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Editorial 4(2): Black swan or grey rhino? Reflections on the macro-environment of higher education during the pandemic

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Introduction

2021 was yet another hapless year dominated by the pandemic. Early on, the pandemic had morphed into what may be best described as a polycrisis (a convergence of multiple intersecting, simultaneously-occurring crises: Tooze, 2021): not just a health crisis, but also economic, social, political and educational crises; a “crisis like no other” (IMF, 2020), or “the real first world war” in the words of Ecuador’s ex-president Lenín Moreno (cited in Tooze, 2021, p. 8). Covid-19 may also be described as the first major crisis of the Anthropocene (an era defined by the fallout from our unbalanced relationship with nature), and the next crisis may just be around the corner. As we live in an age where we are constantly bombarded with data (organised into information, misinformation, and disinformation), we found ourselves wondering what, from a big picture perspective, has been happening globally as a result of the pandemic-induced polycrisis, and use this editorial as an opportunity to take stock of the fast-changing macroenvironment of higher education.

The pandemic has witnessed JALT publications since April 2020. A JALT article by Crawford et al. (2020) was at the vanguard of global academic journal publishing on higher education and the pandemic and has delighted us by garnering averagely around two citations per day, recently hitting in excess of 1,000 Google Scholar citations. This pioneering article that provided an early snapshot of 20 countries across all six World Health Organization (WHO) regions has been followed by many other JALT articles on the unfortunate topic, amongst them: Kefalaki & Karanicolas (2020) on countering fake news on COVID-19 with education; Sutton & Jorge (2020) discussing the potential for radical change in higher education as a consequence of the pandemic; Butler-Henderson et al. (2020, 2021) providing a COVID-19 in Higher Education Literature Database (CHELD) that systematically reviewed academic journal articles in 2020 across two instalments; and Hawley and 19 co-authors (2021) discussing COVID-related concerns of

college students in three continents. In addition, we had country-specific articles on Mozambique (Martins et al., 2021), Singapore (Rai, 2020; Grafton et al., 2021), Sri Lanka (Maddumapatabandi & Gamage, 2020), the UAE (Alterri et al., 2020), the UK (Mulrooney & Kelly, 2020), and the U.S. (Mshigeni et al., 2021).

We also discussed the pandemic in previous JALT editorials. After apparently having been eerily prescient in discussing Nassim Taleb’s (2005) black swan concept in the December 2019 editorial (Rudolph & Yeo, 2019) – more about this shortly – we felt compelled to discuss the pandemic in all subsequent editorials. While rereading these editorials, we rediscovered many important themes that also remind us that higher education does not exist in a vacuum: growing inequality within and between countries (Rudolph, 2020; Rudolph & Tan, 2021); and the dismal performance of populist leaders during the pandemic (Rudolph, 2020; see also Rudolph, Ching, et al., 2021). There were also increased academic productivity (Rudolph, 2020), surreal conference experiences (Rudolph & Tan, 2020), emotional responses and mental health concerns (our own emotional roller coaster vacillated between angst, numbness, hope and euphoria: Rudolph & Tan, 2020, 2021).

In this editorial, we take up some of these red threads and specifically wonder about some of the big numbers (fatalities, unemployment, and disrupted education), the uneven impact of the polycrises on gender, class (and race) and nations, whether this was a black swan or a grey rhino event, and the hope for endemicity. We then use these macro-environmental meditations to come up with some recommendations for learning & teaching practices in higher education, before we introduce the latest issue of JALT. There is a growing number of books on the pandemic (e.g. Zakaria, 2020; Micklethwait & Wooldridge, 2020; Tooze, 2021), and we found Adam Tooze’s brilliant account in *Shutdown. How Covid shook the world’s economy* of a particularly high value. The paragraphs below are necessarily snapshot-like

musings and, for more major efforts, we refer you to the above-mentioned literature and our references.

The Economist (2021a) recently estimated that Covid-19 has thus far killed 17.3 million people. With fatality statistics being chronically unreliable in numerous countries, 17.3 million is a much higher number than the ones found elsewhere (it is based on excess mortality). Such numbers, though indubitably frightening, are highly abstract and do not even begin to tell the story of the innumerable and often untold sufferings around the world. We could add that over three billion adults were furloughed or struggled to work from home during the first half of 2020; 100 million people worldwide were thrown into abject poverty in 2020; and 1.5 billion young people had their education interrupted (Tooze, 2021). Covid-19 also came with other undesirable superlatives: the pandemic may be the starkest example of globalisation yet – not only did the virus spread rapidly around the globe, most global economies also contracted simultaneously (Tooze, 2021). Economies suffered spectacular shocks, with for instance the UK economy suffering the worst recession in 300 years (Chan, 2020). From an environmental perspective, no thanks to the explosion in the use of face masks, plastic gloves and visors, Covid-19 has led to a “pandemic of plastic pollution” whose effect will linger in global landfills and oceans (*The Economist*, 2020). Things could have been even worse if global central banks had not provided an unprecedented \$14 trillion worth of support by the end of 2020 (Tooze, 2021). Another unparalleled superlative was that there had never been a vaccine for any coronavirus and yet vaccines were simultaneously developed, tested, and manufactured and then deployed faster than ever before (Tooze, 2021).

