has allowed for a "classroom without walls" – students can be engaged in learning anywhere anytime."

Our findings indicate that the introduction of online learning provided faculty in our sample the opportunity to review, reflect on, and change their practice of traditional face-to-face teaching to deliver the course content online.

Course Materials

Sixteen percent of respondents identified course materials as a main area where they experienced change as a faculty member. This sub-group of respondents is made up entirely of online instructors. Two main themes were revealed. The first theme highlights major redesign of course materials to align with various technologies used for course delivery. For example, one participant stated, "course preparation has changed, as has the need to continually upgrade the course material and websites. It has also made me more cognizant of technology trends; podcasts, online chats, etc. to help the modern student engage in the course." Another participant noted, "during my classes I use examples from YouTube in all classes. I may in the future bring in an expert by Skype to the class, as I know this has been successful with colleagues." This suggests that, with the infusion of new technologies, faculty are changing how they deliver their content and materials. They are using various modalities to keep up with emerging trends and to keep students interested and engaged.

The second theme refers to faculty perception of the Internet. Respondents describe this as dramatically increasing student accessibility to course content and materials,

making learning more flexible. This is confirmed by the following statements. "I can make all sorts of material available to them that I couldn't have otherwise" and "materials and support are available outside the classroom at anytime." Respondents identified changes in how they create and deliver course content and materials. Faculty use a variety of available technologies to enhance learning, increase flexibility of use and accessibility to the course content.

Interaction in face-to-face teaching

Thirteen percent of respondents identified face-to-face (F2F) interaction as a major area of change. Since the Internet and various learning technologies have been introduced to the courses they teach, faculty identify a dramatic decrease in the amount of face-to-face interaction they have with their students. One respondent comments, "I spend MUCH more time responding to student requests [online] than in the face-to-face environment." Another respondent feels this decreases quality, stating, "I also worry that students who consult with me only online are getting a degraded experience: certain things are best done face -to- face." On the other hand, some respondents did report positive aspects of the change in interactions with students. Some have taken the flipped classroom approach where content is offered online and the face-to-face portions of classes are used for discussion. For example, one stated, "I have found it very effective to provide video lectures that the students can access and view online prior to my face-to-face session, and then make use of my face-to-face time in different ways than I would have." Another stated, "less delivery of content in face to face format and more opportunities for critical thinking and discussion in the classroom when content is delivered online."

Student Expectations

Seven per cent of respondents identified student expectations as one of the main areas where they experienced change as a faculty member. The main change in student expectations cited is the expected increase in the accessibility of the instructor and instantaneous access to information. One participant states, "We are straddling the world with students who expect us to be around 24/7…" another notes, "there is an expectation that materials such as course syllabi, PP slides, and readings will be made available online." As many students live in a world where technology surrounds them and becomes a part of their everyday life, their expectation is that the instructor will use technology to support learning through access to instructors and course information anytime, anywhere.

Conclusion

These findings support the premise that the phenomenon of online teaching and learning is dramatically affecting faculty roles in higher education. Even those faculties who report no experience teaching online do report experiencing change in their teaching practice. This data suggests pedagogical change is widespread in Canadian post-secondary education and is likely to continue. More difficult to assess is the extent to which faculty are struggling with adding new ways of teaching. Reports of increased time requirements are present, a serious consideration as online and blended become more prevalent. Although "research is in its infancy of understanding and identifying the variables that impact the instructional time required to effectively teach an online course" (Mandernach, Hudson & Wise, 2013, p.13), the general consensus suggests online teaching takes more time (Brownell & Tanner, 2012). This indeed problematic given the limited time and training afforded to teaching for faculty in the current higher education context. According to Puzziferro & Shelton (2008), online course design and teaching require "several levels of "development" that need to occur, and no one person is likely capable of discharging all of the expertise levels and roles inherent in the process" (p.119). Perhaps "it is unrealistic to expect higher education faculty to have sound, current, content expertise, a productive research program, an active service commitment AND be expert online teachers. It is time to clarify this reality and consider how, if at all, changes in teaching are, or may be, integrated into the role of faculty member" (Cleveland-Innes, 2012, p.391). "As the need for the online education continues to grow, it becomes increasingly important to understand the roles, obligations and requirements of faculty teaching online" (Mandernach, et al., 2013, p.13). Further research on this topic is required.

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A Murky Business: Navigating the Ethics of Educational Research in Facebook Groups

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Abstract

Facebook's use an educational tool is growing, as is the body of research evaluating the platform's efficacy in educational settings. However, few studies directly address the many ethical challenges of researching in Facebook. This paper draws on our experience of researching online communities, including Facebook groups, as the basis for identifying the ethical dilemmas that arise when researching social networks. We draw on traditional guidelines for educational research, together with debates around open and 'guerrilla' research, in suggesting some of the ways in which these ethical considerations might be managed.

The ethical challenges discussed in this paper include whether/how to gain informed consent in a public setting; the need to navigate online disinhibition and confessional activity; the need to address the ethical challenges involved in triangulating data collected from social media settings with data available from other sources; the need to consider the potential impact on individual research participants and entire online communities of reporting research findings; and the use of visual evidence and its anonymisation. We argue that it is imperative for the researcher to closely engage with the research context when making ethics-related decisions, as no two research settings are the same.

Keywords: research, ethics, Facebook, education

Introduction: Why Facebook?

Facebook is undoubtedly the face of online social networking and remains ubiquitous, despite a declining usage trend emerging (Blodget, 2012). A 2011 study by Harvard University (2011) reported that 90% of four-year undergraduate college students had Facebook accounts at that time and of late there has been an upsurge in academic arguments for the more purposeful use of social media, especially Facebook, as an educational tool (Tess, 2013). Tess (2013), in his comprehensive literature review on the role of social media in higher education classes, asserts that 'the ubiquity of social media is no more apparent than at the university where the technology is transforming the ways students communicate, collaborate, and learn' but also points out that 'empirical evidence...has lagged in supporting the claim'.

Of the studies which do offer empirical evidence, several stand out. Tess (2013) lists many of these in his previously mentioned literature review, while Pander et al. (2014) offer a similarly valuable and more recent literature review that, while it focuses on the use of Facebook in medical education, contains much of more generic relevance. Several notable studies are worth mentioning in isolation. For example, Meisher-Tal et al. (2012) provide a particularly systematic account of the use of Facebook groups as LMS while O'Bannon et al. (2013) examine the effectiveness of using Facebook groups to increase pre-service teachers' knowledge of core technology topics. Bruneel et al. (2013) look at the educational use of Facebook with a focus on privacy issues, from the perspective of role theory and reference group theory, de Villiers and Pretorius (2012; 2013) conduct an heuristic evaluation of collaborative learning in Facebook and the ways in which Facebook groups can foster inter-personal relationships between formerly isolated distance learners, while Bosch (2009), and Schroeder and Greenbowe (2009), compare student activity in Facebook groups with that in official institutional sites.

Several studies focus on the use of Facebook in particular educational disciplines. For example, Lieberman (2013) researches the use of Facebook as a learning environment by political studies students while Whittaker et al. (2014) focus on Facebook's use to create an online learning community in an undergraduate science class, and Schroeder and Greenbowe (2009) explore the use of social networking to create an online community for the organic chemistry laboratory. McCarthy (2010) steps beyond disciplinary boundaries to offer broader research into Facebook's use with first year undergraduates as a tool for developing preliminary relationships between them and Donlan (2012) also provides more generic research, exploring students' views on the

use of Facebook groups in university teaching and learning, with a focus on student autonomy and control that is echoed by Conole et al. (2008). Wang et al.'s (2013) study of 'Meaningful Engagement in Facebook Learning Environments' has been particularly influential and widely-cited, concluding that Facebook use in instructional method assists students in achieving better grades, higher engagement, and greater satisfaction with the university learning experience.

