Curriculum Adaptation in Response to Externally Triggered Events: From Face-to-Face to Online Learning Environments

Abstract

This article discusses the difficulty and promise of curriculum adapting from traditional face-to-face to online learning environments in response to major events that render face-to-face delivery impossible. After a discussion of the rationale, we present two case studies of how curriculum that was delivered face-to-face was adapted and delivered using virtual learning environments and digital platforms, to create an on-line student-cantered learning community. In the online environment, the lecture and seminar discussions successfully capture what would have been expected in the classroom but do not necessarily go beyond the advantages of regular classroom discussions. The findings leads to the derivation of a framework for creating time-limited student-cantered learning community through online learning environments. This article extends our understanding of curriculum adaptation by demonstrating not only how it can be achieved by transitioning from face-to-face to online learning environments, but also how it enables universities to respond to major events that can restrict their capacity to deliver effective classroom learning.

Key Words: Curriculum adaptation, online community, online learning, externally triggered events, emergency response

Introduction

Online learning environments are widely used in higher education institutions to complement, augment and in some instances replace traditional 'face-to-face' teaching (Hollyhead *et al.*, 2012; Whitaker, New, and Ireland, 2016). This article focuses on contexts where online learning environments are used to replace traditional 'face-to-face' teaching. Two rationales underpin this focus. First, externally triggered events that are outside the control of universities but for which universities are required to adapt rapidly in order to ensure continuity in teaching. The outbreak of the COVID-19 pandemic saw universities and businesses world-wide adapting working practices, requiring staff to work from home remotely, in response to lock-down measures by governments during March-May 2020 (Bick, Chang, Wang, and Yu, 2020; Bayham and Fenichel, 2020). Major sporting events such as Olympics Games (Kassens-Noor, 2013), influenza pandemics, natural disasters, school building problems, violence and industrial action (Wong, Shi, Gao, Zheteyeva et al., 2014) can also initiate short-term school closures that require adaptations to teaching. Understanding how adaptation produces desired outcomes (Errichiello and Pianese, 2016) can help inform future practice.

Second, the opportunities and challenges associated with curriculum adaptation due to a change in the learning environment. In contrast with curriculum development, which is about creating entirely new materials, curriculum adaptation is "a purposeful effort to bring existing materials into alignment with new visions by adding to, adapting, or transforming those materials" (Debarger et al., 2017: 67). Adaptations can be done to either curriculum content or execution/delivery of curriculum to enable "dynamic interactions among teachers, learners, subject matter, and settings" (Zhang et al., 2014: 253). Previous studies reveal how classroom discussions can be emulated using electronic bulletin board technology to create an on-line student-centred learning community (Brower, 2003) and where business school students "learn on the move" rather than being physically present in a classroom (Ersoy-Babula and Babula,

2018). There is a research need to clarify not only the pedagogical purposes and processes of adapting the curriculum to online learning (Brower, 2003), but also how adaptation might sustain students' engagement with learning (Zhang et al., 2014) as universities respond to externally triggered events.

From the above background, this article provides two significant contributions to studies in higher education. First, we derive a framework for curriculum adaptation from face-to-face learning to online distance learning environments in response to externally triggered events that make face-to-face learning impractical. The framework depicts how curriculum adaptation can be achieved through recreating a similarly purposeful interaction and a sense for community in a face-to-face environment online. Our empirical evidence is based on two action research case studies (Allen and Simpson, 2019; Mansour, 2015; Wilson, 1986) conducted in two universities in the United Kingdom, respectively. Case Study 1 is a three-week Managing International Trade course that was adapted and delivered online, in response to measures from the government to free up the transport network for use by delegates participating in the 2012 London Olympic Games (Kassens-Noor, 2013). Case Study 2 a two-week Financial Accounting course delivered to students in a partner university in China, in response to COVID-19 lock-down (Bick et al., 2020; Jack and Moules, 2020), which prevented academics from the UK university to travel to teach in China .