In addition to pondering over these macro-events and the gigantic numbers associated with them, we can only get a fuller picture of these nightmarish times when remembering the horrible images from Wuhan, Bergamo (Italy), Queens (New York City), and the Ecuadorian city of Guayaquil. In an era of short attention spans, we may have forgotten the horrors of triage, and the images of exhausted nurses, overflowing morgues, and corpses laid out in body bags and makeshift coffins in the street.

The coronavirus had also very different impacts depending on one’s gender, class (and race), and country of abode. The coronavirus recession was gendered in its impact and has hence been called a ‘Shecession’ (Gupta, 2020). For instance, in both Europe and the U.S., “women workers in the bottom quintile of the income distribution suffered the largest loss of employment” (Tooze, 2021, p. 101). In addition, hundreds of millions of working families had their childcare arrangements disrupted, and the additional burden of care was shouldered overwhelmingly by women (Tooze, 2021).

Pandemics expose the gulf between the have-nots and haves and a pandemic’s economic burden falls most heavily on the poor (*The Economist*, 2021b). The unparalleled scale of government interventions (with central banks spending US\$14 trillion globally by the end of 2020) was a somewhat paradoxical revolution. It was deeply ironic that conservative administrations in numerous countries took radical measures long demanded by leftist politicians. Bullough observed:

“But they were doing so not to build a new society, but to preserve the old one... For progressives, this is depressing. The state can still use its powers to do huge things but it can apparently only use them in the service of the powerful and the wealthy. As soon as their crisis is over, those powers will be put back in their box” (Bullough, 2021).

Whilst it was, for instance, innovative to issue generous cheques to help badly-off U.S. citizens, the purpose of the entire spending package was explicitly conservative. And the result of the trillion-dollar spendings of central banks around the world was a supercharged rebound of the financial market, “handing literally trillions of dollars to the better-off members of American society” (Tooze, cited in Beauchamp, 2021). In fact, stock markets began to rally as early as late March 2020. Whenever central banks cut interest rates in response to a stock market crash, they elevate asset markets. As Tooze writes about this effect in 2020: “The affluent 10% in advanced societies who hold the most financial wealth received a stimulus that dwarfed anything openly declared in the public accounts” (Tooze, 2021, p.150). On the other end of the socio-economic spectrum, Tooze (2021, pp. 229-230) reported for the U.S. “an epidemic of shoplifting for food” and that, in November 2020, “a quarter of out-of-work Americans with children at home had not had enough to eat”, and “a fifth of the Black population reported going hungry”.

If such a gulf between the haves and have-nots can be described for what is often referred to as the world’s most prosperous country, one justifiably fears for poor countries. Once the coronavirus becomes endemic in rich countries, there is the danger that they will lose interest in it and the “disease it causes risks becoming a poor-country killer”, like so many other diseases (*The Economist*, 2021c). Poorer countries tend to have lower vaccination rates, and consequently, a “disparity of outcomes between rich and poor countries will emerge” (Loder, 2021).

Reverting to our earlier comments on the coronavirus pandemic having been a black swan event, we have reason to cast some doubt on the suitability of that metaphor upon further reflection. Whilst a black swan event refers to an unforeseen and unlikely occurrence that typically has extreme consequences (Taleb, 2005), the complement to a black swan event is a charging grey rhino – a highly obvious yet underestimated or even ignored threat (Wucker, 2016). A black swan event gives us the excuse that ‘nobody could have seen it coming’ (as it is something that we didn’t know that we didn’t know), whilst a grey rhino problem implies that many people warned about an obvious danger that was unfortunately ignored (we knew that we knew about the danger).

In Adam Tooze’s analysis, the pandemic was “blitzkrieg Anthropocene: problems coming at us in a matter of hours, days, weeks” (cited in Beauchamps, 2021). The million-dollar question is whether or not we could have foreseen another pandemic coming from East Asia, a “region of dense interaction between wildlife, agriculture, and urban populations” (Tooze, 2021, p. 5). Generally, our modern way of life – our “use of land across the globe, relentless

incursions into the remaining wilderness, the industrial farming of pigs and chickens, our giant conurbations, the extraordinary global mobility of the jet age, the profligate, commercially motivated use of antibiotics, the irresponsible circulation of fake news about vaccines" (Tooze, 2021, p. 31) – brings about new disease threats. After SARS (2003), the avian flu (2005), and the swine flu (2008-9), a "consensus was emerging among virologists that the lottery wheel of zoonotic mutation was being spun at ever closer intervals" (Tooze, 2021, p. 46). In 2020, further shocks of the Anthropocene also did not arrive in a neat sequence: there was the strongest ever cyclone, and there were gigantic typhoons, flash floods, hurricanes, Antarctica's glaciers breaking apart, Siberia's permafrost thawing, a succession of horrifying wildfires, and the list goes on (Tooze, 2021). In Tooze's evaluation, "the coronavirus cruelly exposed the deep incapacity of most modern societies to cope with the kinds of challenges that the era of the Anthropocene will throw up with ever-greater force" (Tooze, 2021, p. 292).