This paper both builds and expands on the body of research looking at the use of Facebook in educational settings by taking as its focus the ethical challenges of researching within Facebook – a topic that receives little attention in other research studies, but which recently sparked a great media furore when scientists, conducting a psychological experiment including approximately 700,000 Facebook users – the 'emotional contagion study' – manipulated news feeds to examine the effects of positive and negative posts (see Broaddus, 2014). Indeed, some of the Facebook-related educational research appearing in recent years, including some of the studies mentioned above, employ practices that may be deemed ethically questionable. We argue here that while Facebook groups appear to offer rich pickings for the researcher, especially in domains labelled as 'public' or 'open', which offer a tempting wealth of off-the-peg data through the qualitative and quantitative study of members' posts and interactions, a variety of ethical dilemmas confront the researcher who is prepared to interrogate their own practice, to consider the true nature of openness and privacy, and to critically engage with the impact of researching in a social media context. The demands of negotiating these challenges must, therefore, be weighed against the likely value of any research findings.

Background: The research and theoretical context of our study

This paper is informed by our own reflexive research on the behaviour of formal and informal learners both in bulletin-board type forums and in Facebook groups. Since 2011, we have been working with online learner communities outside formal education when developing and piloting the 'public open scholar' role (Coughlan & Perryman, 2012), aiming to increase awareness of open educational resources (OER) and to disseminate information about the resource needs of people outside academia. The public open scholar role involves open academics working with online communities beyond formal education who might benefit from OER, identifying members' expressed needs and then sourcing OER to meet those needs. In doing so, we have built on Weller's 'digital scholar' persona – 'someone who employs digital, networked and open approaches to demonstrate specialism in a field' (Weller, 2011,

Chapter 1). We piloted the public open scholar role in 2011 within UK voluntary sector online welfare communities who were using bulletin board-style forums for information sharing and peer support (see Coughlan & Perryman, 2012) and in 2013 we took the public open scholar into Facebook (Perryman & Coughlan, 2013) to reach an international audience of autism-focused Facebook groups in India, Africa and Malaysia, with a combined membership of over 5000 people.

Facebook groups are one of the three main facilities within Facebook and are distinct from 'pages' (previously known as fan pages), which are always public, and individual accounts, which provide each user with a range of customisable privacy settings. There are at least five million Groups within Facebook overall. In 2014 we broadened our study of Facebook groups to include researching formal learners participating in 10 public Facebook groups about specific courses from our employer the UK Open University (OU), with a combined membership of approximately 3000. The bulk of these members are undergraduate students, but some groups also include alumni or prospective students interested in finding out about a particular course. While hundreds of Facebook groups from other universities are listed within Facebook, we chose OU groups because we are familiar with our own institution's organisation, structure and terminology. Our research findings from this study of OU Facebook groups are yet to be reported in detail. However, our key conclusions are set to make a significant contribution to understanding the use of social media in the context of formal education. For example, our research showed that Facebook groups can be a valuable form of open practice, with university students making a big contribution to their education by self-organising Facebook groups. As such, this evidence has the potential to shift the focus of the open education movement from researching students as co-producers of objects to exploring the ways in which students co-develop educational processes. On the basis of our findings we recommend that universities could usefully review the role of VLE forums (e.g. Moodle) within undergraduate tuition strategies and consider the extent to which Facebook groups might sit comfortably alongside the remainder of the learning experience.

For this paper, however, we move from considering the educational practices of learners within Facebook to an examination of the practices of the researcher, and their ethical implications, asking the overall research question 'what are the challenges of researching social network activity in an educational context and how might they be managed?'. This is an under-researched and complex area, covering such questions as:

> *What ethical obligations do researchers have to protect the privacy of subjects engaging in activities in "public" Internet spaces? How is confidentiality or anonymity assured online? How is and should informed consent be obtained online? How should research on minors be conducted, and how do you prove a subject is not a minor? Is deception (pretending to be someone you are not, withholding identifiable information, etc) online a norm or a harm? How is "harm" possible to someone existing in an online space? (Buchanan & Zimmer, 2012)*

Our exploration of Facebook research ethics is grounded in our experience as 'traditional' researchers, accustomed to following the ethical guidelines for educational research produced by the British Educational Research Association (BERA, 2011) and the American Educational Research Association (AERA, 2011). However, research that uses Facebook as a source of data also intersects with the province of 'guerrilla research', which Weller (2014, p.146) tentatively terms 'a Do It Yourself and Do It Now approach' that 'relies on existing open data, information and tools'. Weller, citing Unger and Warfel (2011), proposes that guerrilla research can be complementary with 'traditional' approaches and, in addition to relying on existing open data, 'can be done by one or two researchers and does not require a team', 'is fairly quick to realise', 'is often disseminated via blogs and social media' and 'doesn't require permission'. However, Farrow (2014), discussing the ethics of open research, suggests that a guerrilla approach can be problematic in terms of:

- The ownership of intellectual property;
- A possible lack of institutional guidance;
- The risk of losing connection with the original context that produced the data;
- A lack of clarity about whether consent can be assumed for public data.

Our study of the ethical challenges of researching Facebook groups addresses each of these perspectives, considering whether researchers who use publicly available data are indeed free to research without permission and whether different types of permission are relevant for different research settings and strategies.

Discussion: Working towards ethical guidelines for educational research conducted in Facebook groups

We have divided our discussion to cover ethical considerations arising in three phases of the research process: beforehand, during and afterwards. In interrogating the ethical challenges connected with researching in Facebook we began by consulting The Open University's research ethics policies (Open University, 2006) in addition to BERA (2011) and AERA (2011) ethical guidelines, following Zimmer's (2010, p.324) assertion that 'concerns over consent, privacy and anonymity do not disappear simply because subjects participate in online social networks; rather, they become even more important' and that 'it is our responsibility as scholars to ensure our research methods and processes remain rooted in long-standing ethical practices'. We then cross-referenced these guidelines with the growing body of literature dedicated solely to the ethics of researching online (e.g. Buchanan & Zimmer, 2012; Convery & Cox, 2012; Markham & Buchanan, 2012), in addition to the OER Research Hub Ethics Manual (Farrow, 2013) which directly addresses the challenges of researching in the open.

Beforehand

Based on our own experiences of researching with Facebook groups we argue that the researcher needs to carefully consider the potential ethical challenges of performing educational research in a social media context long before embarking on the process, anticipating possible challenges and how to manage them. Of interest at this point in the research process are the issue of whether and how to gain informed consent, the closely related distinction between public and private research settings, and the need to navigate online disclosure, especially when research participants are from the researcher's own institution.

Informed consent and the distinction between public and private research settings

Informed consent is a cornerstone of ethical educational research. The BERA Ethical Guidelines (2011, p.5) state that 'researchers must take the steps necessary to ensure that all participants in the research understand the process in which they are to be engaged, including why their participation is necessary, how it will be used and how and to whom it will be reported'. The BERA Guidelines do concede that 'social networking and other online activities...present challenges for consideration of consent issues' but maintain that 'the participants must be clearly informed that their participation and interactions are being monitored and analysed for research'. Of late, though, developments in open and guerrilla research, as already discussed, have led

some to question whether research in public online settings demands the same level of consent as that taking place in private domains.

The distinction between public and private research settings appears particularly pertinent to researching Facebook groups, of which three categories exist - public, closed and secret (see Figure 1 for public and closed groups; it is not possible to view a secret group without being a member of it).

