Learning Online: A Case Study Exploring Student Perceptions and Experience of a Course in Economic Evaluation

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This study explored the perceptions and experiences of a group of students enrolled in an online course in Economic Evaluation. A mixed methods approach was adopted for the data collection, and thematic analysis was used to synthesize the data collected and highlight key findings. The participants identified several positive and negative perceived attributes of online learning, many of which are well documented in the literature. In addition, after exposure to the course, participants reported several factors that affected their learning experience on this course, some of which have not yet been reported in the wider literature. The five main factors affecting learning on this course include: 1) pace of learning in an online environment, 2) learning style, 3) immediacy of feedback, 4) method of content delivery, and 5) issues around navigating content. These findings could help improve online teaching practice and learning quality in future courses.

The number of online courses continues to grow in higher education, with many universities placing greater emphasis on expanding access to online education (Muirhead, 2007; Song, Singleton, Hill, & Koh, 2004). The drivers behind the fast growth of online learning are varied including, but not limited to increasing accessibility, advances in communication technologies, increasing student demand for online flexible or distance learning, institutional need to maintain a competitive offering of diverse learning platforms, and positive financial gains to institutions and students (Ali, Hodson-Carlton, & Ryan, 2004; Muirhead, 2007; Song et al., 2004; Sun, Tsai, Finger, Chen, & Yeh, 2008).

A variety of research studies have investigated distance and online learning, originally from the perspective of faculty involved in the design and delivery of such courses (Ali et al., 2004; Song et al., 2004). In the last few years, however, the emphasis has shifted, and several authors (Ali et al., 2004; Dyrbye, Cumyn, Day, & Heflin, 2009; Ellis & Goodyear, 2010; Ellis, Weyers, & Hughes, 2013; Goodfellow & Lea, 2007; Hughes & Daykin, 2002; Kim, Liu, & Bonk, 2005; Ku & Lohr, 2003; Morris, 2011; Muilenburg & Berge, 2005; Sit, Chung, Chow, & Wong, 2005; Song et al., 2004; Sowan & Jenkins, 2013; Sun et al., 2008) have explored students' perceptions, practices and experiences of online learning. These studies, using quantitative surveys (Muilenburg & Berge, 2005; Sit et al., 2005; Sun et al., 2008), qualitative studies (e.g. Dyrbye et al., 2009; Morris, 2011) or mixed methodology designs (Paechter, Maier, & Macher, 2010; Sowan & Jenkins, 2013), have identified positive and negative aspects of online learning from students' perspectives, such as flexibility, convenience, technical problems, delays in feedback, and feelings of isolation. Studies of students working with learning technologies (Ellis et al., 2013, Goodfellow & Lea, 2007, Gourlay & Oliver, 2014) have also revealed wide variation in student conceptions, approaches, and practices. In their study of campus-based undergraduates, Ellis et al. (2013) found a significant relationship between variations in conception and approach and variations in achievement.

Further research on students' experience of online learning may be particularly important since rapid advances in information and communication technology (ICT), and the changes these have brought to the design and delivery of online courses, change learners' perceptions of their online learning experience (Song et al., 2004). Therefore, continuous investigation of students' perspectives of online learning is needed to improve the design of online courses and optimize the student learning experience. That said, as a core function of higher education is to educate, and a positive student experience may not necessarily be an instructional one, an important extension of this would be to focus on the nexus of learning and teaching with research that explores or highlights pedagogical approaches to improve not only the learners' online learning experience, but also the breadth and depth of learning on these courses.

University College London's (UCL) Institute for Global Health runs an MSc in Global Health and Development. Like many higher learning institutions, UCL is keen to expand student access to online learning (UCL, 2010, 2011). One of the optional modules in this MSc is entitled "Economic Evaluation in Health Care." Economic Evaluation is an intensive course designed to equip students with both a theoretical understanding of the epistemology of

Economic Evaluation techniques and the practical skills to conduct their own basic cost effectiveness, cost utility, and cost benefit analyses. For two years this course was delivered using a conventional, classroom-based approach. The course was well evaluated by students, but the course conveners felt that the practical nature of the course content (i.e. a combination of interactive tutorials and practical exercises using technologies such as spreadsheets) lent itself better to an online learning environment, and they elected to move the module to a new platform. However, there was some concern about how students might receive the move to online learning. As such, it was decided to formally investigate the student experience. This paper reports the findings of that evaluation.