Not reacting to a two-ton rhinoceros that comes charging at us is apparently the worst thing we can do. Instead, we need to engage more thoroughly with reality, recognising threats and our own biases, and work to overcome them (Wucker, 2016). Whatever animal metaphor one may prefer – black swan, grey rhino, 'the elephant in the room', or an ostrich sticking its head in the sand – Tooze regards our failure to build adequate defences against global pandemics as a gargantuan "market failure", comparable only to "the failure to attach a price to the costs of CO₂ emissions" (Tooze, 2021, p. 34). Not only was the lack of preparedness deplorable, but the consequences of ineffective responses were also exceptionally high death tolls (Lindhout & Reniers, 2020).

Viruses very rarely get eradicated (the only laudable exception appears to be smallpox), so it is more realistic to consider when the pandemic will become endemic. At present, half of the global population has some kind of immunity (being either at least partially vaccinated or having been infected with Covid-19), but most countries are still a long way off from endemicity (*The Economist*, 2021a). The coronavirus will thus remain a formidable foe in 2022. Mutation is a clear and present danger, with the Omicron variant having emerged at the time of writing.

Coronavirus vaccines appear to come close to a magic bullet that usually does not exist. Guest (2021) has argued that "the smartest thing any government can do in 2022 is to roll out vaccines". While not all vaccines are equally effective, it would appear that "all of them are far better than being infected", and with 25 billion doses projected to have been produced by June 2022, it is hoped that global supply will be less constrained (*The Economist*, 2021c). Insisting on vaccine passports may change the minds of anti-vaxxers.

At the risk of sounding platitudinous, it would appear to us that in these times of polycrisis, education has never been more important. In a forthcoming article (Rudolph, Itangata, et al., 2021), we have made some recommendations as to how higher education should respond to the pandemic that can be summarised in four points.

1. There is a predominant fallacy to look at technology as a panacea. However, technology must not be isolated from sound pedagogical practices, such as the constructive alignment of learning objectives, teaching and learning and assessments (Biggs et al., 2019), student engagement for critical thinking (Brookfield et al., 2019) and the enhancement of metacognitive competences. Whilst it is obviously apt to employ technology in the classroom to increase student engagement, we would like to emphasise with Stephen Brookfield (2015) that credibility and authenticity remain of supreme importance.
2. Higher education institutions need to have the basic ICT infrastructure for online learning and provide access to applications and learning platforms to their staff and students (Ali, 2020). These main stakeholders of higher education require continuous online training that emphasises basic and advanced functions of online learning platforms, student response systems and other educational technologies.
3. Multi-perspectivity on learning and teaching in higher education is encouraged. Rather than evaluating teaching and learning success only through student evaluations, it is more meaningful to view them through four lenses: students, peers, experience and theory (Brookfield, 2017).
4. Although there has been some resistance from accreditation bodies and there have been online proctored exams, COVID-19 has led to a reduction of examinations and a trend towards more open-book exams (Rudolph, Tan, et al., 2021). A reduction in closed-book exams is perhaps one of the few positive developments that the pandemic has brought about, leading potentially to more authentic assessments, more real-world examples and advice, and more industry partnerships as well as co-curricular employability training.

We thus recommend to keep adhering to established principles and practices that served higher education institutions well pre-pandemic and that continue to provide foundational underpinnings. In higher education, there have been many artificial separations between stakeholders – those between students and lecturers and between lecturers and non-teaching staff (and full-time faculty and casualised adjuncts). With the nature of the pedagogical relationship having shifted towards commercialism, a near-derogatory narrative towards students has evolved in some of the literature (see the interview with Peter Fleming in this issue). However, in order to improve the learning and teaching experiences, all stakeholders need to work together. Good practices include student-staff partnerships that may involve students' active learning, subject-based research and inquiry, scholarship of teaching and learning; and curriculum design and pedagogic consultancy (Harrington et al., 2014; Rudolph, Itangata, et al., 2021).

It is now our pleasure to introduce our latest issue of JALT. It contains the usual mix of research articles, interviews, EdTech and brief articles as well as book reviews, Anne Palmer's "Investigating staff views on plagiarism in transnational higher education" kicks off the research article section. Palmer investigated perceptions on plagiarism of teaching staff at four Australian universities through surveys and interviews. Her findings indicate that staff training on plagiarism has room for improvement. It is crucial to have interaction between unit coordinators, tutors and students to ensure and sustain academic integrity within transnational higher education.

Next, we have Willmann Liang's article, entitled "Customised study companion improves student exam performance: a retrospective study in an undergraduate medicine course". Liang analyses the relationship between the use of a customised learning tool and medical students' exam performance and he also incorporates student feedback on the tool. The customised "Study Companion" integrates key analgesic pharmacology contents from several major textbooks. The findings show that the medical students in Hong Kong who utilised the learning tool were more likely to score higher in pharmacology questions as compared to non-users.

The following four articles focus on Covid 19 and higher education. Musharrat Shabnam Shuchi et al. investigated students' online learning experience in a Bangladeshi university. Their findings show that online learning has been advantageous in some respects, such as easy accessibility, flexibility, cost-saving, reducing the likelihood of semester loss, and learning new technologies. However, there were also major disadvantages: network problems, difficulties in understanding the topic, unsuitability for mathematical courses, concentration problems, non-interactive classes, financial constraints, adverse health impacts, device and internet problems. As the disadvantages outweighed the advantages and in order to create a student-centric, conducive learning environment amidst the pandemic, it was suggested that universities review their policies in providing greater institutional support.