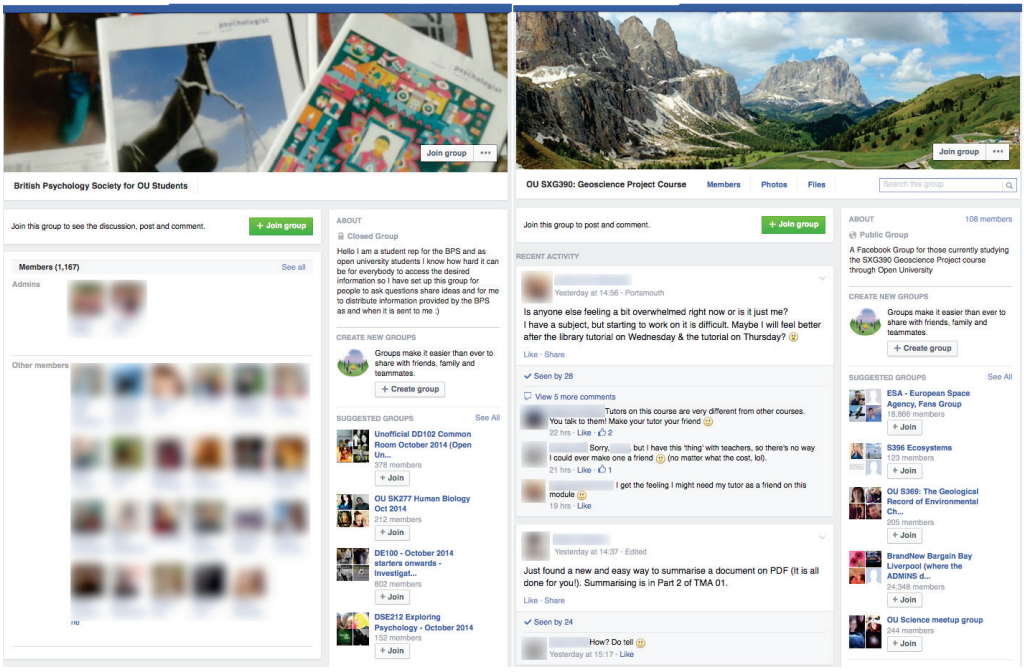

Figure 1. Closed and public Facebook groups related to Open University study

Convery and Cox (2012, p.51) state that 'one of the central issues with [Internet Based Research] is what constitutes 'public' and 'private' spaces, with corresponding implications for whether or not informed consent is required'. The BERA (2011) Guidelines do not cover this distinction between public and private. However, Zimmer's (2010) widely-cited study of the ethics of researching in Facebook, which focuses on the controversial 'T3' study of Harvard students' Facebook use, is more helpful. Zimmer suggests that while the use of data that is solely available from public Facebook pages (e.g. students' profiles) may be seen as ethically defensible, a different picture emerges where this data is then cross-referenced with institutional data accessible only to people within that institution, and that the public Facebook data then becomes semi-private and, in turn, should be subject to more rigorous ethical

treatment. Arguably then, the researcher should be particularly cautious when triangulating data from several sources (including data collected from 'public' spaces), especially where this gives a level of additional information about research subjects beyond that which the subjects themselves intended to provide.

The AERA Ethical Guidelines (AERA, 2011, p.151) make explicit reference to the ethical treatment of public data, stating that 'education researchers may conduct research in public places or use publicly available information about individuals (e.g., naturalistic observations in public places, analysis of public records, or archival research) without obtaining consent' but adding that 'if, under such circumstances, education researchers have any doubt whatsoever about the need for informed consent, they consult with institutional review boards or, in the absence of such boards, with another authoritative body with expertise on the ethics of research before proceeding with such research'. To some, online social networking in the public sphere can easily appear as a 'snoop's dream' (Marks, 2006) in which participants' contributions to online discussions are exploited for other' gain, be it commercial, financial or even criminal. However, we argue that the responsible, reflexive researcher can conduct ethically defensible research in such spaces as long as they look closely at what might constitute public and private communication in itself, irrespective of the extent to which the context in which such communication takes place is public or private.

Our own research has featured two distinct approaches. When researching a combination of public and closed Commonwealth Facebook groups on autism we gained informed consent from participants by joining each group and then contacting the group moderator to ask them to raise the matter with group members on a collective basis whereby members were invited to raise an objection if they did not wish the group to be the topic of research (none objected). We used the same approach across all groups, irrespective of whether they were public or closed. After conducting the research, we published the findings under an open licence and made them accessible from one author's own Facebook page (www.facebook.com/freeCYPmedia) and blog site (cyp-media.org) so that group members could read what we had found, in line with BERA and AERA guidelines that research reports should be shared with participants.

Latterly though, when investigating solely public (previously known as 'open') OU Facebook groups, we have not negotiated group consent, as allowed by the AERA Ethical Guidelines above. We are anonymising our findings and are again openly

publishing them and making them easily accessible from the author's Facebook page and blog site. By saving the time involved in negotiating consent, public/open groups are easier to research than closed or secret groups, although we estimate that public/open groups represent less than 10% of the total number of active OU-related Facebook groups, the remainder being either closed or secret. (Closed groups are discoverable by searches; the viewer can see who the members are, but cannot see the content without joining. Secret groups are not discoverable, so it is difficult to know how many exist.) These closed/secret groups potentially offer rich research data that could help to extend the validity and generalisability of our research findings, and its overall value to stakeholders such as learners, educators and The Open University as an institution. However, negotiating consent with closed and secret groups dramatically increases the time and effort involved in researching, which one has to be confident that the outcomes will warrant. A complexity is raised by the fact that groups' status as public/open can change. Indeed this is quite common in the life-cycle of a group; they are often set to 'public' initially to help students discover them, then closed once all the cohort that wish to have joined.

Disclosure and risk to participants

When researching within one's own institution the researcher needs to be clear about the responsibilities and obligations connected with their employment, in advance of conducting research in social media setting. The Facebook environment (in common with other online settings) has been reported as particularly conducive to 'confessional' activity' (reference) and 'online disinhibition' (Joinson, 1998; Suler, 2004), displaying the six factors that Suler (2004) identified as prompting people to self-disclose online more frequently or intensely than they would in person:

- Dissociative anonymity – the fact that 'when people have the opportunity to separate their actions online from their in-person lifestyle and identity, they feel less vulnerable about self-disclosing and acting out';
- Invisibility – overlapping, but extending beyond anonymity, physical invisibility 'amplifies the disinhibition effect' as 'people don't have to worry about how they look or sound when they type a message' nor about 'how others look or sound in response to what they say';
- Asynchronicity – not having to immediately deal with someone else's reaction to something you've said online;
- Solipsistic introjection – the sense that one's mind has become merged with the mind of the person with whom one is communicating online, leading to

the creation of imagined 'characters' for these people and a consequent feeling that online communication is taking place in one's head, again leading to disinhibition;

- Dissociative imagination – a consciously or unconscious feeling that the imaginary characters "created" through solipsistic interjection exist in a 'make-believe dimension, separate and apart from the demands and responsibilities of the real world' (Suler, 2004 p.323).
- The minimization of authority (for people who do actually have some) due to the absence of visual cues such as dress, body language and environmental context, which can lead people to misbehave online.

Croeser (2014, p.187) comments that 'social privacy has...been the primary concern of educational scholars writing about Facebook, who worry that students may share information on Facebook that is inappropriate for other students, teachers, or future employers'. However, apparent online disinhibition may also be connected with Facebook's architecture, which in turn is driven by the company's commercial interests. Croeser explains that 'Facebook's architecture and defaults encourage users to share large amounts of information about their interests and lives', pointing out that 'Facebook's immense success as a company is reliant on the data shared by users' (p.188). It is not surprising, then, that Facebook's privacy settings are notoriously difficult to adjust and the default settings are constantly changing, leading to 'sudden privacy lurches' (Croeser, 2014, p.188) that make it difficult for users to reliably limit the audience for content posted on the platform.

The combination of online disinhibition in its various forms, and privacy controls that favour Facebook's commercial aims over users' needs, increases the likelihood of the researcher encountering evidence of plagiarism and/or disclosure of other types of poor academic practice, or indeed anti-social behaviour on the part of formal university students (e.g. complaints about named individual tutors). While it may be tempting to adopt the position of a detached observer, institutional guidelines may require the researcher to report such practice. Indeed, the BERA Ethical Guidelines (2011, p.8) state that:

> *Researchers who judge that the effect of the agreements they have made with participants, on confidentiality and anonymity, will allow the continuation of illegal behaviour, which has come to light in the course of the research, must carefully consider making disclosure to the appropriate authorities. If the behaviour is likely to*

be harmful to the participants or to others, the researchers must also consider disclosure.