Method

Design of the Online Course

Drawing on constructivist views of learning and distance education research (Anderson, 2008; Fry, Ketteridge, & Marshall, 2009; Holmes & Gardner, 2006; Sharples, 2002), together with work on threshold concepts (Cousin, 2006; Meyer & Land, 2006), the online course was designed to provide online didactic components combined with peer-to-peer learning, regular online contact with a tutor (through discussion forums, live-chat forum, and email), and the creation of a portfolio as the main assessment method. Thus, the students were offered the following:

- Online lectures either in the form of lecture-cast (short video of lecturer with an integrated slide presentation) or screen-cast (short audio with slide presentation).
- Practical exercises (for each lecture or group of lectures with a similar theme) to consolidate foundation or threshold learning concepts, as well as practical extension tasks to develop higher order learning and critical thinking. There was a deadline for each practical exercise to ensure students completed the tasks in time and did not risk falling behind.
- Independent reading lists to add depth to the learning of core ideas and threshold concepts and to consolidate understanding by demonstrating how others have applied the concepts in practice.
- Online tutorials, journal clubs and discussion forums to further extend learning around the topic (i.e., to add breadth rather than depth of understanding) and to enable students to further develop critical thinking skills.

As far as possible, all exercises, tutorials, and other tasks were designed to maximize interpersonal interaction and particularly collaboration between students (i.e. peer-to-peer learning). Enhancing peer-to-peer learning was a key aspect of the course design for two key reasons: first, peer-to-peer learning has been shown to enhance student learning (Ali et al., 2004; Cartwright, 2000; Mastrain & McGonigle, 1997), and second, the course organizers wanted to emphasize a feeling of "being a part of a student cohort" to reduce any potentially isolating effect of e-learning. Students accessed the course content through UCL's online platform, Moodle.

Objectives of the Study

This study had three main objectives: (a) to explore student perceptions of online learning before their exposure to the course, (b) to understand the student experience of learning Economic Evaluation online, and (c) to consider how the design of an online learning experience can overcome negative perceptions and meet or exceed positive expectations.

Participants

Eight students enrolled for the MSc module in Economic Evaluation in the academic year 2012/13. These students, as part of their MSc program in either Global Health and Development (GHD), or International Child Health (IntCH), were invited to participate in the study. They were reassured that their participation or non-participation in the study would have no effect on their course result. All students agreed to participate. Participating students originated from a range of disciplines (including medicine, physiotherapy, and law) and from different parts of the world (including the UK, USA, India, Afghanistan, France, and South Africa). The participants were broadly representative of the students undertaking an MSc in GHD and IntCH, at UCL.

Data Collection

To meet the objectives of this study, we adopted a mixed methods approach using focus group discussions (FGDs) and an online survey to collect data. Triangulating data sources enabled the researchers to use different data to validate and crosscheck findings (Patton, 1990). Three FGDs were conducted in total: one before starting the course, one mid-way through the course and one at the end of the course. The first FGD aimed to explore students' perceptions of online learning generally, the extent to which these perceptions affected their choice to enroll in Economic Evaluation, and their expectations of the course on offer. The second aimed to elicit formative feedback about the course while there was time to act on it, as well as to identify any problems that individual students

were experiencing, in order to provide appropriate support. The aim of the third FGD was to explore the students' experience of participating in the online course. The current study presents the findings from the first and the third FGDs. The FGDs were facilitated by Jolene Skordis-Worrall, while both she and Hassan Haghparast Bidgoli took detailed notes and recorded observations. The discussions were also audio- and video-recorded. The discussions were loosely structured around a guide, designed by the investigators, but every effort was made to keep the discussions open and exploratory.

The online survey was conducted after completion of the course and was completed by all students on the course (n = 8). The questionnaire was comprised of a set of 42 closed- and open-ended questions exploring a range of themes including general feedback on the course and degree of satisfaction, perceived challenges, suggestions for future improvements, their specific comments on the assessment method, methods of delivery, and their feedback on individual sessions (for example, their feedback on the content, usefulness, and quality of each session/lecture).

