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Calm amidst the Storm: Reflections and Predictions for Higher Education

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Abstract

Purpose – The COVID-19 pandemic has caused enormous pain and suffering, with the impact on health and daily life having been catastrophic. Industry and professions have been severely impacted, with many seeing widespread redundancy and closures. Although there have been silver linings — in the shape of resilience and adaptations, for example — the disruptions from COVID-19 have mostly been negative. Higher Education (HE) is no exception, with many HE professionals losing their jobs, and others enduring stress and hardship to adapt to the emergency delivery styles of online teaching and learning (T&L). Individuals (and their institutions), under enormous stress, have had to quickly reevaluate their skills and strengths, addressing immediate and future challenges. This paper, drawing from over twenty years of HE experience, offers reflections on pre-pandemic approaches to HE practice, and predictions and analyses of post-pandemic HE life.

Design/methodology/approach – The paper is structured around reflections on various aspects of life for an academic professional, before and during the COVID-19 lockdown. Reflective practice, guided by authoethnography, and critical analyses of relevant literature form the main methodologies. The paper also includes (and addresses) informal and focus-group discussions surrounding the pandemic-related HE disruptions.

Findings – In the face of increasing uncertainty, with so much stress at the individual, the institution, and even the sector levels, it is easy to understand the pervasive pessimism reported throughout HE. However, although COVID-19 has changed HE, many of these changes had actually been predicted, and even advocated for, before the epidemic. The COVID-19 online and blended T&L, microlearning, expanded use of OER, and many other innovations can be seen not only as emergency teaching strategies, but as opportunities to evolve HE practice and professionalism. This paper highlights opportunities and other potential positive outcomes from the current COVID-19 challenges.

Originality/value/implications – While many countries are still in lockdown, some (including China, the context for the author) are emerging and acclimating to the "new normal." Many of the disruptions caused by COVID-19 may actually have simply been expedited evolutions that many had anticipated, and even advocated for. In addition to continuing reflective practice, and *Kaizen*-like (re)-evaluations, there are several clear opportunities now that HE educators and administrators should seize. In spite of the currently-abounding stress and pessimism, there is reason for hope and optimism about HE's future.

Keywords: COVID-19, Microlearning, Mixed Reality, New Normal, Open Education Resources (OER), Professional Development.

1 Introduction

The recent world-wide lockdown in reaction to the COVID- 19 pandemic [1], [2], [3] has caused enormous disruption and suffering. Industry and professions have been severely impacted, and we have seen redundancies and closures in many sectors. Although there have been silver linings [4] — in the shape of resilience and adaptations, for example — the disruptions from COVID-19 have mostly been negative. Higher Education (HE) has not been spared, with many HE professionals losing their jobs, and others enduring stress and hardship to adapt to the emergency delivery styles of online teaching and learning (T&L). Individuals (and their institutions), under enormous stress, have had to quickly reevaluate their skills and strengths, addressing immediate and future challenges. This paper, drawing from over twenty years of HE experience, offers reflections on pre-pandemic approaches to HE practice, and predictions and analyses of post-pandemic HE life.

The paper is structured around reflections on various aspects of life for an academic professional, before and during the COVID-19 lockdown. These reflections are guided by reflective practice [5] and by the tradition of authoethnography [6], [7], [8]. They are also informed partly through critical analyses of relevant literature. The paper also includes (and addresses) informal and focus-group discussions surrounding the pandemic-related HE disruptions. A somewhat informal tone has been adopted throughout the paper, partly due to the methodological approaches employed, but mostly due to the subject nature of the paper and its intended (optimistic) message.

2 Background

2.1 Sino-foreign Higher Education

Xie et al. [9] have defined PRC HE as education conducted on the basis of completion of senior middle-school, and have described many PRC HE reforms as including projects to enhance PRC HE provision quality, including: Project 985, Project 211, and the C9 League [10], [11], [12], [13].

The PRC has also significantly opened up HE to foreign input, to also address both quality and quantity of HE provision. This has included Sino-foreign HEIs (SfHEIs), which are institutions created through partnerships between a Chinese and a foreign institution. In 2004, The University of Nottingham, in collaboration with the Wan Li Education Group, established the first SfHEI, University of Nottingham Ningbo China (UNNC). By 2019, according to Ma et al. [14], there were nine SfHEIs in operation, most of which involved a 985 or 211 project university as the Chinese host.

SfHEIs represented an innovative solution to the need to provide more HE opportunities, and, as well as thus being innovations, they are also often themselves hosts to innovative projects [15].