We recommend that the researcher finds out their institution's position on such matters well before commencing their research. Should institutional guidelines not be explicit about such topics it may be prudent to raise the issue with an institution's ethics committee in order to gain a firm steer about acceptable practice and disclosure obligations. Should this approach not yield suitable guidance then, should problem behaviour become apparent during the research process it may be fruitful to rise with the group moderator through the 'report to admin' facility.

During

Once the research process has commenced a further set of ethics-related challenges need to be managed by researchers collecting data from Facebook groups, including whether to join the Facebook groups that are being researched, whether to disclose one's status as a researcher, and how best to manage data protection obligations. Again, the distinction between public and private research spaces becomes relevant here. Facebook's own rules – especially those related to the creation of faux accounts, or aliases – must also be navigated during the research process.

Joining groups and status disclosure

To conduct any research about Facebook groups one needs an individual Facebook account. If desired, one can then join up to 6000 groups. When conducting our Commonwealth Facebook autism group study we did join each of the groups that we researched and, indeed, disclosed our identity as researchers. However, we have not joined the 10 OU Facebook groups that we have been researching more recently as all of the data that we needed was available without joining the groups, neither did we disclose our status as researchers. Our position is that as we are conducting observation-only research on passive participants in the public sphere (participants who are not being interviewed or are completing surveys, nor are the subject of interventions or AB testing), it is ethically defensible to neither join the groups we are researching, nor disclose our status as researchers.

Data protection

While researching, record-keeping also has to be considered. The BERA Guidelines (2011, p.8) state that 'researchers must ensure that data is kept securely and that the form of any publication, including publication on the Internet, does not directly or

indirectly lead to a breach of agreed confidentiality and anonymity.' Returning to our own research context, it is not possible to download Facebook group activity wholesale, so accurate record-keeping is particularly important to ensure the research can be completed and verified if necessary. A further reason for keeping accurate records is that Facebook can be quite a fluid and transitory medium – for example, whole groups can be deleted, which typically happens after the end of a course – and as a business, Facebook change their facilities and rules frequently for commercial reasons (e.g. withdrawal of email function and changed privacy settings). In our own research we have limited ourselves to counting and analysis of qualitative data; no names are attached to this and data is fully coded and anonymised (e.g. 'group 1, member A'). We recommend that other Facebook-based researchers take particular care to quickly archive, anonymise and code any research data they collect from Facebook groups and to consider the implications of changes in public availability of this data. For example, it may be difficult for others to check the veracity of assertions should the data disappear from Facebook so the researcher should not assume this will always be possible. Taking and anonymising screenshots is one way of capturing activity and qualitative data within Facebook groups and while we do recommend this as a strategy, especially for the sole use of the researcher during the analysis process, the practice is not without its challenges as we discuss later.

Breaking Facebook's rules

The existing research on the educational uses of Facebook raises a further ethical issue – the apparently common practice of creating duplicate, or 'faux' accounts as a researcher (and more generally), and of encouraging research participants to do the same. For example, Lieberman's (2013) account of her Facebook-based educational research reveals that she explicitly suggested students might create a separate account for their scholarly work, and that she had done the same. This raises questions both about the validity of her research findings and about the ethics of encouraging the creation of duplicate accounts. (It is worth noting though that Lieberman states that 'not one of the students chose to set up a dedicated account for university business' (p.27).) Lieberman is not alone, however, and it is not uncommon for writers on the educational use of Facebook (e.g. Munoz & Towner, 2009, pp.8-9) to recommend that teachers and students create a separate 'professional' (or student) profile and use an alias to hide their personal profile.

Facebook explicitly states that creating duplicate accounts is against its rules (Facebook, 2014). However, current figures for fake accounts estimate that 83 million

such accounts (8.7% of Facebook's active users) exist (Facebook, Inc, 2012). This is problematic in terms of mutual trust and member safety, and for the researcher is troublesome where research includes demographic comparisons (for example, an apparently middle-aged male Facebook member may actually be a young woman, and vice versa) or where the researcher is doing quantitative analysis of the number of posts made (for example, posts may be made by a single person using several fake accounts). The researcher should bear this in mind when conducting research in Facebook groups, and also when drawing on others' research findings. In addition, should the researcher choose to use an alias or faux account this could be seen to breach BERA's (2011, p.8) guidelines on researcher deception:

> *Researchers must...avoid deception or subterfuge unless their research design specifically requires it to ensure that the appropriate data is collected or that the welfare of the researchers is not put in jeopardy.*

Afterwards

Reporting the findings of a social-media located research study after it has ended raises a further set of ethical considerations regarding confidentiality and the potential impact on research subjects, be they active or passive. Krotoski (2010) makes a distinction between protecting the individual and protecting the online community as a whole when researching in online communities such as Facebook groups.

Protecting the individual

Holmes (2009) suggests that in general, most online research involves minimal risks to individual participants, aside from breaches of confidentiality and when questions asked by the researcher provoke emotional reactions. While the latter is not relevant for research where participants are passive and no interventions are involved, the issue of confidentiality remains. The BERA (2011, p.7) Ethical Guidelines state that:

> *The confidential and anonymous treatment of participants' data is considered the norm for the conduct of research. Researchers must recognize the participants' entitlement to privacy and must accord them their rights to confidentiality and anonymity, unless they or their guardians or responsible others, specifically and willingly waive that right.*

As previously discussed, however, the public nature of many Facebook groups might suggest that different ethical considerations apply than when researching in private settings online. Again, the AERA (2011) Guidelines do make a distinction between ethical requirements of researching in public and in private contexts, stating that:

> *Confidentiality is not required with respect to observations in public places, activities conducted in public, or other settings where no rules of privacy are provided by law or custom. Similarly, confidentiality is not required in the case of information from publicly available records.*

We tentatively argue that data in public Facebook groups falls into this category of public setting. However, this does not mean that the ethical researcher should feel free to use that data in whatever way they desire. Rather, the researcher will need to navigate the complexities of unintentional disclosure resulting from online disinhibition and to consider the possibility that passive research participants could be harmed when a researcher (especially one connected with the same institution attended by the passive participants) begins analysing and reporting research data that may have been unintentionally disclosed. Indeed, the combination of online disinhibition in its various forms, and hard-to-find, ever-in-flux privacy controls that favour Facebook's aims over its users' needs, increases the likelihood of research subjects disclosing information that could be harmful to them. We therefore suggest that while the public domain of the Facebook group does not in itself offer anonymity, researchers' reports should anonymise all data cited as evidence and that, with the exception of research where discourse analysis is integral to the research strategy, it could be helpful to paraphrase quotes where the topics discussed are potentially sensitive, to help prevent Internet searches that will lead back to the research participants. A further complexity emerges when researching closed/secret groups, when the researcher must consider the extent to which it is ethically defensible to report evidence from these groups. We argue that when conducting research in such groups it is important to gain the informed consent of participants, whether active or passive, and that when such consent has been obtained reporting data gained from such groups is less problematic, subject to the same care exercised above.