Data Analysis

The data were analyzed using thematic analysis to identify overall themes and patterns throughout the data. The identified themes were crosschecked independently by both investigators, with reference to the audio/video files and online survey for additional detail or to resolve any conflict in the notes. The identified themes and key points were then compiled with reference to the research questions.

Ethical Considerations

Before commencing with the first focus group discussion, students were told about the reason for the group and were reassured, verbally and in writing, that their choice to participate (or not) in the group, as well as any contributions made during the discussion, would have no bearing on their mark for the course. They were asked to sign a written consent form if they agreed to participate and were reassured that they could withdraw at any time during the discussions. All eight students agreed to participate in the study and did so throughout.

Results

Perceptions of Online Learning

In order to explore participants' perceptions of online learning, the first FGD was convened on the 29th of April 2013, before the course started. To avoid leading

participants at the outset, and to minimize any risk of "group think," participants were asked to complete a four-quadrant grid with the first four thoughts that came to mind when they thought of online learning. This was done individually on paper with no group interaction, and it was intended to focus each student on his or her own thoughts and impressions before opening up the discussion and allowing for peer influence. This exercise yielded the following main impressions of, or associations with, online learning in the general sense, presented in Table 1. Table 1 demonstrates a clear and dominant association between online learning and independence, self-reliance, and personal responsibility. Other common themes include the multi-media association, the flexibility of online learning, and a lack of interaction.

To understand what participants meant by these terms, and to understand whether they had positive or negative connotations (i.e., were viewed as relative strengths or weaknesses of online learning), participants were then asked to collectively discuss the positive, neutral, or negative attributes of online learning. This was done without explicit reference to the grid presented in Table 1, although most participants spontaneously began by placing their grid associations into the appropriate categories and then extended their thinking from that point. Group participants clearly found it easier to arrive at negative associations at the outset, with positive associations only emerging later in the discussion and even then being fewer in number. The negative and positive attributes of the online learning environment as described by the participants are summarized below, while Table 2 provides a full list of the phrases proffered in each category by the participants.

According to the participants, the main positive attribute of online learning was the flexibility of the approach, both in terms of time and geographic location. As online learning generally does not require a one to be in class at a certain time, one can work from home at convenient times. This flexibility was also linked with a positive perception of self-reliance. The students get to decide when and where they work and are therefore much more in control of their learning experience. This control extends to being able to pause, rewind, and revisit lectures. Online learning was also synonymous with the immediacy of resources, allowing students to decide when and how they access those resources. Control over the process of learning appeared to be complemented by control over individual thoughts as online learning was perceived to leave the learner to formulate their own ideas, without group influence. Finally, online learning was associated with a greater breadth of access to materials as students expected to be able

Table 1
Four Primary Associations with Online Learning

First Association	Second Association	Third Association	Fourth Association
Internet/not personal	Independent learning	Own time, self-paced	Lack of interaction
Personal responsibility	No face time	Flexibility	Hard work
Self-directed	Focus on student	Most of the time semi-	Stress on the students about
Active student participation	personal study	one way	searching references to cover
Independent	Lack of interaction	communication	the terminology of discussions
Independent work	Self-paced	Motivation	Online chats
Self-reliance	Flexible	Multimedia	Support
	Independent research	Doubling independent	Reading
		reading	Independent thought

Table 2
Perceived Positive, Negative, and Neutral Attributes of Online Learning

Positive	Neutral	Negative
Self-Reliance	Personal responsibility/independent learning	Lack of interaction
Flexibility (can study when and where you want to save travel time)	Mode of technology (depends on the technology working as expected—often beyond student control/ability)	Self-paced (risk of procrastinators)
Can pause/rewind/revisit	Style of learning	Difficulty understanding concepts if clarification/explanation needed
Independent thought (not influenced by group pressure)	Would expect to be cheaper/discounted because of lack of overhead	More chance of flailing on your own
Can have immediate resources	Unfamiliar mode of learning	Dependence on the technology can be risky and frustrating
Can draw on lecturers from around the world, not just UK	More task oriented than lecture based	Not personal (i.e. cannot give examples that relate directly to students' experience within the lecture)
	Online learning for one session versus a whole module/course may have a number of different implications	Don't gain from experience of the rest of the class
		Unfamiliarity can be a source of stress/concern
		Interactivity can be a distraction
		Lack of social support would make this inappropriate for timetabling early in the year
		Loads of readings
		Lack of trust from employers who would prefer employees with campus-based education

to draw on lecturers from around the world and not just from the UK (the physical base of this course).