Secondly, we contribute to calls from previous research to address the nature and organization of the learning to take advantage of the online context. Compared to face-to-face contexts, learning in an asynchronous online context can be severely impoverished from a communication perspective and both academics and students can have inappropriate conceptions and expectations of how to approach their role in an online environment (Price, Richardson, and Jelfs, 2007; Richardson, 2009). Through a cross-case analysis, we uncover useful practical lessons for academics intending to incorporate purposeful interaction and build

a sense of community in their curriculum adaptation from face-to-face to online learning. There is a recognition that faculty perceptions and attitudes towards online education has not been changing fast enough leading to calls for more practice evidence to inform acceptance (Kumar, Kumar, Palvia, & Verma, 2019). Through a cross-case analysis, we uncover useful practical lessons for academics seeking evidence of how curriculum adaptation can occur in online environments and intending to incorporate purposeful interaction and build a sense of community in their curriculum adaptation from face-to-face to online learning.

Literature Review

Face-to-face versus online learning environments

Modes of teaching range from traditional or conventional face-to-face learning to online learning. There is growing interest in understanding how to deploy online learning with a recent systematic review of online business education suggesting that "online education might overtake traditional education just like ecommerce might soon overtake traditional commerce" (Kumar et al, 2019: 33). For many universities there is a convergence of distance and conventional education, with many adopting a blended or hybrid learning model depending on target objective, the amount of flexibility for learners and resource constraints (Mills and Tait, 2002). In online learning, all teaching is primarily online requiring no face-to-face meetings between student and teachers. Whichever learning model is adopted depends on the level of flexibility that is achievable and deliverable locally with respect to curriculum content, assessment, instructional approach, course delivery, time, learning styles of learners (Thomas, 2012).

Adapting to online learning also include choosing a learning management system (Hollyhead *et al.,* 2012) that allows for similarly subject knowledge and behavioural skills to be learned by students (Ngoasong and O'Neill, 2014). The early experiences of online learning

(1969-1980) revealed opportunities for adapting successful traditional learning model that was based on face-to-face learning for distance online delivery (McIntosh and Woodley, 1980). Since that time, distance education providers have constantly upgraded or replaced their learning management system to keep pace with technology changes and user need. For instance, Hollyhead *et al.,* (2012) illustrates how learning management systems, such as Moodle and Blackboard are widely used in higher education institutions to replace traditional 'face-to-face' teaching, including configuring technical characteristics and complexities.

Several studies have examined the distinctiveness between face-to-face and online learning context both from the perspectives of academics/tutors and students, which can have inappropriate conceptions and expectations that affect the purpose or benefits of adaptations. For example, in both studies of face-to-face versus online tutoring support (Price, Richardson, and Jelfs, 2007), face-to-face versus online tutoring (Richardson, 2009) and the use of Moodle to encourage active learning (Ersoy-Babula and Babula, 2018) inappropriate expectations and misconceptions about the role and approaches of tutors and students are critical considerations when seeking to undertake online learning. These studies suggest that online context can produce less communication among students due to minimal verbal cues when compared to face-to-face contexts. This implies academics should not only be prepared; they should also prepare their students by identifying and clarifying expectations to ensure that students benefit from the online tutoring.

In a study that analysis interview data from 15 university teachers and analysed using thematic analysis, Jensen, Price, and Roxå (2019) discuss how, as academics, teachers perceive digital teaching contexts to be changeable depending on technology development and influences from students and teachers. Their findings also suggest that teachers should base their online learning design on their perception of their students learning needs and adapt teaching activities to online learning allowing students to acquire the equivalent knowledge

and developing the equivalent skills that they could have developed if they were studying in a face-to-face campus-based environment. This is related to arguments that both course-level (e.g. type and subject of course) and student level (academic preparedness and demography) factors as critical in ensuring that students are attracted, engaged and retained for the duration of the course (Wladis, Conway, and Hachey, 2017). These factors are discussed below within the context of the curriculum adaptation literature.

Curriculum adaptation for online learning environments

There is a consensus among educators in higher education that curriculum development should be a dynamic process which allows to reflect the changes in economy, globalization and technology advancement in the course design. Despite this, formal curriculum has been criticised as one size for all which is hardly able to meet the need of diverse student groups. Furthermore, the terms such as learner-centred and inquired-based learning, commonly appeared in the introduction in most course handbooks, but were disconnected with what the course actually offers. This indicates that the core ideas for promoting effective learning have been widely recognised by educators but lacked a strategy to implement and realize them into established curriculums. Such disconnection would discourage active leaning of students and hinder the professional development of the educators in action.