Protecting the online community

Risks to the online community being researched may also result from both the research process itself and from disseminating research findings. Krotoski (2010, p.3) suggests that:

> *Online communities are complex social negotiations between disproximate individuals who are engaged in what William Gibson described as a "consensual hallucination" (1984). Distinct from non-community online interactions, members of these groups form interpersonal systems over time and through repeated [interaction] that result in stable governance and hierarchy, featuring rules, regulations and distinctive norms.*

Arguably, reporting a close analysis of interaction within a Facebook group (whether closed, secret or public), when read by group members, could change the nature of relationships within an online community, with the potential to undermine its stability and effectiveness (although, admittedly, it is also possible that the reverse could occur, with the group being strengthened as a result of becoming aware of the research findings). Krotoski (2010, p.3) suggests that 'a breach in trust can destabilise the foundations upon which the online group rests', though he adds that 'social networking sites, like Facebook, may have a stronger sense of stability than social virtual worlds'. It is our experience, however, that public Facebook groups are typically unstable, with levels and types of contribution varying over time, content appearing and disappearing, members arriving and leaving, the group's status changing from open to closed, people disagreeing with each other, and relationships and discussions moving from one group to another group. Groups can also go through long periods of dormancy and then suddenly come back to life. In this context, it is possible that the researcher's reported findings regarding the group's behaviour at a specific point in time that has long since gone may not capture the group's attention, nor have much impact on the group.

A further consideration is that public groups may become exposed to advertising spam, or other undesirable consequences such as trolling, when their profile is raised through research dissemination. As described above, after conducting our earlier research, we published the findings under an open licence and made them accessible from one author's own Facebook page and blog site so that group members could read what we had found. We are not aware of this having led to any undesirable consequences. Indeed, it is likely that dissemination of research in academic journals does little in terms of attracting the attention of the huge industry of spammers that plague social media.

Image ethics

Reporting research findings may also involve managing the use of images derived from Facebook and used as research evidence. Facebook is very visual environment and many researchers will want to use screenshots (for example, our Figure 1) to illustrate their research reports. This, in turn, is a very murky area, raising both procedural and ethical challenges. For example, it may seem logical to assume that visual evidence collected from Facebook should be treated in the same way as textual evidence – with the researcher anonymising anything that might be traced back to a particular person, unless that person has given informed consent for their identity to be revealed. However, Facebook has its own rules around the use of screenshots:

- Screenshots must be unaltered, meaning they cannot be annotated or modified in any way from their appearance on Facebook.
- Screenshots with personally identifiable information (including photos, names, etc of actual users) require written consent from the individual(s) before they can be published. (www.facebookbrand.com)

These rules are both contradictory and ignored by very reputable institutions. The use of Facebook screenshots in published reports, and those screenshots' alteration, is very common amongst academics and there are even popular apps (e.g. SocialFixer – socialfixer.com) to make alterations and anonymisation easier.

Aside from consideration of Facebook's rules, a tension remains amongst Facebook-located researchers about whether anonymising screenshots is actually desirable. Young (2013, p.172) asserts that 'visual 'anonymisation' in most types of online research remains difficult because it destroys the rich nature of the data', while Blum-Ross (2013) and Wood and Kidman (2013) also express concerns about visual research data being compromised by the anonymising process. This, in turn, raises questions about who owns such data and whether the researcher has a right to manipulate images, especially those featuring content that is openly available (e.g. that from public Facebook groups). One possible approach is to consult each participant who is identifiable from any visual evidence (e.g. a screenshot) about the level of anonymity required. However, as with the process of gaining informed consent from passive participants, this may involve a time investment that is disproportionate to the overall research strategy, or which prevents the research from taking place. Furthermore, it assumes that those consenting to non-anonymity fully understand the consequences of doing so.

We argue that it is safer for the researcher to anonymise visual content (as we have done in Figure 1) such that individuals are not identifiable, by name, through a photo or through other identifiable content, just as one would anonymise textual data, and that it is more ethically defensible for the responsible researcher to break Facebook's rules by altering a screenshot to anonymise it, than it is not to do so. Taking this approach should help the researcher to avoid doing unanticipated harm to research subjects, for example by exposing them to predatory behaviour and exploitation as a result of the mass dissemination of open access research reports – a risk that is increased where it may be possible to 'triangulate' visual data with other information about a person, allowing them to be more easily identified. Obviously, the nature of the research context is also relevant, for example the researcher may feel there is more potential harm to members of a public group focused on adoption and fostering than to members of a pop star's fan club group. As ever, though, it is imperative that the researcher closely engages with the research context and remembers that 'behind every online communication is a real, living, breathing person' (Stern, 2003, p.240).

Conclusion

The existing literature on Facebook use in educational settings, and our own research on Facebook groups within and beyond formal education, gives persuasive evidence that Facebook groups can be of great educational and institutional value and can:

- Help in helping develop relationships between new students;
- Provide a bridge between informal and formal learning by attracting potential students who are able to see real current student experience of a particular course, allowing them to make better informed choices about what and where to study;
- Provide an environment that is conducive to developing peer-support and self-educating learner communities for existing students.

It therefore follows that the practice of researching Facebook groups has value for learners, educators and host institutions alike. For example:

- Learners can find out about the optimum strategies for self-organised support groups within Facebook;
- Educators gain information about new ways of using social media within a pedagogical strategy;
- Institutions can gain insight into student motivations and preferences in order to improve the learner experience for existing students and attract new

students, in addition to conducting comparative analysis of pedagogy and practice in Facebook groups and VLE forums in order to inform learning design.

However, our research also identifies various ethical complexities and challenges connected with researching within Facebook, including whether/how to gain informed consent in a public setting; the need to navigate online disinhibition and confessional activity; the need to address the ethical challenges involved in triangulating data collected from social media settings with data available from other sources; the need to consider the potential impact on individual research participants and entire online communities of reporting research findings, especially when published reports are open access; and, finally, the use of visual evidence and its anonymisation. We have attempted to provide some guidance about how researchers might navigate and manage these challenges, basing these recommendations on our own experiences, on a range of formal ethics guidelines, and on current debates around researching 'in the open'. Above all, we argue that the responsible and responsive researcher should heed Krotowski's (2010) plea that 'online community researchers face the person behind the screen when doing research'.

While we have reached an overall, provisional conclusion that ethical regulations and restrictions should be proportional to the scale and purpose of the research and that the ethical dimension should not prevent socially and educationally valuable research taking place, the complexities involved in researching ethically in social media contexts demand broader attention and debate from scholars. Zimmer (2010) details areas for further exploration, arguing that:

> *Future researchers must gain a better understanding of the contextual nature of privacy in these spheres...recognizing that just because personal information is made available in some fashion on a social network, does not mean it is fair game for capture and release to all...Similarly, the notion of what constitutes "consent" within the context of divulging personal information in social networking spaces must be further explored, especially in light of this contextual understanding of norms of information flow within specific spheres.*

It is our hope that other academics will contribute to an exploration of the ethics of researching in Facebook, in the interests of a greater understanding of the potential of this powerful tool.

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Giving Voice to Distance Learners: Methodological Decisions and Challenges

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Abstract

This paper is set against the backdrop of growing concerns about retention and completion and reports on the experiences of distance learners using an innovative video diary approach to data collection. Video diary reflections were submitted by a purposive sample of 20 online/distance learners each week over a period of up to 16 weeks. Data were analysed using a thematic analysis method following the general principles of a phenomenological approach. Many of the key decision points in undertaking this type of research are described along with some of the methodological challenges and limitations. The lived experiences of first-time distance students are a complex phenomenon. The paper reports some of the main findings and reflects on alternative ways of studying the student experience along with the imperative of doing things better for this group of learners.

Keywords: Distance learners, lived experience, phenomenology, retention and completion, video diaries

Introduction

Online learning has enabled many institutions to explore ways of widening access to higher education to diverse and geographically dispersed learners. In 2013 it was calculated that in the United States, 34% of all higher education students now take at least one course online (Allen & Seaman, 2014). In the 2014 Babson Survey, Allen and Seaman (2015) report the rate of increase in online enrolments continues at rates far in excess of those of overall higher education. Furthermore, Massive Open Online Courses (MOOCs) from some of the world's elite universities has been a step-change, which has given online learning greater credibility as a mainstream activity. However, the exponential growth of online students is juxtaposed with the retention and completion problems that have plagued distance learning ever since the first correspondence courses in the 19th Century (Dede; cited in Waldrop, 2013).