The second article on Covid and HE is a contribution by Omona Kizito, titled "Effects of school closures in COVID-19 era: Evidence from Uganda Martyrs University". The researcher examined the effects of school closure in Uganda on multiple stakeholders: lecturers, students, administrators, and community members. A phenomenological study was carried out and results show that the impact of the closures on teachers resulted in financial distress and changes in their profession. Such changes affected students' learning and saw detrimental outcomes in the growth and development of Uganda's higher education system.

Another valuable perspective to online education is by Robyn Moore and co-authors. In "Supporting casual teaching staff in the Australian neoliberal university: A collaborative approach", the researchers examined the recent intensification in online teaching in the context of the pandemic and argue that articulating an effective model of online teaching is judicious. Using a collaborative autoethnographic framework and reflections from past

and present members of the teaching team, Moore et al. arrive at such a model. Results showed that regular productive interactions between staff are crucial for their overall wellbeing. It is concluded that collaborative teaching models provide a blueprint for a supportive and enriching environment for staff and are beneficial for the long-term viability of institutions.

A fourth piece on the pandemic is provided by Jodi Haines and Bill Baker, entitled "Australian Aboriginal education: The impacts of Riawunna's Murina program pedagogy during Covid-19". The authors examined how students in the Murina Program were supported by the Aboriginal and Torres Strait Islander Education Unit, the Riawunna Centre at the University of Tasmania, to help overcome the challenges of Covid-19 in 2020. The analysis of formal institutional level student feedback surveys suggest that Murina students very much valued the support provided by all Riawunna staff during the pandemic as highly critical to their engagement with Aboriginal pedagogy, through the sharing of Aboriginal knowledges and yarns within a curriculum that strengthened connections during this challenging period. Ongoing research in this space will continue to investigate the impact of the Murina Program pedagogy to give students voice and agency.

In order to include the fifth and final piece on HE and Covid-19 in our overview, we temporarily depart from our discussion of contributions in sequential order. In this brief article, Sayan Dey and Pratiksha Alamman discuss the impacts of Covid-19 on students' knowledge scape and behaviour in India. The pandemic has generated biomedical and various teaching and learning crises. This is due to the inconsistency in class attendance, the unsystematic methods of assessing students, the mockery of the students as 'Covid batch', and the career insecurities of the students. Such circumstances challenge researchers to critically re-investigate and re-address the unethical evaluation practices within a broader framework of the factors that contribute to the unequal systems of knowledge production within the higher educational institutions in India. Based on these arguments, the article discusses the various factors that provoke both teachers and students to indulge in such unethical practices during Covid-19; the consequences they encounter; and the possible methods to overcome such challenges.

Apart from the papers on Covid-19 and HE, there is a refreshing breadth of themes across the remainder of the issue. In Cotterell Danielle's article, she investigates learning routines, student motivation, and academic achievement in the primary years of an independent South Australian school, and asks: "Is there still a place for teacher-led learning routines in the Australian primary school classroom?" In her findings, it was presented that the way teachers establish effective learning routines does have more influence on student motivation, academic achievement and students find it engaging and relevant. Cotterell also showed that establishing learning routines are a greater and consistent predictor of student motivation and academic achievement. She recommends that teachers reconsider what motivation is and that the government should promote and support the quality of teaching.

Next, Anupama Ghattu et al. (2021) discussed the usage of experiential learning in improving students' logical thinking and problem-solving skills, by implementing an integrated theory lab approach to a freshman C Programming course. An experimental research approach was used to examine the effects of the integrated pedagogical strategy. The results showed no statistical significance pre- and post-test. Despite this, the classroom activities increased hands-on practice time and regular formative assessments showed that students' programming competency (including logical thinking and problem-solving skills) improved through this integrated approach.

Caleb Or and Elaine Chapman's article on "An Extended Unified Theory of Acceptance and Use of Technology Model for Education Contexts" reviewed previous work done on the UTAUT model. UTAUT studies have mostly focused on educational technologies like learning management systems, mobile learning, instructional devices, online collaboration tools and educational services. The researchers propose an extended model to study educational technology acceptance by introducing additional constructs such as usability, learnability and attitude. They also encourage future researchers to examine alternative measures of intention and behaviour in revalidating or extending the research to other contexts.

In this issue, we also resume our interviews with educational thought leaders. Under the header 'Never let a good crisis go to waste', we interviewed Professor Peter Fleming on dark academia, the pandemic and neoliberalism. Fleming elaborated on his despondent views on the future of universities, which are espoused in his most recent book, *Dark academia. How universities die* (2021). In a devastating critique, he argues that universities were already in crisis prior to the pandemic, but that has been exacerbated by it in the context of neoliberalism and shrinking government budgets, especially in key higher education-exporting countries such as the U.S., the UK and Australia. Apart from our focus on the state of higher education in this interview, we also, amongst other things, discuss Fleming's nuanced critique of work as well his exciting future projects.