Curriculum adaptation can be generally described as making small changes to existing curriculum. It contracts with curriculum development, which involves the creation of new curriculum from scratch. The term initially emerged and was used to refer to the process of adapting courses to young students or immigrants or low-income students who require special adjustments to effectively learn (Debarger et al., 2017; Wrightstone et al., 1944). Recent studies proposed adapting curriculum to link to students' interests and experiences. In Zhang et, al. (2014)'s research, curriculum adaptation was applied to accommodate the need of students

with intellectual disabilities at special schools. In this project, different learning tasks were assigned to appropriate student groups to match students' intellectual levels to stimulate active learning. The implementation of adaptation consists of five aspects including instructional goal, instructional content, instructional strategies, instructional settings and student behaviour needs. They found that adaptation not only helped students to learn but also gained professional development by the staff. Another focus has been on adapting curriculum by adding or transforming existing materials to promote active learning. Additional learning opportunities should be created for students simultaneously when they possess insights and understandings about the core knowledge (Minstrell and van Zee, 2003). Curriculum adaptation gives educators a voice in the curriculum materials by using elicitation questions and response to students' ideas to promote inquire-oriented learning (Debarger, 2017; Tyack and Cuban, 1995).

Research Method

This research applies an action research approach, defined here as a self-reflection enquiry in which participants "inquire with others into issues of mutual concern" (Allen and Simpson, 2019) in order to agree a framework for improving practice (Mansour, 2015; Wilson, 1986). In university settings, this type of action research is based on academics' self-reflecting while teaching, analysing, synthesising, discussing and sharing knowledge and experiences about their teaching practice (Browe, 2003; Schratz, 1992). This process can often produce research frameworks and outcome that can be replicated in other settings. Though action research methods often include quantitative-oriented feedback from students as research data, these usually lack "subjective realities of human perception" (Schratz, 1992: 90). We have taken an action research approach where the academic, as teachers assume the role of 'experts' and students assume the role of learners, with the academic critically reflecting on their course-

specific facilitation of students' learning (Trott, McMeeking and Weinberg, 2019). Furthermore and as suggested in Mansour (2015: 220) action research enables academics to improve their teaching practices through "a commitment to the idea that people can, and should, reflectively think about their practice and look for ways to contribute to improvement and 'change' within their organisations".

From the above background action research includes, project and its rationale, participation of the faculty in designing and delivering the project and capturing their engagement with students as the main data used in self-reflection for the research. In our case the project is the two case studies of curriculum adaptation from face-to-face to online learning conducted separately by the two co-authors in their respective universities. Yin (2003: 13), defines case study research as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." We use each case study to demonstrate how an academic can transition from face-to-face to online teaching through curriculum adaptation. The main similarity in the two cases is that both illustrate curriculum adaptations in response to a short-term externally-triggered events. However, both offer contrasting features that are relevant for cross-case analysis. Case 1 is based in the UK, while Case 2 is a partnership between a UK and a Chinese University which introduces additional factors in response to flying faculty teaching (e.g. differences in learning styles, time and access to digital platforms) (Smith, 2014). Both authors hold Postgraduate Certificate in Higher Education Professional Practice and qualifying as Senior Fellows of the Higher Education Academy.

Given the externally triggered events the led to the adaptation to online learning, critical analysis in discipline research and research by teaching were undoubtedly an appropriate approach for rapid curriculum adaptation to externally-triggered events. The cases provide incentives to other academics or universities to try something "different" in response to

externally-triggered events. From this perspective, the case studies serve as examples of the potential benefits of how responding to change at short notice can sustain students learning. Finally, through cross-examining the two cases discussed how the patterns or correlations (Allen and Simpson, 2019) reflect extant literature and develop a framework for analysing curriculum adaptation as enabling the transition from face-to-face to online learning. We respond to a change in the learning environment resulting from externally triggered events through curriculum adaptation for successful transition from face-to-face to online learning environment (Errichiello and Pianese, 2016). The two cases are likely to replicate or extend existing theoretical understandings depending on purpose and context (Yin, 2003) and for explicating how the findings provides practical implications for academics seeking to improve their practice (Mansour, 2015) through curriculum adaptation in the face of externally-triggered events.

