The application of psychological theory to enrich the experience of online learners on a developmental psychology module?

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This article outlines the design of a module introducing Developmental Psychology to distance learners undertaking a two-year part-time BPS accredited MSc Psychology (Conversion) degree. The module was redesigned to accommodate increased student numbers. Online learners differ significantly from those in face-to-face learning environments, in terms of both student characteristics and patterns of engagement. We applied psychological principles to the delivery of this asynchronous online module. Our aims in this module were (1) to create engaging, informative content, (2) to develop students' critical thinking skills, and (3) to develop their ability to apply developmental psychological theory to the real world. We enacted five key principles in our module design: Naturalistic/warm delivery style; Collaborative teaching; Scaffolding; Reducing cognitive load; and Engaging activities to enhance learning. This article aims to prompt discussion from other practitioners who are involved in remote delivery about their experiences in adapting to a remote learning environment.

Keywords: *Engagement; Online; Distance learning; application of theory.*

THIS ARTICLE outlines the design of an online module applying psychological theory to teach developmental psychology to master's level students, with an emphasis on promoting and maintaining student engagement. The teaching strategy we adopted was specifically adapted for online learners, who differ in key ways from face-to-face learners in terms of both their style of engagement (Robinson & Hullinger, 2008) and their satisfaction with their course (Palloff & Pratt, 1999). Robinson and Hullinger (2008) identified that the pattern of engagement typical of online learners is different to that of face-to-face students, with online students exhibiting higher rates of active engagement in discussion with peers and greater engagement with teaching staff, but lower rates of academic challenge, defined as time spent reading, studying and writing. Palloff and Pratt (1999) identified the sense of isolation from peers and tutors to be the greatest cause of dissatisfaction in online learners. It is important, therefore, when teaching online learners, both to promote engagement with course materials and to reduce the sense of isolation felt by students.

Our aims in this module were:

i. to create engaging, informative content;
ii. to develop students' critical thinking skills and;
iii. to develop their ability to apply developmental psychological theory to the real world.

We therefore decided that one way to implement our aims was to directly apply psychological theory to our teaching. This allowed us to model, both directly and indirectly:

i. the way in which students can and should engage with the materials, their peers and their academic tutors;
ii. how to critique psychological theory; and
iii. how to apply psychological theory to solve real-world problems, thereby meeting our module aims.

Online learning environments

Traditionally universities have relied upon lecture or classroom-based face-to-face teaching, but recent years have seen a

growth in online teaching. In the 2010–2011 academic year, online learning accounted for just one per cent of all UK university provision (undergraduate and postgraduate). By the 2016–2017 academic year this had increased to three per cent of all UK university provision (Universities UK, 2018) evidencing a steady growth in online learning. In terms of numbers this meant more than 180,000 students accessed online courses in 2016–2017 (Universities UK, 2018). This suggests a move from traditional classroom-based learning for part-time students to the online learning courses offered by 117 UK universities (Universities UK, 2018). The increased numbers of students accessing online materials from abroad (University Business, 2018) also means that it cannot be assumed that face-to-face contact is possible as part of the delivery. When looking at part-time students as a whole, 31 per cent are aged over 40, with longstanding financial commitments, as 81 per cent of part-time students live at home (Universities UK, 2018). These students are attracted to distance learning because of its flexibility alongside work and family commitments (Bocchi et al., 2004). In recognition of the increased numbers of students wanting to enrol for distance learning courses, institutions have been compelled to adapt their provision to meet the market demands.

The needs of online students differ from those of students in face-to-face learning environments (Bocchi et al., 2004; Moskal & Dziuban, 2001; Palloff & Pratt, 1999; Robinson & Hullinger, 2008). To be successful in the new climate, universities are required to adapt their teaching provision to meet the needs of those students. Research suggests that the unknown element of the online students' characteristics makes designing appropriate delivery difficult (Mupinga et al., 2006). The online learning environment is typically asynchronous, therefore meaning that tutors cannot easily gauge student understanding of, or engagement with, the materials presented. This differs from face-to-face learning environments, even in large cohorts, where a lecturer can directly and synchronously observe and react to student engagement in tasks and can offer clarifications, recasts, adjust the pace of delivery or provide responses to questions. As Mupinga et al. (2006, p.185) point out, in online learning '…the students' learning characteristics are unknown, making it difficult to design effective instruction.' The moment by moment feedback given in a face-to-face situation, where a lecturer can gauge how much the students are learning, is not available in online learning environments. Therefore it is important to consider others ways of measuring understanding. Johnson (2013) argues the key to online learning is to foster a sense of connection with the students, and suggests the primary way to achieve this is through communication via emails and discussion boards.