Mary-Ann Shuker and Rob Burton's article provides an educational technology review of Padlet and how we can bring people and ideas together with this tool. They explore the advantages and usefulness of Padlet for both students and academics. Padlet allows students to engage in self-directed learning while maintaining peer interactions regardless of whether it is in a physical or online context. The authors demonstrate the various tools that encourage student learning, while providing feedback to teachers about their learning gaps.

The first article in the brief article section is Paul Dylan-Ennis's article on "Teaching cryptocurrencies as cryptoculture". Dylan-Ennis argues that rather than solely focusing on technical or financial phenomena, a cultural approach is similarly relevant. He encourages teachers to establish a shared public commons inhabited by the community of a cryptocurrency, and build on this sense of place by then revealing to students the cultural context of a cryptocurrency. Consequently, different cryptocultures can be analysed

through an examination of the competing environmental imaginaries of Bitcoin and Ethereum.

The next article by Margarita Kefalaki has the title "Communicating through music: a tool for students' inspirational development". Kefalaki discusses examples of how people can achieve goals and become a great source of inspiration, and this could be achieved by incorporating authentic projects and ideas into K-12 and higher education curricula. Her case study presents the creation of a multicultural compact disc in three languages (Greek, Corsican, and French) as an attempt to add to the inspirational development of students to aid teachers to achieve overall educational aims.

This issue is completed with four book reviews. Gary Saunders reviewed *Resisting neoliberalism in higher education. Volume 1: Seeing through the cracks*, a volume edited by Bottrell and Manathunga. The book documents, and reflects in detail, authors' experiences with the neoliberal university in the Australian context. Furthermore, it provides hope that there are cracks in the neoliberal university within which resistance, struggle and the prefiguration of alternative forms of higher education provision can be experimented with. The autoethnographic accounts capture the difficulties and struggles that the authors face and how they resist the imposition of neoliberal reforms within higher education.

Nigel Starck reviewed Roulston and deMarrais's *Exploring the archives: A beginner's guide for qualitative researchers*. Starck deems the book suitable for novice researchers looking for a general introduction into how diverse collections can be explored. Furthermore, it offers useful and thorough guidance on the usage of various types of archives. Starck encourages readers to read Roulston and deMarrais's work and use it as a stepping stone to a smooth exploration of the archives.

Zerin Jannat reviewed Daniels and Minot's *An introduction to statistics and data analysis using Stata*. The book provides a detailed step-by-step approach to research processes via the use of a statistical software, Stata. She shares insights into the book and recommends this practical and engaging work also for its simplicity of language and content. The final book review is by nelson ang on *The Oxford handbook of the history of education*, edited by Rury and Tamura. Ang marvels at the inevitably interdisciplinary field of educational history and elaborates on its manifestations in a multitude of diverse theoretical frames. In Rury and Tamura's tome, the rich and fascinating field of histories of education generates myriads of historical narratives and uses a panoply of methods and theories. In our nightmarish times, one can wonder how much educational history will have to be rewritten in light of the current polycrises.

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Investigating staff views on plagiarism in transnational higher education

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Abstract

The views on plagiarism of teaching staff working at four Australian universities operating in Singapore were investigated through a survey and interviews. This was carried out through analysis of their responses to six different plagiarism scenarios, of their replies to open-ended questions and of interview comments. Although staff were found to have a good understanding of the different cases of plagiarism, nearly half of them indicated that they would accept up to 15% of plagiarized material, with 30% of them willing to accept 20% or more. This indicates the need for an improved staff education on plagiarism. Furthermore, the majority of the teaching staff expected their students to plagiarize, implying the need for a more effective teacher - student interaction. A set of interactive measures between faculty, teaching staff and students is recommended to ensure and sustain an environment of academic integrity within the transnational higher education sector.

Introduction

Higher education has greatly expanded over the last two decades. In parallel, a large number of transnational hubs have been established, mainly in the Middle-East and in Asia, offering higher education services from overseas universities to local and international students (Chapman & Pyvis, 2013; Healey, 2017). This expansion of higher education in home and transnational campuses has brought along renewed calls to curb plagiarism and uphold academic quality (Altbach, 2013; Eret & Ok, 2014; Healey, 2015a). Plagiarism is detrimental to the student learning experience and to the reputation of the academic institution.

Plagiarism issues have been extensively investigated in home campuses through surveys and interviews of students (Bretag et al., 2014; Gulifer & Tyson, 2014; Halupa & Boliger, 2015; Kuntz & Butler, 2014; Hanson & Anderson, 2015; Iberahim et al., 2013; Shi, 2012; Sutton et al., 2014). Findings reveal that students plagiarize for a variety of reasons. Easy access and fast copying of available material, lack of ethics, desire to achieve higher marks with less effort, workload pressure and poor time management were the main reasons leading to intentional plagiarism. Unintentional plagiarism arose from an inadequate understanding of some aspects of plagiarism and from secondary language issues or cultural differences. More complex aspects of plagiarism, such as collusion and self-plagiarism, remain disputed issues amongst students (Childers & Bruton, 2016; Fraser, 2014).