Curriculum Adaptation for Online Learning Environments

Case Study 1. Managing International Trade

Context of curriculum adaptation

This case study focuses on how an MBA course in Managing International Trade at a business school in the UK, was adapted for online delivery. The rationale for curriculum adaptation is an externally triggered event, specially the 2012 London Olympic Games. For a large city as London, the very peak and high demands associated with hosting the Olympic games led the organizing committee launched a campaign to encourage London-based organizations to allow their employees to work from home for the three-week duration of the Olympic games. Curriculum adaptation for online delivery became inevitable. However, this was challenging for academics because it was short notice, one-off and everything would return to business as usual (face-to-face teaching) at the end of the games. For the university, this was an ideal

opportunity to trial how to adapt existing curriculum for online delivery, something that the university had already been considering as part of their future strategic priorities but to pursue. Several staff briefings and training events were organized for academics to learn and exchange ideas about how to go about adapting their curriculum for online delivery, team-based and one-to-one IT training and support.

Curriculum adaption for online delivery

Course-level, student-level and learning technology factors (Wladis et al., 2017) were important considerations in the adaptation to online learning. In terms of course-level factors, the course was mandatory for all students on the MBA Global Business programme and the focus was political economy of international trade barriers and incentives as opportunities, risks and challenges for international businesses. The 15 credit course had to be completed during a 10 week period, the length of one study term. With respect to student level factors, 76 students took the course. This was an international student class with students from more than ten countries, including from United Kingdom, Europe, Africa and Asia. To prepare students for the sudden transition to online learning two separate small seminars where held, each lasting one hour to explain what they should expect and clarifying any questions that students had. Learning technology factors including considerations of what technologies to use to adapt the curriculum content for online deliver, tutor support and student engagement on a business studies course (e.g. Richardson, 2009).

Table 1 provides a summary of how the three-week curriculum was adapted and delivered online. Through this, the lecturer did not have to meet with students face-to-face for three weeks. As illustrated in the table curriculum adaptation consisted in producing recorded versions of the lectures as voice-over-PowerPoint slides, writing and uploading guidance for use by students in answering seminar-style questions and working in groups to complete their

group activities and posting their output online. To promote inquire-oriented learning through curriculum adaptation (Debarger et al., 2017) the lecturer provided elicitation questions and sample answers during lectures in designated online forum threads and encouraged students to use those as cues to ask further question or provide responses to questions asked by other students and thereby contributing to the online discussions. **[Insert Table 1 here]**

Reflections on the curriculum adaptation experience

At the end of the three weeks period and in align with our action research approach, one hour small group seminars were organised for answering questions that students did not have the opportunity to ask during the online learning and as part of debriefing about their experiences of online learning. As suggested in Schratz (1992) students were asked to answer two questions, namely (i) what is the significant thing you learned online and away from campus? (ii) what question is uppermost in your mind after studying online at a distance? For each question students wrote their answers anonymously on post-it-notes with different colours for significant learning and uppermost question relating to learning technologies, recorded lectures and student engagement (student support and peer-interaction) respectively. The responses were pasted on wall papers and used to facilitate a discussion with the students.

Overall, students enjoyed the flexibility to study from their homes versus having to travel into central London, which has always been a challenge to those international students who had come to study in a large city such as London. They also liked the fact that they had the voice-over-PowerPoint lectures that could listen to at their convenience and as many times as needed, something that was not available in the face-to-face campus context. We also found that the output produced and uploaded in Moodle as part of group activities where of similar quality to those that students would normally and produce for discussion during group activities (see also Richardson, 2009). The main questions that were utmost to students related to adaptations to the length of the lectures and student engagement. The recorded lectures

averaged 15 minutes each though in a physical classroom context lecturers are scheduled to last for one hour. In addition, In a typical lecture, the lecturer often invites students to ask questions and contribute examples from their perspective; such opportunities were not available in the recorded lectures. In contrast, a few students took the initiative to post questions related to the lecture on the weekly forum that had been created, which suggests slower adjustments to the online learning environment.

Case Study 2: Advanced Financial Accounting

Context of Curriculum Adaption

After the Covid-19 outbroke from January 2020 in China, students at all levels including those in higher education were required by the government to study via virtual learning. The sudden demand for online teaching has quickly spread into TNE education. The classroom-based teaching normally conducted by flying faculty staff in China has to be replaced with online teaching from the UK. Therefore, this case focuses on a course delivered virtually to 41 third-year students at a Chinese university during the pandemic in March 2020.

