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The positive impact of educational technologies in a large class context

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Abstract

Large classes usually bring up images of a large group of students with only one lecturer to 'look after them'. The focus is on the challenges and difficulties but the advantages of large classes for both students and lecturers are under-reported. Yes, there are extra difficulties and challenges, but there are also benefits. There is the extra buzz that is generated when students are gathered together, either face-to-face or online, and there is more of a sense of occasion. There can be a feeling of anonymity that can be difficult for some students, but helpful for others. It is useful for students to be able to compare themselves with others – if they can do so anonymously. This paper looks at the benefits educational technologies can bring to large class teaching and learning.

Keywords: *Educational Technologies; large classes; VLE quizzes*

1. Introduction

Large classes usually bring up images of a large group of students with only one lecturer to 'look after them'. The focus is on the challenges and difficulties but the advantages of large classes for both students and lecturers are under-reported. Yes, there are extra difficulties and challenges, but there are also benefits. There is the extra buzz that is generated when students are gathered together, either face-to-face or online, and there is more of a sense of occasion. Farrelly et al. (2018) report on the benefits of Virtual Learning Environments (VLEs) and these are particularly relevant for large classes. This paper looks at the benefits of VLEs and related technologies including sharing resources, online collaborative writing, online webinars, electronic assignments and quizzes in the context of large classes.

2. Educational Technologies

Educational Technology have been used in education for many years. They range from basic use of a Virtual Learning Environment (VLE) to advanced Virtual Reality (VR) environments where the learners can have a realistic immersive experience. There are many different frameworks to analyse and leverage the effectiveness of a particular digital technology in teaching and learning. Davies (2011) proposes a framework that considers awareness, praxis and phronesis (i.e. practical competence and wisdom). Bond et al. (2020) report on the increased engagement of students when digital technologies are used in teaching and learning. This section provides five different ways that technologies that can make a difference.

2.1. Shared Resources

An obvious use of educational technologies is a Virtual Learning Environment (VLE). This allows the lecturer to share files, recordings and links to other online resources with students in an efficient manner. At a very basic level, the use of a VLE avoids the need for physical printed handouts to be provided to students saving valuable lecture time and issues around absent students missing out on the handouts. The students can access the resources anytime, anywhere and on whatever device they have available to them. Providing information for 400 students takes the same amount of time as providing it to 40.

2.2. Online Collaborative Writing

Many large classes are formed by default when students from different disciplines/ cohorts/ programmes take a module in common and this can be a challenge, especially if they have different timetables Online Collaborative Writing (OCW) can overcome some of these problems and give students a chance to learn key 21st century transversal skills and

competencies (Limbu & Markauskaite, 2015). Olson et al. (2017) outline both synchronous and asynchronous online collaborative writing approaches. The use of electronic documents also enables the lecturer to review students' work and provide feedback (Nicol & Macfarlane-Dick, 2006) both during a project as well as at the end of a project and this is something that can be more challenging with a paper-based approach, especially with large classes.

2.3. Online Webinars

In many higher education institutions, there are a limited number of large lecture theatres available. This means that it can be difficult to schedule lectures for mixed cohorts (Vrielink et al., 2017) and may mean that classes are scheduled in not-so-popular slots, or classes have to be split up into different, smaller groups and this raises the issue of ensuring consistency of quality across the different groups. Leaving aside the pivot to online teaching and learning due to the Covid-19 pandemic, the ability to conduct online webinars with a large group of students can be an interesting addition to the teaching cannon. Lecturers and students may be suffering from webinar-fatigue at the moment, but the benefits of webinars, if they are conducted correctly, should not be forgotten. They can be recorded and provide an element of flexibility for students. However, they also offer an alternative way of interacting with students. For example, some students appreciate the ability to ask questions (anonymously) during an online session. They might feel more comfortable in the online environment compared with the challenge of asking the question publically in a large class where the fear of asking a 'silly' question might prevail (Sun & Chen, 2016).

2.4. Electronic Assignments

Aside from the difficulties of designing and setting assignments for a large group of students, even the processes around submission, marking and dissemination of results can be quite challenging. Using a VLE can take away a lot of the pain involved. Students can submit their work electronically and the lecturer can see who has submitted late or not submitted at all. Extensions can be granted to individual students based on their extenuating circumstances. VLEs usually have a rubric associated with each assignment and this can make the marking and dissemination of results a lot easier. This is useful if there is more than one person involved in the marking process as it is easier to check for consistency across assessors. As the marks are already embedded in the system, the process of disseminating the marks is usually very straightforward and may simply involve making the results visible to students.

2.5. Quizzes

Probably one of the best and most enjoyable contributions that educational technologies can bring to the teaching and learning process is quizzes. They can be used for formative assessments in the form of self-tests whereby students can check their understanding of a topic and get immediate feedback and this is beneficial for their learning (Epstein et al., 2002). Quizzes can be used for formative or continuous assessment or even a terminal exam if used correctly (Farrell & Logan, 2019).

Quizzes can also be used in a classroom or lecture setting to check on students' knowledge and also to give students an opportunity to compare their knowledge with that of their peers. A lecturer can ask questions via an online quiz at the start of a lecture to gauge students' prior knowledge of a topic before deciding on what areas to focus on during the lecture. The anonymity around online quizzes can enable students to answer questions more honestly than if they were in a lecture hall. Not many students would feel comfortable putting their hand up in response to the question "Hands up if you are having great difficulty with topic x" in a large group, but may feel more comfortable doing so anonymously online. Online quizzes are particularly useful for large classes where it is difficult for lecturers to ask students questions and more importantly, to get answers and feedback from students. They enable the lecturer to provide immediate feedback to a large group of students in an efficient and effective manner.

3. Discussion and Conclusion

Educational technologies can contribute to making teaching and learning more enjoyable to teach large classes. Farrelly et al. (2018) report that lecturers are generally positive about using VLEs but there are difficulties around their full adoption, particularly time related. Benefits include the lecturer being able to provide educational videos that can be reviewed many times by students rather than having to explain something many times. Students will be happy with the flexibility offered to them by the use of online resources. Tucker and Abbasi (2018) report that students often have mixed views of group work. Students may not enjoy working on group projects, but working on online shared documents can provide a convenient way for students to interact with each other and also offer transparency as to individual contributions to the project. Hornsby (2020) notes that small group work can offer a feedback mechanism for large classes. While some students may not enjoy the 'remote' element of a webinar, some students enjoy them and in some cases, may feel they are closer to the lecturer than in a face-to-face classroom situation. Webinars are usually more challenging for lecturers as it is more difficult to 'read the classroom' and more advance preparation is required to ensure a beneficial session. Many lecturers would agree that setting, marking and disseminating results of assignments are not their favourite part of teaching. While educational technologies will not completely take away the 'pain' of the

assessment process, they can help to make the overall process easier. Finally, online quizzes, both in-class and on the VLE, can make learning more interesting for students. They and the lecturer can enjoy seeing the responses to different quiz questions in class (either face-to-face or online) and be amazed/surprise/amused? at the various answers. Educational Technologies can make a positive difference in the large class teaching context.

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