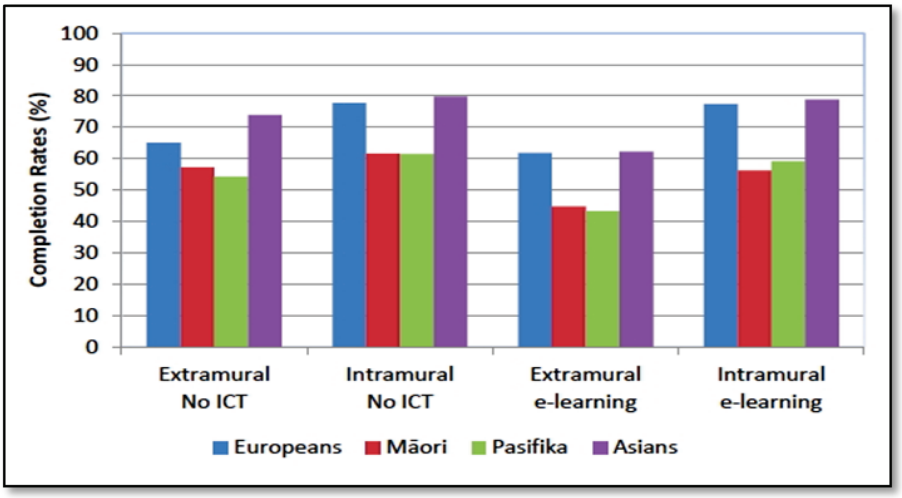

Figure 1. Intermural and Extramural completion rates and e-learning delivery

There is growing concern internationally about enhancing student success as the return on the public investment in higher education comes under greater scrutiny. In New Zealand, for example, a recent Ministry of Education (2014) report on the higher education sector claims that distance delivered courses, defined as 'Extramural offerings, with an online e-learning component have far lower completion rates than other delivery modes (see Figure 1). Although the term e-learning is open to interpretation and this study raises a number of unanswered methodological questions about the validity of the data, Figure 2 taken from the report compares yearly completion rates for part-time undergraduates for New Zealand's largest distance

education provider, Massey University, with the Open University in the United Kingdom (UK).

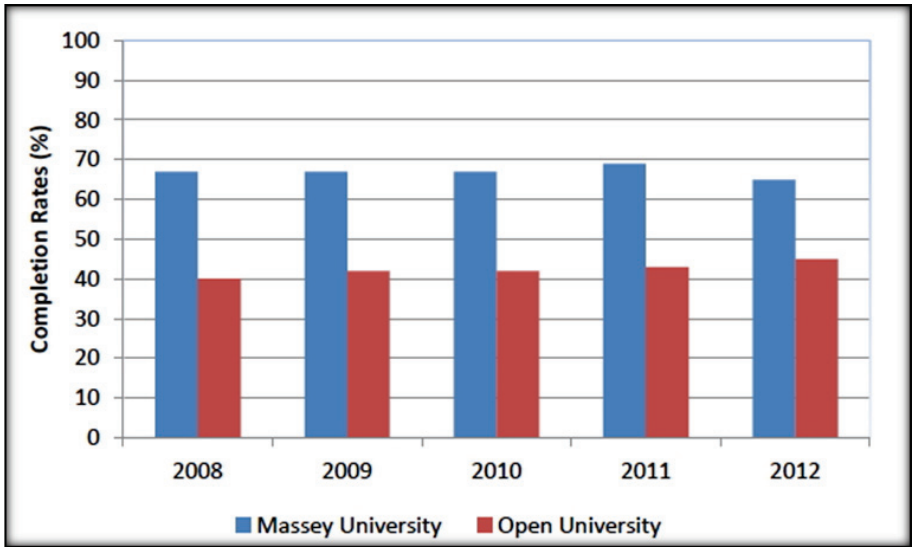

Figure 2. Comparison of part-time undergraduate completion rates between Massey and UK Open University

Massey University is a dual mode provider – that is, it offers distance (extramural) education along with internal courses on three campuses throughout New Zealand. In contrast the UK Open University only offers courses by distance and is a truly open university. On the surface the figures for Massey compare favourably with the UK Open University, although the report notes that 'when we adjust for course level and do not focus on a particular group of students, Massey University and the Open University have comparable extramural course completion rates' (Ministry of Education, 2014, p.30). Nevertheless, an earlier study on the problem of retention found that at the Open University only 22% of undergraduate distance students completed their study within eight academic years (HEFCE, 2009). This study raises its own methodological questions about the definition of distance learners, and it needs to be noted when undertaking international comparisons that the method of determining retention, progression and completion rates vary according to country.

That said, annual OECD (2013) league tables published in *Education at a Glance* show that New Zealand consistently performs poorly in student completion, with a rate of 66% reported in 2011 for Type A Education (degree level) in comparison to 79% for the UK. Notably, the completion rate for the United States is even lower with 64% of

Type A students, which compares with an OECD average of 70% for all member countries. Putting aside differences in how individual countries define and collect these data, the level of concern over retention and completion rates for online/distance learners is well-justified and clearly higher education institutions need to do more to support student success.

However, there are no magic bullets (Tinto, 2006-2007). Moreover, Simpson (2003) cautions against a 'goulash' approach whereby institutions try lots of interventions that might work but, meanwhile, fail to focus on the most important things and cannot ever discover what is working best. It also needs to be noted that the problem of enhancing retention is often framed around promoting student engagement from an institutional definition rather than from a student perspective. In this respect, we need to bear in mind that we know from the literature on the study of retention and completion many soft factors influence student engagement and the field is particularly complex (Zepke & Leach, 2010). For example, the factors that attract students to online and distance education, such as greater flexibility over pace and place of study, are often the same factors which can lead them to struggling and withdrawing.

It is also noteworthy that typically distance students who choose to study off-campus have very different backgrounds from campus-based students (Baxter, 2012; Poskitt, Rees, Suddaby & Radloff, 2011). In the developed world, generally speaking, the background demographics of distance learners indicate they are more likely to be over the age of 25, women or from a lower socio-economic group, returning to study after a break, and/or working part-time or full-time. While we know quite a lot about the background of distance learners, the concept of student engagement has many different faces and there is a significant gap in the literature in understanding the experiences of these learners from their own perspective. The study reported in this paper sought to address this gap in order to better understand what it means to be an active and engaged online/distance learner. In so doing the research raises a number of methodological issues about how to do things better which are outlined in the discussion below.

The Study

The study was framed to address the sub-theme of 'learner support and development' and the following guiding research question identified from a Delphi analysis of the field of Distance Education (Zawacki-Richter, 2009):

> *What skills, supports and processes are required by learners in the new ICT distance learning environments to ensure successful learner outcomes?*

The methodology was anchored around Design-based Research involving a mixed method approach over three phases:

- Phase One involved an audit of current institutional services and resources supporting distance learners at Charles Sturt University (Australia) and Massey University (New Zealand).
- Phase Two involved the recruitment of a sample of first-time distance learners at Massey University and a pre and post semester survey to establish their goals, intentions and backgrounds.
- Phase Three was the major component of the study, which involved gathering the lived experiences of 20 first-time distance learners, in their own words, using weekly video diaries for data collection.

The overarching methodology of Design-based Research served as a guiding beacon for the development of key principles for enhancing educational outcomes for online/distance learners. Design-based Research has received increasing attention from researchers in education for its iterative and integrative qualities (Reeves, 2006). It aims to make a grounded connection between research and real-world contexts. The methodology can be thought of as seeking to develop best practice in complex learning environments through the incorporation of evaluation and empirical analyses, from which multiple entry points for various scholarly endeavours arise (Anderson & Shattuck, 2012).

Phenomenological inquiry

Under the umbrella of this methodology, the study employed a phenomenological approach during Phase Three to explore the 'lived experiences' of first-time online/distance learners, in their own words, over their first semester of study at Massey University, New Zealand (see Brown, Keppell, Hughes, Hard, Shillington &

Smith, 2013). Importantly, in this study 'distance education' is defined as study undertaken by students who are primarily off-campus and involving online learning.