Though many UK-based academics have participated in trainings for adopting new technology in teaching and some have already used lecture video captures as supplementary materials to assist students' learning, not many academic have had the opportunity to provide an entire course online, let alone teaching online in real time. In addition, in traditional online course design, an effective design consists of content design, assessment and facilitation but online courses are normally regarded as not taught and forgotten (Martin, et al., 2019). It indicates that when online courses are just substitutes for classroom-based courses, they are static in nature and educators are assigned a silent role in teaching or engaging students. Therefore, under the traditional concept of online learning, learning can only take place if a learner is self-motivated and willing to learn by themselves. The passive learning style of

Chinese students, however, calls for adaptation in teaching to stimulate effective learning. To allow real-time teaching, this course was rescheduled to 9-12am UK time (5-8pm Chinese time) for a two-week period and remained in a block teaching style.

Curriculum adaptation for online delivery

The curriculum adaptation has two focuses. First, how effectively deliver the curriculum content through suitable online platforms. Second, how to create engagements with students virtually. A combination of WeChat and QQ classroom were identified and utilised for the course delivery and interaction with the students. At the course level, the content of the course did not change from that delivered in the classroom-based learning as it was an established course with clearly defined learning outcomes and assessment. The content is also organised as logically connected "chunks" with end of unit questions for each unit. These materials can be transferred directly to the platform with lecture recordings. To make effective delivery, each lecture has been split and several shorter recordings with a meaningful focus have been made in order to better meet attention span of students.

As for student level factors, there were 41 students enrolled in the course, which is within a 3+1 undergraduate programme through a UK-China universities collaboration. The students are taught by both local lecturers in China and flying faculty from the UK in the first three-year of their study and are expected to join the UK partner university in the fourth year. Since Chinese students are more likely to learn by receiving instead of thinking critically (Zhou et al, 2008), a variety of pedagogies were adapted to help students gradually become familiar with student-centred learning advocated in the UK Higher Education. Adaptations are also made to create interactions with the students to overcome the weaknesses associated with online learning. For instance, making connections with each student to take everyone on board, using small group meetings to promote collaborative learning and using portfolio assessment

to encourage the authenticity of learning. In terms of pedagogy, an approach of making simultaneous decisions has been used to adjust the method during each class to suit the need of individual students, student groups and their learning stage. Adjustments were also made regularly on switching the way of interaction to maintain learners' interests, based on reflections from previous sessions . Table 2 provides a summary of how the two-week course was adapted and delivered online. **[Insert Table 2 here]**

Reflections on the curriculum adaptation experience

In additional to the lecturer's self-reflection, students were asked about their experience of the course in the final session. The students said they enjoyed the online learning experience, moreover, many said they preferred live teaching to watching lecture video in online learning. However, most of them did not like being overloaded with requests for online submissions. Overall, four critical observations emerged. Frist, the provision of lecture videos has the benefit of assisting students' learning regardless of physical location and time, although it does not support receiving immediate feedback from instructor. In contrast, real-time online teaching provides the opportunity for synchronous interactions between instructor and students for immediate student engagement, it may not necessary assist learning of weak students who requires more time to absorb the knowledge. This reflects existing misconceptions of online learning regarded as the determining factor in learning effectiveness (Richardson, 2009). The course design and in particular the pedagogy appears to be most important in the curriculum adaptation in response to externally triggered events such as the COVID-19. Second, because learners are physically separated in online learning and can only communicate virtually, extra efforts were needed to form an affective learning community. Allowing each learner to feel welcomed and as part of a community as against simply letting them show their face on the

screen facilitated engagement. Having video meetings in small groups created a sense of community and was very welcomed by the students.

Third, given all leaners are remotely connected with the instructor on a platform, the instructor should avoid asking questions that can be answered with simply a yes or no, since all students would answer the question to show their attendance irrespective of engagement in learning. However, asking students to explain their answers attracted more engagement. This is related to the teacher taking control over students' learning in online environments to better channel students' behaviour towards their learning. From the beginning of this course, the students were told that their participation during the class would be a component for their final grade on this course. Finally, to help with students' cognitive adaptation, students were required to complete pre-class learning from lecture video and submit pre-class tasks online before each class. The pre-class tasks were designed to cover lower levels of cognitive knowledge and have a formative nature. The responses received from students' submissions were then read and analysed and served as the basis for stimulating deep cognitive learning.