Our module

The module, 'Growing and Developing in a Social World', represents 20 credits of an online master's psychology conversion course. The course is a two-year part-time course, with successful students gaining Graduate Basis for Chartered Membership (GBC) with the British Psychological Society (BPS). The majority of students are graduates from other disciplines requiring GBC from the BPS for the next step in their career. A smaller proportion are not seeking a career in psychology; they are primarily motivated by their interest in psychology. As common with most master's level courses, the majority of our students are mature students, returning to study often after many years of working life. Moskal and Dziuban (2001) highlight additional complications of online learning environments, pointing out that the majority of students accessing online learning are not necessarily doing so because the format suits their learning styles, but rather because they are attracted by the convenience, availability, and flexibility of scheduling the classes. Given this, we had to also consider the circumstances within which our students are studying in; busy home lives, limited periods of time to focus on studying and interacting only with an IT interface.

'Growing and Developing in a Social World' is one of two modules that are delivered in the first semester on the course and has a focus on developmental psychology. Student evaluations of the first iteration of the module were very positive. All students engaged with the module, as evidenced by frequent, regular and thoughtful contributions to discussion board tasks, completion of 'quiz of the week', and all students passing the module with an average grade of 65 per cent. However, it was a very small cohort (seven students) and as such was not indicative of typical student numbers. Subsequent years have averaged at around 50 students. We therefore needed to adapt our delivery to ensure continued engagement with the larger cohort. Butler et al. (2014) researched the relationship between community size and resilience, finding that the group size had a negative effect on interaction and attrition rate because the group dynamics for interaction change. Larger online communities tend to have higher attrition rates particularly when the content was perceived as lacking focus. This underlined the need to alter our delivery in response to the increased student numbers. One of our main challenges was to keep the same level of engagement with a larger cohort. This would be a challenge both in terms of the extra time needed for interacting with larger numbers and with adapting our communication style somewhat to accommodate the change in group dynamics. We had an opportunity to update the module to reflect changes in the course structure, but we were very aware that the changes needed to maintain or enhance student engagement. Butler et al. (2014) documented increased attrition rates following an adjustment in cohort size. We therefore decided that the best way to approach this was not in terms of what we wanted students to do, but in terms of what we wanted them to learn.

We applied five key principles: Naturalistic/warm delivery style; Collaborative teaching; Scaffolding; Reducing cognitive load; and Engaging activities to enhance learning in our design.

1. Naturalistic/warm delivery style

We were aware of our presence being remote, and wanted to assure the students that we were approachable. In face-to-face teaching it is very easy to present oneself as warm and approachable, but it can be challenging to adapt an engaging delivery style with online learners. This has been highlighted in research as being key in an online environment (Howland & Moore, 2002; Huber & Lowry, 2003). Fishman et al. (2013) suggests that one strategy to good online teaching is to allow students to hear your unique voice. Although Fishman et al. were specifically referring to the 'voice' in terms of writing style, we extended this to striving for a more naturalistic presentation style. This meant we had to make delivery of all module learning materials as natural as possible to ensure our personalities came through. To achieve this, we made efforts to ensure audio presentations were recorded with a conversational feel, and usually in a single take. Therefore, during recording, we decided to only re-record audio when there were major errors, which preserved small self-corrections, pauses and recasts. Fishman et al. (2013) also suggest using emojis on written communication. We decided against this, wanting to strike a balance between professionalism and approachability. Instead, when responding on discussion boards, we ensured we addressed students by name and shared relevant, non-sensitive, personal stories to illustrate some points.

2. Collaborative teaching

The literature suggests that students respond positively to, and express a preference for, team teaching (Hinton & Downing, 1998, Letterman & Dugan, 2004). Hinton and Downing's study was conducted in a face-to-face college classroom. The strength of Hinton and Downing's study was that it included the views of both undergraduate students and their instructors and found that both students and instructors preferred team teaching. Team teaching is demonstrated to benefit students in terms of their relationship with tutors (Wilson & Martin, 1998) and their academic achievements

(Benjamin, 2000; Johnson et al., 2000). Furthermore, team teaching has been associated with an improvement in retention rates (Johnson et al., 2000). With this in mind, presenting ourselves as a team, and highlighting this to students was very important. We achieved this by recording a welcome video, in which we took a very informal, conversational approach to introducing the module. We posted this on the course site as the first thing students see when accessing the module. We also both contributed to the early discussion boards, emphasising the collaborative approach we have to teaching. In addition to this, we collaborated in a visible way on students' feedback, by adding moderated comments to students work.