Investigations of staff views on plagiarism within home campuses have revealed a similar level of complexity in their perception of plagiarism. There was disagreement amongst some staff on what constitutes plagiarism (Adiningram, 2015; Halupa & Boliger, 2013; Lei & Hu, 2015; Shi, 2012), especially on whether self-plagiarism or collusion could be conceived as plagiarism (Bennett et al., 2011; Childers & Bruton, 2016; Fraser, 2014; Halupa & Bolinger, 2013). Halupa and Bolinger (2013) noted that only 66% of the staff surveyed had an adequate understanding of self-plagiarism. Bennett et al. (2011) reported that 25% of the staff surveyed had some uncertainty regarding plagiarism within group work and that up to 45% of them were unsure as to whether self-plagiarism could be conceived as plagiarism. Staff also had differences with students on their understanding of plagiarism (Pecorari & Petrić, 2014). Staff blamed students' plagiarism on their poor academic writing skills previously acquired from their inadequate secondary school ethics (Bruton & Childers, 2016; Gourlay & Deane, 2015; Li, 2015). The lenient attitude of some staff towards their students' plagiarism was attributed to one or several of the following reasons: (1) lack of clear guidelines or support from the institution (Bennett et al., 2011; Gourlay & Deane, 2015; Halupa & Bolliger, 2013); (2) tendency to adopt a more educative approach rather than a punitive one, in disagreement with institution (Bruton & Childers, 2016; de Jager & Brown, 2010; Li, 2015); (3) excessive amount of administrative time required to deal with the misconduct case (Lodewijks, 2011; de Jager & Brown, 2010; Sutherland-Smith, 2008); (4) heavy teaching and research workload with requirement to publish (Li, 2015); and (5) pressure from some institution to enhance passing rates (Sawyer et al., 2009; Sharman & Wilshire, 2007). McCabe, Butterfield and Traviño (2012) stressed the

necessity for staff to be more pro-active in its engagement against plagiarism. To combat plagiarism, some studies advocate a more formative and educative approach from teaching staff and institutions (Bruton & Childers, 2016; Gourlay & Dean, 2015; Sutherland-Smith (2014), with some researchers specifically recommending the incorporation of an academic literacies programme (Murray & Nallaya, 2016; Newton et al., 2014; Powell & Singh, 2016).

There have been relatively few studies on students' perception of plagiarism within a transnational environment. Such an environment differs in many aspects to that of a home campus environment: it has a much greater level of diversity in its student and staff population and often operates under a dual management system (Dobos, 2011; Healey, 2015a, 2015b; Henderson et al., 2017). Recent research on the views on plagiarism of business students (Palmer et al., 2017) and of students across a range of fields of study (Palmer et al., 2019) outlined an urgent need to improve the students' awareness of plagiarism. Many students would plagiarize in collusion cases (as the work is carried out together within the group), and in self-plagiarism cases (as it would be their own work), and a small minority of students would even intentionally plagiarize if they could get away with it. Uncertainty levels were also high amongst students from neighbouring countries. Students' awareness of plagiarism issues was found to be lower than that of students at home campuses, due to the particulars of the transnational campus and the greater mix of cultural and academic backgrounds among students (Palmer et al., 2019).

To our knowledge, there has been no previous investigation on staff views on plagiarism within a transnational environment. In interviews with staff of a transnational campus in Dubai, Smith (2009) reported the need for the home institution to provide staff induction and staff development to its local staff for them to deal more effectively with the institution's assessments. Views on plagiarism were not specifically addressed. In a transnational environment, most staff are hired locally, often on a part-time basis (Wilkins, 2016). They are subjected to student and institution evaluations on a trimester or semester basis. The renewal of their short-term contracts is subject to satisfactory evaluations (Altbach, 2015). As mentioned earlier, the teaching staff in a transnational environment operates under a dual institutional pressure, from the local, often private, education enterprise and from the transnational higher education institution (Healey, 2015a).

This study investigates, through a survey and interviews, the views on plagiarism of staff working in one of four Australian institutions operating in the transnational hub of Singapore by means of a survey and interviews. This investigation complements the study carried out by Palmer et al. (2019) on the views of students on plagiarism within the same transnational environment. By assessing the views on plagiarism of staff working within a transnational environment, this study has the following objectives: (1) to analyze the views on plagiarism of teaching staff working in a transnational environment by means of a survey that produces quantitative and qualitative data; (2) to probe and confirm the findings of the survey data by assessing the staff views through individual interviews; (3) to compare the

findings with those reported for staff at home campus and highlight any differences characterizing the transnational environment; (4) to complement the findings of the staff views with those of students views reported by Palmer et al. (2019); and (5) to suggest some pro-active procedures that would help reduce plagiarism within transnational higher education and nurture a climate of academic integrity within such an environment.

Methodology

Survey study

Data on the staff views on plagiarism were collected through an online anonymous survey which was completed on a voluntary basis, using Survey Monkey®. The members of staff worked at one of four Australian universities operating in Singapore. Between them, these four universities encompassed the typical range of the transnational operational environment in Singapore (Palmer et al., 2019). The plagiarism policies (underpinning principles) and plagiarism procedures (management of plagiarism) of the four Australian universities were checked in detail from their online documents, and were, at the time of the survey, as shown in Table 1. Although the information on plagiarism policies was available online, plagiarism, breaches and penalties were not always clearly defined or identified. Moreover, there was a large disparity in the availability of a briefing or workshop on plagiarism and of an academic integrity online test (Palmer et al., 2019). Transnational academic staff from three institutions were introduced to the use of a text matching software as a plagiarism detection tool (Turnitin) but the software was not used in all units. These plagiarism policies and procedures, as depicted in the table, provide the characteristic range and diversity of plagiarism policies and procedures available to students and staff within a transnational environment (Palmer et al., 2019).