Discussion

This article contributes to studies in higher education by developing a framework depicting how curriculum adaptation from face-to-face to online learning environment can enable academics to respond to externally-triggered events that make it impossible for students to be physically present for classroom teaching. Based on two qualitative case studies from two UK-based universities, we derive a framework for curriculum adaptation targeting the apparent misconceptions that academics and students might have about online versus face-to-face learning environments (Figure 1). The framework identifies the component parts of a curriculum linked to the factors to be considered to ensure that curriculum adaptation delivers the desired students' learning. It also suggest that curriculum adaptation must consider the

potential mismatch or misconception between face-to-face and online learning (Price et al., 2007; Richardson, 2009) as integral to the process of curriculum adaptation, namely purposeful interaction (PI) (Zhou et al. 2008) and the sense of community (SC) (Ashar and Skenes, 1993).

[Insert Figure 1 here]

The framework presented in Figure 1 advances knowledge in two inter-linked areas. First, theoretical knowledge about curriculum adaptation, which has so far either focused on how curriculum can be adapted to account for diverse learning needs of disabled students (Zhang et al., 2014) or curriculum adaptation as a strategy to improve teaching and learning (Debarger et al., 2017). We complement these perspectives by focusing on curriculum adaptation in response to major events that necessitates a change from face-to-face campus-based teaching to an online learning environment. The second area relates to the growing importance of online learning where researchers are being asked to clarify why online learning is important today and how to benefit from the opportunities (Whitaker et al., 2016). Our cross-case analysis reveals two important considerations for pursing online learning, both of which help overcome the misconceptions about transitioning from face-to-face to online learning.

First, an apparent mismatch between culturally diverse students and the curriculum can require curriculum adaptation to emphasise the purposive interaction (Zhou et al. 2008). For instance, international students who come to study in UK for case study 1 and Chinese students who have to study curriculum produced in the UK while remining located in China. It was argued by Cortazzi and Jin (1997) that Chinese students are likely to have different assumptions about student and teacher roles from British students. While Chinese students are having high respect for teachers and learn by receiving than criticizing, British students are expected to participant and engage in critical thinking (Zhou et al., 2008). There is a mismatch in ways of teaching and learning between Chinese students and British students, hence, Chinese students' preparation for the new educational system before their departure, an interactive environment

and tutors' support are essential (Wang, 2012). When viewed through the eyes of a teacher (Jensen et al., 2019) we find that because of the distinctive difference in face-to-face and online contexts, for instance the reality that students remain located within their cultural context and away from the teacher, it is important to provide opportunities for purposeful interactions to help students apply frameworks to the context where they located.

Second, mismatch between online learning and learning community, which requires actions to re-create the sense of community in the face-to-face classroom online in order to improve student engagement (student support and peer-interaction) (Richardson, 2009). Peer interaction among students is a challenge for both asynchronous and synchronous teaching since interactions can only take place virtually in online learning. For case 2, using video conferencing facilitated the building of a sense of community compared to case 1 where lectures were simply recorded and uploaded for students to assimilate at their convenience. Though discussion forums were used to undertake follow-on engagement with students, the extent of tutor-facilitation of the interactions is what will ultimately enhance student engagement (Ersoy-Babula and Babula, 2018). It is also important to monitor students' behaviour by providing clear expectations of formative and summative activities that underpin the learning. Similar to making purposeful interaction, the delivery of knowledge, a step by step instruction should be applied to help with students' cognitive progress. Our proposed framework can be used to design affective, behaviour and cognitive influences to promote higher order learning, including critical thinking, problem solving and being team player. While making small changes to content in curriculum adaptation, educators should equip themselves with as many as possible pedagogies in order to make real-time decision during teaching to adjust to the need of student groups and to the choice of online teaching platforms.

In the online context and with students away from their classrooms and in our cases away from the university campuses, student engagement can be compromised by competing

social media syndrome. These reinforce the misconceptions of studying online. Our cases show that studying online, even for a time limited period, still involves the requirements to keep to a schedule, produce outputs and engage with fellow students. Curriculum adaptation as it is not at all simple about moving a course to an online environment. To make the adaptation work, an educator has to use a reflective and proactive approach to plan, execute and adjust. From our cases, two focuses are the goal for promoting effective learning while moving traditional teaching to online teaching, namely purposeful interaction and sense of community.