3. Scaffolding

Scaffolding describes the teaching process of grading the level of support offered to the learner's needs (Rogoff, 1990; Wood et al., 1976). Instructors assist learners by offering graded levels of support during structured task oriented interactional episodes. As a learner gradually gains proficiency with regard to a particular task, instructors gradually reduce the level of support offered. This interactional process is somewhat challenging to replicate in online teaching. We felt the most useful tool available to us in our asynchronous online learning environments was the discussion board. In addition to clearly signposting students to module and assessment specific discussion threads, we also instigated a weekly 'question of the week'. We adapted Beaudin's (1999) rules of carefully designed questions, rewording the original question if there were issues of understanding and provided discussion summaries. These helped in scaffolding online discussions by using clear focused questions, with additional summaries and/or recasts of the questions to maintain student focus. The first week was very informal, designed to get students used to communicating in online discussions, and simply asked students to choose one book to take to a desert island. There were 103 posts from participants and the non-academic focus of the question seemed to encourage participation. Students attending summer school supported this anecdotally. From the second week on, questions were designed to stimulate thought, with questions such as 'Identify the similarities and differences in these two theories'. Subsequent weeks became progressively less focused and more challenging, to promote deeper thought and allow more debate, with questions such as 'How can parents best promote children's language development?'. Staff contributions changed over the weeks too, with early contributions being very encouraging and supportive, and aimed to reply to every student post over the first three weeks. In later weeks, staff attempted to be a little more challenging, and to add more questions to facilitate debate. Student engagement with the discussion remained high throughout the semester, with approximately 80 per cent of students contributing regularly.

4. Reducing cognitive load

Research has demonstrated that learning is impeded in settings where there are excessive demands on working memory (cognitive load is too high; Leppink, 2017; Mayer & Moreno, 2003; Mayer et al., 2008). Cognitive load in learning occurs when the amount of cognitive processing required for the task exceeds the individual's processing capacity, resulting in reduced learning. The cognitive load for online learners is, to some extent, controlled because they are able to revisit presentations several times. However, online learners can become demoralised if the content material presented is too long and/or difficult. Leppink (2017) suggested three key principles on cognitive load to bear in mind when designing materials. We have incorporated these into our practice. The first focuses on minimising cognitive processing that is not related to the learning. Our interface, designed by learning technologists, is clear and user friendly so that content is quickly and easily accessed. Material is also divided into bite-sized chunks so that the learning process is not impinged upon by other distractions (our students have very busy lives). Secondly, Leppink suggests clear learning goals so that the salience and focus of the content

are clear. These are always made visible and are reiterated online. Finally, the third principle suggests emphasising the link between learning and assessment. This is reinforced by reference to assessment in presentations and use of portfolios that are mapped onto content throughout the module. We aim to ensure that students do not feel overwhelmed in terms of processing. Parcelling information into smaller chunks means that the cognitive load they are thinking about at any one time is minimised.

5. Engaging activities to enhance learning

Retrieval practice has been shown to enhance learning, allowing students to test themselves and check their level of understanding (Roediger & Karpicke, 2006). Each week, students were set short multiple choice quizzes (MCQs) to permit them to check their understanding of the materials. The MCQs were automatically marked, with additional clarifications given when a student gave an incorrect response. This immediate feedback enabled students to verify their understanding and directed them to any areas of the weekly topic they may need to revisit. Students were able to retake the MCQs multiple times, therefore they also worked well in terms of the spacing effect (Rohrer & Pashler, 2007). The spacing effect (sometimes called the 'distributed practice effect'; Cepeda et al., 2006) is the idea that revisiting material after a period of time reduces forgetting. The spacing effect has been described as a 'highly robust phenomenon' (Logan et al., 2012, p.176), and therefore can be used to good effect with online students. Feedback, through formal evaluation and informal comments, suggests students on the module find both the immediate feedback from MCQs and the capacity to revisit the MCQs for revision, reassuring.

Conclusion/final thoughts

The process of redesigning this module reinforced to us the importance of adapting our teaching style and materials specifically to support online learners. The needs of online learners are very different to face-to-face learners, and so what works in each modality may not be the same. The strongest challenge we faced was to adapt our attitudes. Online learners require more conscious nurturing than face-to-face learners, ideally teaching staff should make specific concerted effort to establish and maintain student engagement, and to make student feel 'seen'. We have identified specific areas that we feel should be adapted for online learners. These are adaptation in terms of attitudes (ours and theirs), teaching style and delivery, the provision of materials and perhaps most importantly in the current climate, adaptation to identified market needs. Online provision in the UK is fast growing, as it is worldwide, therefore we must adapt to this if we are to survive. Our online materials are a work in progress and we realise that ascertaining what works is difficult when there are a multitude of other variables to consider. At least if we use psychological research to make informed improvements we are more confident in our choices. We would be interested to hear from other tutors/designers of online content in terms of best practice. Please do get in touch.

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