Table 1: Institutions' policies and procedures on plagiarism (Palmer et al., 2019).

Details for Institution		A	B	C	D
Information on plagiarism policies available online		✓	✓	✓	✓
Plagiarism clearly defined		X	X	✓	X
Breaches clearly identified		X	X	✓	X
Penalties clearly identified		X	X	✓	X
Orientation week – briefing on plagiarism		X	X	✓	✓
Academic integrity online module/test	Offered	X	✓	✓	✓
	Compulsory	X	✓	X	✓
Face-to-face workshop on plagiarism	Offered	✓	✓	X	X
	Compulsory	X	✓	X	X
Plagiarism detection software (e.g. Turnitin®) used	For some units	X	✓	✓	✓
	For all units	X	X	X	X

Note. ✓: Yes X: No

The survey comprised a quantitative assessment of the staff responses to six different plagiarism scenarios and a qualitative analysis of their views to open-ended questions. The six scenarios related to the following types of plagiarism: (1) copy and paste with a few minor modifications and

no source citation; (2) self-plagiarism (recycling of own assignment); (3) partial referencing (no in-text source citation but source indicated in the reference list); (4) collusion within group work; (5) partial reuse of a friend's work; and (6) back-translation (online conversion of an English text to a different language and its retranslation into English). The plagiarism cases were selected for their commonality and diversity (Clough et al., 2015), as representative of cases taking place in higher education. The survey was adapted from well-developed, previously validated survey instruments used by Brimble and Stevenson-Clarke (2005), Ryan et al., (2009) and Wan et al. (2011). Approval to conduct this research study, for both the survey and interviews, was granted by the Human Research Ethics Committee of the University.

Participants

A total of 150 staff members were contacted by email, and 32 respondents completed the survey. The demographic data of the sample of staff participants is shown in Figure 1. The staff were in a variety of teaching fields, with the majority being in business studies, teaching full-time ($n = 3$) or part-time ($n = 29$), a ratio typical of transnational education in Singapore, where most of the teaching staff work part-time. Their part-time status allows employment flexibility for themselves and for the institutions (Wilkins, 2016). Except for one of the teaching staff, all had postgraduate qualifications (Master's / PhD), obtained from various countries, such as Australia, Singapore, the UK or the USA. Most of them were over 40 years of age, and many had previously taught in countries other than Singapore. The diversity of the teaching staff, its predominantly part-time nature and its high-level qualification and work experience are typically representative of teaching staff working within a transnational environment (Altbach, 2015, Palmer et al., 2019).

Analysis

The survey analysis followed a mixed methods research paradigm which is an appropriate approach when dealing with collecting quantitative and qualitative data sets, analyzing them and combining the results in a complementary way (Onwuegbuzie & Johnson, 2006; Pecorari & Petrić, 2014; Punch, 2009). The quantitative data were provided by the Likert-scale responses of staff to a series of questions in the surveys based on six different scenario cases of plagiarism. The analysis of this quantitative data was carried out using the 'Descriptive Statistics' functions of the SPSS® software, as recommended by Boone and Boone (2012). Qualitative data were obtained from the staff replies to open-ended questions in the survey and from their additional comments. The survey participants were identified as SP1 to SP32 when quoting relevant comments.

Interviews

Individual sessions of approximately one-hour duration were conducted through semi-structured interviews (Ashworth

et al., 2003; O'Donoghue, 2007). Voluntary participants were reminded that the interviews were anonymous and confidential. The interview questions are shown in Table 2. These questions were developed based on the survey results, in order to provide further insight into the findings of the survey.

Participants

Fourteen members of staff working in one of the four Australian universities operating in Singapore volunteered to participate in the interview phase. These 14 interview participants can be considered as a different batch of staff participants with no interfering selection from the author. Ten of these participants were volunteers from the 32 survey participants. The other four members of staff were additional volunteers. This makes this batch of interview participants a suitable sample for triangulation purposes of the study, by probing their views to confirm the findings of the survey data.

Teaching Mode	
Full-Time	3
Part-Time	29

First Language	
English	27
French	1
German	1
Chinese	3

Field of Teaching	
Business	16
Commerce	2
Communication	5
Engineering	1
IT	4
Law	1
Science	1
Tourism	2

Age Group	
21-25	--
26-30	--
31-35	1
36-40	2
41-45	7
46-50	8
51 or more	14

Years of Teaching in Australian University	
One	6
Two	3
Three	9
Four	1
Five	5
Six or more	7

Country of Tertiary Studies	
Australia	6
France	1
India	3
Singapore	7
UK	11
USA	4

Country of Secondary Studies	
Australia	2
France	2
Germany	1
India	2
Malaysia	1
Philippines	1
Singapore	19
UK	3
USA	1

Second Language	
English	5
Chinese	9
French	2
Hindi	1
Indonesian	1
Malay	3
Tamil	6

Countries / places where previously taught					
Singapore	29	USA	3	Laos	1
Malaysia	8	Vietnam	3	Pakistan	1
Dubai	3	Australia	1	Thailand	1
India	3	China	1	Tanzania	1
Indonesia	3	Cambodia	1	Turkey	1
UK	3	Hong Kong	1	Zambia	1

Figure 1: Demographic data of the staff participants.