Conclusion

Through two action research case studies, this article provides an empirically-derived framework that can enable academics to undertake curriculum adaptation from face-to-face to online environment. It is critical to ensure that students are able to progress in their studies during major events or pandemic, such as COIVD-19 pandemic, irrespective time, location and skills. This paper discusses how academics can address this through curriculum adaptation that use synchronous teaching in addition to asynchronous learning to increasing interactions between instructor-student and student-student remotely. Our cases suggest that for effective student engagement only academics should avoid asking questions that require yes/no answers. it has also been an effective strategy to adapt a few seminar questions as pre-class activities to prepare students before the session. During the in-class session, ask students to elaborate their answer before providing further explanation by the instructor should be adopted. We believe that curriculum adaptation should not be understood as making it easier or reducing the level of knowledge for student but to make small changes to skilfully build up students' understanding. This can be achieved by a three-step principle through pre-class, in-class and post-class activities.

A university's pandemic planning and preparedness is also important for creating a conducive environment for academics seeking to undertake curriculum adaptation from face-to-face to online learning in response to externally-triggered events. Typical measures should include (i) preparedness guidance for use by academics to respond to major events through contingency plans. (ii) training opportunities and ongoing information and technology support and creating an environment for sharing practices to learn from those who have been applying digital platform strategies in their teaching. The lessons may be useful in informing policies for addressing the challenging opportunities for business education in the digital economy.

This article has some limitations that open up possibilities for further research. First, our research is exploratory in nature and requires further work that draws on a larger sample size to validate our emergent framework (figure 1), through quantitative and qualitative research with academics who are conducting curriculum adaptations in their universities (Jensen et al., 2019). Second, the perceptions of students about their learning experiences before and after the curriculum adaptation exercise require more in-depth research. This is important for understanding the impact of the misconceptions about online learning that can affect both the preparedness of academics and students (Richardson, 2009), which are important considerations in curriculum adaptation. In addition, given that assessment was not part of the curriculum adaptation in both cases, we did not measure whether the curriculum adaptation has improved students' academic performance. Future research should examine the impact on student performance, through a combination of students self-assessment questionnaires, interviews and performances in formal assessments. Finally, since both cases were triggered by external events, further comparative studies can help improve knowledge of the impact of curriculum adaptation on students' academic learning (e.g. Ersoy-Babula and Babula, 2018) and academic performance with traditional teaching methods.

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Figure 1. Curriculum adaptation from face-to-face to online learning environments