Although subject to considerable debate over the years, the classical phenomenological approach was conceived by Husserl (1859-1938) and advanced as a scientific method in the field of psychology by Giorgi (1985). This philosophical perspective aims to provide insights into understanding human experiences by producing deep descriptions of these experiences while people undergo and live through them. As distinct from divergent fields of interpretive hermeneutic phenomenology advanced by Heideigger (1889-1976), and staying close to Husserl, Giorgi adopted Merleau-Ponty's (1962) four criteria for 'descriptive' phenomenology: description, reduction, essence and intentionality.

In this pure or classical definition the first characteristic of phenomenology is 'description', which means focusing on the things themselves. In other words, phenomenology is concerned with describing things as one experiences them by placing a person's experience at the centre of any investigation. The second characteristic of phenomenology is 'reduction' or 'bracketing' by the researcher who needs to temporarily suspend taken for granted assumptions and presuppositions about phenomena so the things themselves can be returned to at an appropriate time. The researcher is said to employ a reduction when they begin to analyse the descriptions but during this stage they need to stay close to what is given to them in all its richness and complexity, and restrict themselves to making assertions which are supported by appropriate intuitive validations. However, although the description of individual phenomena is interesting in its own right, the researcher usually comes to a point where they want to say something about the class the phenomenon is a part of. In classical phenomenology the literature talks about seeking the essence of something, which refers to the core meaning of an individual's experience of any given phenomenon that makes it what it is. The final characteristic within a phenomenological study is 'intentionality', which maintains that there is an inseparable connectedness of the human being to the world to which they belong.

Importantly, recent critiques and contemporary interpretations of phenomenological inquiry argue that there is no *pure* phenomenology and methods cannot be formalised into a series of technical procedures. Thus, in many respects *doing* Phenomenology was more of a philosophical commitment by the researchers to a particular line of inquiry. Mindful of Post-Structural critiques of Phenomenology (see Stoller, 2009), the study drew on the general tradition of phenomenology rather than the any pure

definition or strict criteria in developing a 'reflective prompt' data collection protocol, and data analysis techniques, appropriate to the research question and particular sample.

Sample Selection

The first challenge in studying a group of first-time distance learners is identifying a sample of prospective students before they have formally registered. This is not an easy task. Nevertheless, the importance of doing so is that we have growing appreciation of how the decisions prospective students make in the initial period of the study lifecycle can significantly influence their chances of success (Simpson, 2004). In our case to obtain a sample of first-time distance learners we had to rely upon access to institutional data from people who had formally expressed their intent to register. For ethical and internal institutional reasons it was not possible to source the sample through an independent communication channel, although such an approach may have been more successful in locating people much earlier in the study lifecycle. This remains an interesting methodological challenge in designing this type of study and potentially biases the sample by excluding people who discontinue before completion of the formal registration process.

Prior to the start of Semester 2 in 2011, with approval from the University's Human Ethics Committee, enrolment data was obtained for 750 students studying via distance for the first time. The method of recruitment was by email from the Project Leader to all potential participants at the point when their registration had been approved. The invitation included a Participant Information Sheet, which fully explained why students might consider recording video diaries for the purpose of research.

In total, 144 students volunteered to participate. This was a larger sample than anticipated and to acknowledge the high level of interest in participating in the study, and to add another valuable dimension to the research, these students were invited to complete an online questionnaire on their initial experiences of being a distance learner (Phase Two). Based on the survey responses, coupled with demographic data, 20 students were purposefully selected to participate in the main study (see Table 1). In selecting this sample the intention was to broadly represent the diversity of first-time distance learners. The profile of diversity was informed by a demographic analysis of the University's distance students during the 2010 academic year. Selection criteria included: gender, age, ethnicity, geographic location, mode of study (distance i.e. fully online to off-campus students or blended which involved a mix of online and face to face sessions), level of study (i.e. how many courses/papers the student had

registered for), subject of study, entry qualification (i.e. prior or current experience of tertiary study on-campus; 'degree papers' indicates some successful higher education already completed), employment status and whether or not the student had any dependents.

Table 1: Summary of participant sample

Gender	Male (7), Female (13)
Age	Under 25 (4), 25-29 (4), 30-39 (6), 40-49 (4), 50-59 (2)
Dependents	None (11), One (1), Two or three (5), Four or more (3)
Ethnicity	Pakeha / European (12), Māori and/or Pasifika (8)
Location	City/Town close to a Massey campus (11), Other urban town (3), Remote (4), Overseas (2)
Mode	Distance only (17), Mixed mode (3)
Total papers (courses)	Undergraduate: One (6), Two (6), Three (0), Four (6); Postgraduate (2)
Subject	Business (8), Humanities (6), Education (3), Sciences (3)
Prior education	High school (8), Diploma (2), Degree papers (5), Degree (5)
Employment	Full time (11), Part time (3), Casual (1), None (3), Full time carer (2)

Important Methodological Decisions

This section expands on some of the methodological decisions and challenges associated with researching the student experience whilst endeavouring to maintain a strong sense of the learner's voice. In particular, it describes some of the issues and decision points that arose from adopting a phenomenological approach to data collection and analysis. As outlined above, Phenomenology is concerned with describing events as one experiences them by placing a person's experience at the centre of any investigation. Put simply, the role of the researcher in phenomenology is to understand the essence of something as experienced by the participant. Of course, the challenge is to undertake phenomenological inquiry whilst seeking to avoid bias in any interpretation through the researchers' own theoretical lens. It needs to be acknowledged that no researcher can be entirely neutral and this remains an inherent flaw with phenomenological inquiry.

Of the many methods and techniques of gathering qualitative data, some are more suited to phenomenology than others. Methods with a closer affinity to the approach include interviewee narratives, participant observation, and reflective diaries, to name a few. The current study was partially inspired by a method designed by Cashmore, Green and Scott (2010) who gathered video diary data with undergraduate students at the University of Leicester. They provided participants with small, hand-held video cameras and asked them to submit a minimum of a five-minute video diary on a

weekly basis. In an attempt to minimize interventions during the data gathering process, students were informed that they could focus on any topic, theme or concern that they perceived was important to their lives and their student experience. However, amid their commitment to free-flowing ethnographic data collection, Cashmore, Green and Scott (2010) acknowledged wide variation amongst participants with some submitting five minutes every fortnight and others submitting more than 20 minutes every week.

Mindful of the challenges associated with managing and making sense of free-flow video diary data, the research team for the Massey study considered a number of options of how to gather participant contributions in a way that ensured enough consistency in the questions and experiences being explored, whilst remaining true to the intent of trying to understand what it means to be a first-time distance learner from a student's perspective.

In trying to strike a balance between structure and free-flow the study also drew on the 'Day Experience Method' employed by the Learning Landscape Project at the University of Cambridge (Riddle & Arnold, 2007). This project had in turn been informed by the 'Experience Sampling Methodology' from the behavioural sciences (Hektner et al., 2006). The aim of the Learning Landscape Project was to minimize recall distortion by encouraging participants to provide detailed accounts of their daily experiences over time and capture the ebb and flow of these experiences as they occur in situ. Riddle and Arnold therefore asked participants to diarise the answer to five pre-specified questions (What time is it? Where are you? Who are you with? What are you doing? How do you feel about it?) when prompted via text message every 30 to 90 minutes between 8am and 10pm on three separate days.

After considering the pros and cons of various data collection methods we devised a 'Reflective Prompt' protocol that provided some structure but also maintained an element of individual free-flow expression. The protocol requested that each participant would upload at least one five-minute digital video file per week via a secure website (Moodle) to which only the Research Assistant had access. Within 48 hours of a participant uploading their video file, the Research Assistant would transcribe the video data before responding to the individual participant via the project email account (In Your Own Words). The original intention was that the email would contain an amiable yet emotionally detached greeting followed by a set of 'reflective prompts' designed to trigger reflections for the participant's next video diary. In other words, all participants would be encouraged to reflect on their

online/distance learning experiences by prompting their thoughts with personalised 'fish-hooks' that were based on each individual trajectory, as it emerged over time.