Many of the positive perceptions of online learning were also listed as negative characteristics of the learning style.

The immediacy of multi-media resources was seen as a potential distraction from learning. The ability to work at one's own pace was a risk for procrastinators who might leave much of the learning until the last minute. Similarly, the room for individual thought was seen by some to reflect a lack of interaction, potentially isolating and limiting students who could not gain from the experience of their peers as they would within a classroom environment. These associations were seen to increase the risk of encountering difficulty in understanding, particularly if minor clarifications or explanations were needed before progress could be made. This might lead students to flail about on their own for a longer time, which might in turn risk their success on the course and would almost certainly increase their stress. Even if students were able to gain answers to their questions, it was felt that these would be generic and not tailored to individual students' experiences or reference points in a way that might be possible during classroom teaching. The perceived lack of social and other support while learning online led participants to argue that online courses are inappropriate for the early stages of higher learning degrees, before social and other bonds are formed. Finally, the participants were concerned that employers might not trust qualifications from online study and might prefer to hire students who undertook *residential* learning in some contexts. See Table 2.

Experience of Online Learning

The students' experience of participating in the online course was explored through a focus group discussion and online survey, both conducted after completion of the course. Students expressed a variety of views regarding their experience of online learning. From thematic analysis of the FGD and the online survey, five themes were identified: pace of learning in an online environment, learning style, immediacy of feedback, method of content delivery, and issues around navigating content (Table 3).

According to the students, the *pace of learning* in an online course is slower than in a classroom-based course. They expressed the view that understanding new concepts in an online course takes longer without the immediate support of peers and teachers to proffer alternative explanations. They strongly suggested that the design of an online course should allow more time for personal reflection. One student stated her concern as follows:

> I feel that I was much slower than what I had been in a classroom environment. Things take longer and I think the time built in didn't allow for this, which made a lot of stress. . .I think the pace is a lot slower than it would be in a classroom based setting and so if the course allow for that personal time to reflect [it] would be helpful. . .

Differences in learning styles were described by the students as another important factor affecting their learning in an online environment. Some students struggled with the sole reliance on online documents and reading lists, online exercises, and virtual journal clubs and discussion forums. Those students explained how the lack of class interaction, personal and in-person contact with tutors and classmates, and visual stimuli limited their learning. The following quotation captures this sentiment, "Discussion forums, feedbacks and solutions were very helpful, but I did not get much from them since I prefer conversation. I do much better when I get feedback by conversation and in-class. . ."

Students stated that a lack of *immediate feedback* from tutors and peers can be an important challenge in an online environment, affecting learning outcomes as expressed by the following quotation, "We need more reflection from the tutor in discussion type sessions to give direction if we go to wrong direction or missed something. . ."

As the quote above illustrates, students commented that more, and more immediate, reflection from tutors during online tasks can give needed direction. This need to feel directed seems linked to a need for reassurance that concepts have been understood correctly and can be applied appropriately. In turn, this reassurance had the potential to mitigate students' sense of isolation when learning online. Students felt their isolation more keenly when they were confused or uncertain, but they were more comfortable learning alone when reassured that they could be successful at the task.

As described earlier, the course conveners were particularly keen to explore how the mode of didactic content delivery affected the student experience. To explore the importance of delivery method, a range of technologies had been used on the course. In the focus group discussion, however, students expressed only a mild preference for the lecture-cast format because they could see the tutor. Instead of engaging in a discussion over delivery method, the students argued strongly that the *method and technology used for delivery was less important than the content*. They preferred the lectures that tutors taught slowly and clearly, giving examples for better understanding of the concepts. They did not enjoy the lectures where tutors simply read the slides and strongly preferred an *added value* approach, where concepts listed on a side were explained verbally in more than one way, ideally making use of examples to support and expound an explanation.