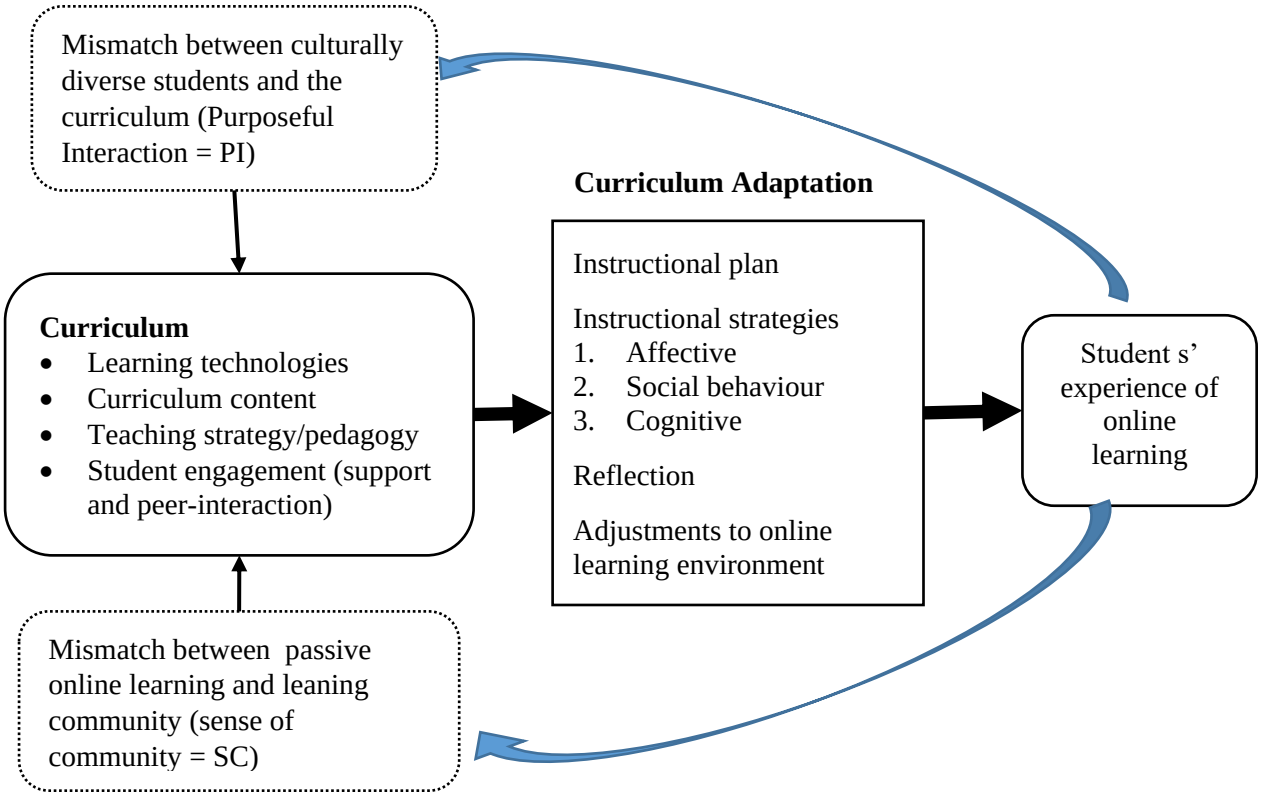

Table 1. Curriculum adapting for online learning in case study 1

Adapt what?	***Existing face-to-face Learning***	***Adapt and deliver online learning***
Learning technology	• Teaching materials including lecture slides and activities for seminars uploaded to Moodle • Classroom facilities (e.g. projection systems for lectures and presentations	• Voice-over-PowerPoint slides uploaded to Moodle • Three online group forums in Moodle, each dedicated to discussion of study activities for the three weeks online teaching
Curriculum content	• Lecture slides (power-point) • Preparatory study activities for seminars and workshops uploaded to the Moodle	• Convert PowerPoint slides into audio slideshows (Voice over PowerPoint) without changing the curriculum content • Everything else stays the same in the Moodle platform
Teaching strategy or pedagogy	• 1-hour large group lecture • 1-hour seminar: Read text, attend small class seminars, ask questions and receive answers • 2-hour group workshop: Work in small groups to analyse case study, present results, receive feedback from peers and tutor	• Students listen to Voice over PowerPoint, make notes and ask any questions online under designated forum threads • Discussion Forum: Post your answers to seminar questions and join the discussion • Each group write up and upload their case study results on the VLE, receive feedback
Supporting Students	• Answer student queries in class • One office hour per week and reply to student emails • Direct feedback to students during weekly seminars and group workshops	• Respond to questions posted in discussion forum • Reply to student emails as office hour no longer feasible • Written feedback on group-specific presentations and generic feedback shared with whole class in Moodle forums
Peer interaction	• Question and answer sessions at hour-long weekly seminars • Group presentations and discussions during two-hours weekly in-class workshops	• Online discussion forum • Students use skype and phone calls to complete group task, write-up results in MS Word or Power-Point and upload online or email to Tutor for feedback

Table 2. Curriculum adapting for online learning in study 2

Adapt what?	***Face-to-face Learning***	***Adapt and deliver online learning***
Technology	• Teaching materials (e.g. lecture slides and seminar activities uploaded to Moodle) • Classroom facilities (e.g. projection systems)	• Identify suitable platforms for online teaching (QQ classroom, WeChat) • Upload materials including video recordings of lectures, slides and seminar questions to identified platform (QQ classroom, WeChat)
Curriculum content	• Lecture slides (power-point) • Exercises, questions and activities for seminars	• Split each lecture into several short videos, each has a meaningful focus • Release teaching materials daily unit by unit onto the platform • Release seminar questions one day prior to interaction sections
Teaching strategy / pedagogy	• 3-hour lecture • 1-hour seminar	• Students watch video captured lectures before each class and complete pre-assigned tasks • Students submit their work online before each interaction session • 2- hour live interactive teaching on the identified platform to deliver knowledge, respond to questions and facilitate discussions
Student support	• Answer student queries during in-class lecturers and seminars • 1-2-1 ad-hoc office hour support and reply to student emails	• Respond to questions synchronously by audio and text • Additional video/voice messages to explain concepts that students struggle to understand • Direct question to students to create connection and meaningful engagement • Assign questions or activities to groups to avoid sessions to be hijacked by a few highly engaging students
Peer-interaction	• Peer and group discussions during in-class seminars • Tasks and activities are assigned to groups	• Create synchronous group discussions to improve student interaction and collaborative learning • Tasks are required to be completed and submitted in groups