2.2 The author

I am an associate professor, currently serving as the Deputy Head of School for Computer Science (CS) at UNNC. I was also, previously, the Director of Teaching and Learning for CS. My background, previously described as something of an “academic

mongrel" [16] includes qualifications in CS, linguistics, and education; industrial CS experience in several countries; teaching experience in kindergarten, primary, secondary, and postgraduate levels; and a number of administration and leadership roles in two SfHEIs.

When the COVID-19 situation first started developing in the PRC, around and shortly after December 2019, I was in China, but, through good luck, found myself in Europe for January and February of 2020. This was, it seems, when the initial disruptions in the PRC were escalating, but the rest of the world was not yet so impacted. I left Europe and arrived back at UNNC at the start of March, again, through good fortune, seeming to avoid the later COVID-19 problems in Europe, and getting into UNNC before the main lockdowns and severe international travel restrictions began. The PRC academic calendar is such that the Spring Semester usually begins after the Chinese New Year, and in 2020, this would have been late February [17].

Since my arrival back in March 2020, the UNNC semester start was postponed by several weeks, then delivered in an emergency online mode. This later switched to a blended form when, towards the end of the semester, some staff and students were able to return to campus for (partial) resumption of in-person T&L [18]. It is now over a year since then, and UNNC T&L appears to be mostly back to normal, with some differences and additional provisions for students (mostly international) who have not been able to return to campus.

Over the course of the past year and a half, since around the start of the COVID-19 pandemic, I have been part of, and have seen, many innovations and actions to address the impacts of the pandemic. In spite of the understandable stress and pessimism, there is reason for hope and optimism about HE's future. I offer, in the following, some thoughts and reflections on this.

3 Reflections and Predictions

3.1 Designing and Planning Learning Activities

A "failure" may not be an obvious starting point for inspiring/innovative teaching, but for me it was critical.

Before joining UNNC, I had had experience designing and delivering many different study programmes, I was confident in my abilities, and eager to attempt to enhance the student T&L experience — by increasing student interaction through a flipped classroom [19], [20]. I planned an elaborate, semester-long plan that involved experiential learning [21], [22] and other unusual activities [23], with an aim of freeing up class time for more advanced activities [24].

The plan did not work [25], and its failure had a very demotivating impact on me. Fortunately, I was able to reflect on the experience and get advice and suggestions from both colleagues and students. I learned from this experience something that now guides all of my approaches to teaching: we should not assume that we know the best T&L strategies for students. I believe that we should involve them in planning, at all levels, as partners [26].

The switch to emergency online T&L, and later to blended delivery for both on-campus, in-person students and off-campus, online students, saw a large number of attempts to use new technologies, techniques, and tools [17] [18]. Much of this was

untested, and resulted in additional complications and difficulties [4]. The users, including teachers and administrators, but also students, often had little to no prior training for these new modalities. Nevertheless, we tried, and we moved forward. Some amount of "failure" must be expected. But we must not become demotivated. We should reflect on what did work, why some things did not work, and what can be done to improve or enhance the situation. We should engage all the stakeholders, especially our students, to identify what is most likely to be most effective, and most appreciated. At UNNC, for example, we have seen some success with adopting microlearning [27], [28], [29], which involves providing learning opportunities to students in much smaller, bite-sized chunks. We have also seen T&L artefacts and provisions for off-campus students being adopted and embraced by students who are on-campus, including online office hours.

The pandemic has caused a lot of difficulty, but we have learned many things, and developed new skills and preferences. It will be essential that we leverage these skills and knowledge as we plan our future learning activities. Our students' experiences and opinion will need to be included in our decisions about the design and planning for these activities.

3.2 Assessing and Giving Feedback

One of my main areas of practice and research, software engineering (SE) was, arguably, founded in the 1960s [30], as a call to apply the perceived rigour and methodologies of traditional engineering processes to the software development approaches then in fashion (which were, at best, *ad hoc* [31]). Thirty years later, the introduction of the now most widely-used approaches to software development, so-called Agile approaches [32], caused a fundamental change in how SE was perceived: Agile emphasized and embraced the critical role of feedback and iteration. Unlike the original metaphor underlying traditional SE, of being like a manufacturing process, the new metaphor became about "prototyping" — expecting that the product will need input and feedback from multiple stakeholders, iteration, and refinement. Figure 1 outlines a typical Agile approach to development.

When I first entered HE, SE education, unlike the industrial reality, did not seem to have many opportunities for students to receive formative feedback [34], and to iterate. Delivery and assessments seemed much more focused on the summative rather than formative roles [35]. Nevertheless, with the relatively small class sizes typical of 20-30 years ago, individual, personalised (*ad hoc*) feedback to students was possible. However, with the recent rapid increases in CS/SE popularity, we have been seeing much larger cohorts of students, with class sizes, and the associated workload, growing substantially [36]. This situation, even before COVID-19, had put great strain on CS T&L resources, in many cases rendering the individualised, personalised *ad hoc* feedback impossible.