Finally, the students evaluated the content of the course and the course assessment, and provided insight into *the importance of signaling to assist in time planning and the navigation of course content.* As mentioned previously, the course was assessed using a portfolio that students developed

Table 3
Main Themes Identified and Example Quotations

Main Themes	Example Quotations
Pace of learning in an online environment	"The course should allow more time for reflection. a lot of my reflections rushed since I had short time to reflect…"
	"Practical exercises were extremely useful but very time consuming - the workload felt very overwhelming with practically no time to process what we've learned."
	"I think because it was an online course, students struggled to do things and took longer than if we had been in a classroom environment. For example…"
Learning style preference	"Compare with class-based course, less opportunity for reflection from peers and teachers. You need more reflections [from tutors] for directing the discussion, in particular for discussion forum exercises."
	"I know students differ in their learning styles but I think that if this course had been run as an 'in person' course, that would have suited my learning better…"
Immediacy of feedback	"We need more reflection from the tutor in discussion type sessions to give direction if we go to wrong direction or missed something…"
	"More and timely feedback about how we were doing along the way would have been really helpful."
Method of content delivery	"The content of course and lectures were important than the format…Giving examples by the tutor in the lecture was very important."
	"A number of the lecturers spoke very quickly. It is important to remember that an online lecture needs to be slow and as much like a normal lecture as possible…. I think lecturer's who just had slides (not a video and slides) moved particularly quickly through them."
Issues around navigating content	"Beginning weeks had more time to read and reflect on that but last two weeks we had very short time. We were not prepared for that."
	"There is need for a general instruction for all practical exercises, giving a time range for each practical and a star rating for difficulty level…"

throughout the duration of the course. The course assessment is evaluated in detail in a forthcoming paper; however, for the purposes of this discussion, it is relevant to note that the students were unanimously positive about the portfolio as an assessment method. The students did, however, suggest that the workload of the course as a whole needed to be reduced. In particular, they suggested reducing the reading list for the course and allowing more time for the practical sessions. They also recommended a navigation or signaling system to help students allocate their time to tasks on the course. For example, students described how they spent a disproportionate amount of time on earlier, easier tasks and less time on later, more

complex tasks. This was not a conscious choice but a result of the fact that many "ran out of time" at the end of the course. The students suggested that very clear instructions be prepared for all the practical sessions. Aside from directing the task as the current instructions attempted to do, students would like to be given a suggested time range for each of task and even, if possible, for steps within the task. They also suggested a "star rating" system for the difficulty level of each practical session so that students could look ahead, realize a difficult task was pending, and allocate their time accordingly.

Discussion and Conclusion

This study explored the perceptions and experiences of a group of students enrolled in an online course in Economic Evaluation. In particular, this study aimed to: a) explore student perceptions of online learning before their exposure to the course, b) understand the student experience of learning Economic Evaluation online, and c) consider how the design of an online learning experience can overcome negative perceptions and meet or exceed positive expectation. As this constitutes a single case study, the extent to which it can be generalized to all online learning is limited (Tellis, 1997). However, a number of the findings are likely to be relevant to other courses, particularly those findings that relate to online learning generally rather than the course content specifically. Those general findings that may be of wider relevance are the subject of further discussion in this section.

The participants in this study identified several positive and negative attributes of online learning which are similar to those identified in previous studies. Consistent with previous studies (Dyrbye et al., 2009; Kim et al., 2005; Ku & Lohr, 2003; Paechter et al., 2010; Sit et al., 2005; Song et al., 2004; Sun et al., 2008), the convenience and flexibility of online learning, along with the ability to choose the time, place, and pace of learning were viewed as the main advantages of online learning over traditional classroom-based courses. Moreover, in such an environment, learners potentially have the ability to freely choose the most suitable learning approaches to accommodate their needs (Chizmar & Walbert, 1999; Ku & Lohr, 2003). This latter point was not the case for some of our students, however, particularly those who preferred to learn through personal interaction and "in-person" verbal discourse, arguably the only learning approach not generally available to online learners.