The 'Reflective Prompt' framework aimed to uphold the general principle that phenomena should be allowed to present themselves with minimum influence or imposition from the researcher. Therefore, the framework was structured as follows:

- **Prompt 1**: What's on your mind at the moment?
- **Prompt 2**: Fish-hooks for learning-related experiences
  (e.g. You mentioned an assignment was due. How did that go?).
- **Prompt 3**: Fish-hooks for support-related experiences
  (e.g. You mentioned waiting for an email response. Any news on that?).
- **Prompt 4**: What's on your plate next week?

However, during the first few weeks of the study it became increasingly apparent that many of the participants were forming a close bond with the Research Assistant. It was quickly apparent that the 'Reflective Prompt' framework and video diary interventions along with the weekly email exchanges with the Research Assistant were having a potentially significant impact on the student experience. The Research Assistant had inadvertently become a default point of contact with the institution and potentially this role was having a positive impact on their sense of belonging as a first-time distance learner. After discussing this situation amongst the research team, and consulting with the University's Ethics Committee, we did not believe it was appropriate to reduce the level of interaction with the participants or depersonalise the reflective fishhooks.

Data analysis

A considerable amount of rich qualitative data was collected from all 20 participants during the first six weeks. Originally the research was intended to explore just the first few weeks of study but after realising the positive impact the intervention was having on participants they were given the opportunity to continue until the end of semester. Although continuation of the video diaries beyond the initial six weeks was not part of the original plan as we were primarily interested in the initial stages of the study lifecycle, it was considered potentially unethical to cease data collection at this point. Moreover, we had already learnt from the participants that the provision of student support was crucial beyond the first few weeks of study.

Eight participants chose to conclude at this point, while 12 opted to continue for sixteen weeks – that is, until after the examination period and official end of semester. In total, including this extended period, more than 22 hours of video data were collected, which provided rich insights into the student experience. In order to accurately tell the student's story of their lived experiences of being a first-time distance learner, we employed a six-step thematic analysis (Braun & Clarke, 2003). The six steps are described below:

Familiarizing yourself with the data

This step recognises that it is vital for a researcher to immerse themselves in their data to the extent that they are familiar with the depth and breadth of the content. Throughout the study, the Research Assistant transcribed video files within 48 hours of receipt, which was a process that achieved almost 'real-time' immersion. Importantly, the researcher did not attempt to thematicise the data at this stage.

Generating initial codes

This step sought to identify and code particular data that appeared relevant to the research objective. Although data can never be coded in an epistemological vacuum, the aim was to discover meanings in the data whilst remaining open to unexpected interpretations. The end of this step was a series of meaning units still expressed in the participant's own everyday language.

Searching for themes

This step is where elemental units of coded data were combined to form overarching candidate themes. While we found that some units did not collate naturally with other units nothing was abandoned.

Reviewing themes

At this stage of the process it became evident that some candidate themes did not have enough data to support them. Other candidate themes were better collapsed to form one theme. This was an iterative process that helped us over the course of the semester to more clearly identify the emergent themes.

Defining themes

This step involved identifying the 'essence' of what each theme was about by returning to collated data extracts and connecting them together. Of course the problem here is that raw data (i.e. the participant's story) was transformed at this point by our

interpretation, which we could not avoid being influenced by our own stories. Nevertheless, to remain true to telling the participant's story we sought validation of the full transcripts and endeavoured to share our interpretations with students. The question remains whether the participants truly validated their own data by engaging in this process. Although we had limited control over this aspect of the methodology, wherever possible we tried to use direct quotes as part of larger extracts to encapsulate the full context.

Producing the report

It is important that any written analysis provides a concise, accurate and interesting account of the story that the data tells. To this end we attempted to share enough data extracts to demonstrate the prevalence of each theme, whilst also providing an analytic narrative of discoveries that related to the research questions. Again the challenge during this stage was maintaining the integrity of the participants' stories within our larger analysis of the meta-story. This issue became more difficult as time elapsed in reporting the findings and the research team became more distant from the original data.

Reflecting on Key Findings

The lived experience of first-time distance learners presented itself as a complex phenomenon involving a dynamic process of personal adjustment to study amid enabling and inhibiting triggers. We have chosen not to report on the findings in any great detail as they have already been described at length in other publications (see for example, Brown, Hughes, Keppell, Hard & Smith, 2013). However, three points are noteworthy. Firstly, in terms of preparedness to meet the academic and emotional demands of learning by distance, more than one third of participants were returning to study for the first time since secondary school after an interval of more than a decade. From within this sub group, the majority struggled to find effective study techniques to meet the demands of university-level study. Notably, few students knew about or took advantage of the support services available for first-time distance learners. This period prior to study therefore represents an 'at risk period' to the extent that the decisions and actions prospective students and institutions take, or do not take, can influence successful outcomes which impact on all parties. Recognising that things can go wrong, and endeavouring to ensure that students know in advance where and how to source support, are of critical importance as, once study begins, the logistics of sourcing support amid the pressures of everyday life may overwhelm new distance learners.

Secondly, a significant period of risk was identified in the second half of semester when the majority of participants began to question their ability to complete their programme of study. During this period, students often resolved to study fewer units (modules) per semester or concluded that online/distance education did not suit either their approach to learning or their lifestyle at that point in time. This second at risk period highlighted the misperceptions that most students began with concerning the flexibility of studying from a distance. Those for whom learning actively took place amid a sustainable study routine that accounted for predictable as well as unpredictable distractions, and who developed study-related relationships in a digital environment fared best. In the face of adversity, this strategy allowed participants to maintain a resilient attitude.

Lastly, there is a 'chicken-or-egg' debate over what comes first: the preference towards an inherently 'lone wolf' approach among learners who choose to study by distance; or failings among distance education providers to establish connectedness with and between their students. The insights gained from the sample of first-time distance learners suggest that institutions could do more to challenge student's self-sufficient conception of what it means to be a distance learner. It is not enough to rely on chance that they will take opportunities to interact with teachers, peers and academic support staff – or even find necessary levels of learning support from people in their immediate vicinity with whom they enjoy an established sense of relatedness.

The role of teachers in building social confidence and shaping the social culture of a digital learning environment (Jones, Ramana, Cross & Healing, 2010) is worthy of further study. Additionally, the use of video diaries to support reflective practice for teachers and to explore how teachers foster a sense of belonging for first time distance learners are among topics which represent fertile ground for future research.

Conclusion

This study has described how we sought to document the lived experiences of first-time online/distance learners as seen from 20 participants over a 16-week period. There is, to our knowledge, no other study that has described using the same video diary methodology the *lived experiences* during this key transition in the study lifecycle. In this paper we have focussed on some of the methodological lessons and challenges of doing things better in studying the student experience. Amongst other things this line of research has helped us better understand why the participants chose to enrol via distance learning, which was largely because of circumstance rather than by design. The study observed that only a minority of participants – all with more

active and deep learning orientations – spoke in a consistently positive way about the joys of online/distance learning. In contrast, the majority of participants reported notable periods of isolation and despair. They spoke consistently about their first semester as a challenge during which they had struggled to balance study with other work and family demands.

In summary, this research has contributed to new knowledge on two fronts. Firstly, the study has helped to identify some of the methodological challenges of doing better research on the student experience from a learners' perspective. A recent analysis of the literature shows that research on learners and student support services remains a priority area for further investigation (Bozkurt, et al., 2015). Secondly, the study has helped to personalise the problem of retention to real people and share the voice of distance learners, which in turns underscores the imperative of why institutions, teachers and support staff need to do things better for this unique and increasing group of students. We have a moral imperative to ensure that all students irrespective of background or study mode are prepared for success as higher education helps to transform lives and societies.

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