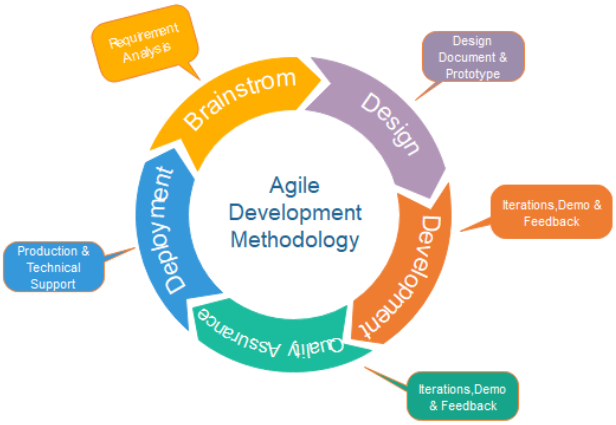

Fig. 1. Outline of Agile Software Development Methodology (from [33]).

In contrast to HE, some levels of teaching (for example, English and performance drama, from kindergarten to secondary schools) have much more explicit encouragement of students' confidence, though positive feedback. In a writing resources centre (WRC) at a different SfHEI, we included a process for student essay writing that required the student to have a peer (classmate) review the essay and give feedback; this reviewed essay would lead to a revision which could go to the WRC where native English teaching assistants (TAs) could give further advice and feedback; this WRC feedback led to a final iteration of the essay which, with the earlier iterations and earlier feedback attached, would be submitted to the course instructor. We found the quality of submissions to the WRC and to the course instructor improved dramatically, but we also found that the students themselves became more engaged in both the writing and peer reviewing process. A problem, however, was how subjective some of the feedback often was, especially from the peers. We later introduced a rubric system [37] that helped standardise the topics addressed in feedback, which also proved very popular with both the reviewers and the reviewed students. Overall, some key take-aways from this were: (1) peer and TA review were very effective at improving the essay quality [38]; (2) peer reviewing had a positive impact on the reviewer as well as on the reviewed student; (3) rubrics help enormously; and (4) associating marks (even very few) with the process seemed to communicate an importance that also had a positive impact on the process.

I have tried to draw from some of these experiences when designing assessment and feedback mechanisms for UNNC CS, and especially during our emergency and blended delivery over the past couple of years. Even before the COVID-19 pandemic, I had been exploring sustainable feedback mechanisms, especially for large cohorts [39].

Many aspects of CS assessment may naturally lend themselves to objective, standardized marking. Several years ago, when teaching an introductory programming class on Java, we used an automated grading and feedback mechanism. This alleviated a huge proportion of the marking workload, and also had a number of other advantages. We were able to completely standardise the marking for all submissions, across campuses, but we were also able to offer a scaled-down part of the automated marking

to students so that they could get feedback on their work, make corrections, and iterate before their final submission. This functionality was very well received by the students, and led me to further explore its potential as a tool for flipping programming classes, and for supporting autonomous learners who may like to explore the quality of their own coding, independent of the coursework [40]. Another, similar project that has seen success with automated marking and feedback was deployed last semester for a databases class [41].

Moving forward, post-pandemic T&L will certainly require us to explore new tools and techniques, and to involve multiple stakeholders giving feedback. We will need to iterate, and improve, and learn. The feedback needed for better T&L should remind us of how important feedback is to our students. Although an ability to provide feedback at scale, such as through automation, will be increasingly important, the personalized feedback that may still be possible, and that seems so welcomed by students, is something that we must explore supporting further.

4 Conclusion

The COVID-19 pandemic has impacted enormously on life around the world. In addition to the immediate suffering caused by the disease itself, the subsequent lockdowns and other measures have also come at a cost. Higher education, like many other industries and sectors, has been impacted. Many individuals and institutions have faced significant challenges, including redundancy and closure.

The recent development and deployment of vaccines has begun to offer hope of an end to the pandemic, but lockdowns and other restrictions remain in place. Teaching and learning has had to shift to an emergency delivery mode, often online, or blended. Some places, such as the People's Republic of China, appear to have resumed mostly normal teaching. Even when more places resume face-to-face engagement, it is likely that we will continue to experience challenges. Many of the things that happened in response to the pandemic may actually have resulted in positive outcomes, and these positive things need to examined closely and built upon. Many of the skills we used before the pandemic have helped us during it, and may be the basis upon which to develop our practice, and support our students, in the post-pandemic world.

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