That lack of interaction and sense of community coupled with feelings of isolation were perceived as the main challenges of online learning environment by the participants in this study. These too have been identified in the wider literature (Paechter et al., 2010;

Song et al., 2004; Vonderwell, 2003; Woods, 2002). Previous studies have also illustrated the importance of a sense of community in students' learning experiences (Rovai, 2002). For example, Rovai (2002) studied 314 students enrolled in 26 online graduate education and leadership courses. They found that the students with a stronger sense of community perceived themselves to have achieve greater cognitive learning and felt less isolated. In order to build sense of community within an online learning environment, Haythornthwaite, Kazmer, Robins, & Shoemaker (2006) recommended a few basic strategies including promoting initial bonding (for example, through initial face-to-face meetings), monitoring and supporting continual interaction and participation, and offering varied means of communication. Those strategies were employed in the design of the course studied in this paper; however, the students highlighted that interaction and participation while important in any form, was most helpful if it was immediate or "real time". Delay in immediate feedback from tutors or other learners has also been reported in previous studies as one of the important challenges of learning in the online context (Ali et al., 2004; Kim et al., 2005; Ku & Lohr, 2003; Morris, 2011; Petrides, 2002; Sun et al., 2008; Vonderwell, 2003). This is particularly the case in asynchronous online discussion forums when students have to wait for their peers or tutors to read and respond to postings (Song et al., 2004), and the findings of this study would suggest that these asynchronous interactions need to be carefully planned and demand active engagement and support from tutors (DeLoach & Greenlaw, 2007; Garrison & Cleveland-Innes, 2005; Jaques & Salmon, 2007). It should be considered that the students in this course were inexperienced online learners, and perhaps with more time to develop their skills and become accustomed to online interaction, they might feel more comfortable without in-person contact.

Another important finding in this study was the assertion by students that online learning is slower. However, while it was not a sentiment expressed by students, the course conveners unanimously agreed that the quality of the student assessments on the course was higher than that of the output produced by students taking the course as a classroom-based offering in previous years. The suggestion was that students had learned "slower but better," and this seems to be supported by other studies that suggest that online learning is slower but deeper compared with classroom-based courses (Petrides, 2002). If this is the case, then in practical terms, an online course cannot cover the same content as a classroom-based course. When designing materials for an online course, more time needs to be allocated for learners' personal reflection in order to enable them to understand, retain, and apply new concepts. This could be done with the

understanding that the student may achieve less breadth in their learning, but greater depth.

The findings this study showed that the delivery method of lectures and technologies used, either in form of lecture-cast or screen-cast, was not as important as the content and quality of the lectures. This finding is in line with Berner and Adams' (2004) study, a randomized controlled trial study in which two groups of students were shown the same slide presentation, one in lecture-cast format and the other in screen-cast format. Although they only tested a single presentation, the results showed that adding video to an audio presentation did not result in either greater satisfaction or greater learning for the students. Instead, the quality of the content was highlighted by our students as critical to enhancing learning and they particularly urged the use of examples and the clear explanation of concepts.

Finally, it is important to note that the findings of this study are subject to a number of limitations aside from those inherent to the case-study approach. Firstly, this research was conducted among students enrolled on an online course but registered for a campus-based MSc. All were physically located in London for a significant portion of the course. As such, this sample may not be representative of global student perceptions because a) these students had demonstrated their willingness to engage with online learning by enrolling on the course and b) they had demonstrated their preference for residential learning by enrolling in a residential MSc. Secondly, these students had previously completed a classroom-based course in health economics taught by the same tutors. As such, their perceptions of the tutors formed through prior exposure to their classroom teaching may have influenced their perceptions of this course. Similarly, the physical proximity of the course tutors may have mitigated some of the isolating effects of online learning described by the students. This positive bias on perceptions would not be sustainable or replicable if the course were open to a wider pool of students based outside of London.

In summary, this study has several implications for teaching practice and also for future research. First, these findings suggest that course content may not directly transfer from a classroom-based course to an online learning environment, as students' learning pace and methods differ. Therefore, the content and teaching methods in online learning should be designed in a way that supports students' deeper learning while accommodating students' learning style/preferences. This may be particularly important for teachers to consider when designing online courses at campus-based institutions or for students also taking classroom based courses. Second, online learning should proactively aim to reduce feelings of isolation and integrate strategies for building interaction and a sense of community into the design the course. Students should be encouraged and advised, before the start of course, on how to build virtual groups and to have "real time Q&A with the on-line tutors. Greater best practice on how to promote effective online facilitation and building virtual groups is highlighted as a future research priority. Third, as suggested by the students participating in our study, learning outcomes and satisfaction are best supported by a focus on clear content and the quality of learning materials, and not necessarily on using sophisticated technologies.

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