Table 2: Staff interview questions.

Section 1: Demographic Data	
Section 2: Interview Questions:	
Q1	In your opinion, is plagiarism a real problem?
Q2	In your opinion, how common is plagiarism among university students?
Q3	In your opinion, what is the relationship between digital technologies and plagiarism?
Q4	In your opinion, what are the ethical issues and reputational consequences relevant to plagiarism?
Q5	In your opinion, are students and staff well informed on plagiarism and on how to avoid it?
Q6	In your opinion, are students and staff well informed about the consequences of plagiarism?
Q7	In your opinion, is there an acceptable similarity index (%), in text-matching software, e.g. Turnitin® (excluding quoted material and references)?
Q8	Do you know, or know of, students who plagiarize or who have plagiarized in the past?
Q9	In your opinion, what could be done to reduce plagiarism?
Q10	In your opinion, do some affiliate lecturers ignore plagiarism cases, and if so, why?
Q11	If you believed a student had submitted a piece of work which contained plagiarism, what steps would you take?

Analysis

Note-taking was used as it was considered to be less intimidating to the participants than audio-recording. The handwritten notes were reproduced verbatim, including errors. They were then transcribed into Microsoft Word documents, linking each respondent's replies to the corresponding questions and to the respondent's code. Following the method suggested by Ose (2016) for analysing qualitative data arising from interview texts, the notes from these two Word documents were subsequently transferred into two Excel worksheets, using codes for the interview questions, for the replies and for the various themes and subthemes embedded in the replies. Coding of the themes and subthemes was an iterative process which was repeated several times. This provided a coherent analysis of the qualitative data and allowed a frequency analysis of the themes depicted in the replies. This method has proved an adequate alternative to SPSS® and NVivo® for analysis of unstructured qualitative data arising from interviews (Ose, 2016). Participants' comments are included not only to provide a rich description of their views and to further elaborate on significant findings (Stangor, 2004) but also to represent common, relevant and/or interesting perspectives. The interview participants were identified by codes IP1 to IP14 when quoting any relevant comments.

Results

Results from the survey data

General views on plagiarism

The results of the staff views for Scenarios 1 to 6 being considered as cases of plagiarism are shown in Table 3. The majority of staff (over 85%) agreed that all Scenarios were cases of plagiarism. The high value of the mean (M) on the Likert scale, above 3.1, and the low value of the standard deviation (SD), below 0.79, indicate a strong alignment of

views among the staff.

Staff responses to specific statements related to the cases of plagiarism are shown in Table 4. Numbers in bold indicate agreement levels above 50%. To the question, 'My students would believe this is acceptable', more than half of the staff (54% to 67%) responded that they believed that their students would find it acceptable, in Scenarios 1 to 4, with the percentage of staff who believed that their students would find it acceptable dropping to 36% and 35%, for Scenarios 5 and 6, respectively. To the question, 'I believe some of my students engage in similar activities' in Scenarios 1 to 5, over 70% of the staff responded that they believed that their students engaged in similar acts of plagiarism with 48% of the staff believing that it would also be the case for Scenario 6.

To the open-ended question 'How would you react if xxx was your student?', in Scenarios 1 to 6, 35% to 59% of the staff, depending on the plagiarism case, indicated that they would take an educative approach, whereas 10% to 25% indicated that they would take a punitive approach. This is shown in Tables 5 and 6, which list the various actions the staff member would take. What was notable in their replies was the wide range of different reactions, from none through mild to severe, and from punitive to educative. This large disparity in the staff reactions is in contrast with their mostly unified view on plagiarism. There was consistency in what staff members viewed as plagiarism but not when it came to dealing with it.

Noteworthy comments made by the staff, expressing their views on open-ended questions, were selected for their relevance to particular aspects of plagiarism. To the question 'How would you react if xxx was your student?' in Scenario 2 (self-plagiarism), one staff member replied:

I think that maybe once her work is handed in, it becomes the property of the institution? Thus, if she reuses it, she will be plagiarising? I'm not sure. I would be frustrated because of a different reason that I might have marked it before and if I see the same mistakes unchanged again, especially if she is repeating that module. I had a case where a student used part of his assignment from another module and incorporated it into [the] module's assignment and I gave him comments about his mistakes and marks which were less than what he originally received in the previous module. I had to explain his mistakes and why I deducted his marks. (SP 27)

This emphasizes some complex aspects of self-plagiarism: uncertainty of staff on how to deal with it, and a corresponding lack of improvement in student learning. To the question 'How would you react if xxx and yyy were your students?' in Scenario 4 (collusion within group work), one staff member replied: "I would tell them to plan better so that they don't submit identical work as there will be no factor that distinguishes their abilities/individual effort" (SP 17).

The great majority of staff (81%) believed that they were given clear and specific information on the institution's procedures regarding plagiarism cases. Most of them (78%) knew of students who plagiarized. The data are shown in Table 7.

The amount of plagiarized content that would be acceptable to staff is shown in Table 8. The amount, as put in the question, excludes titles, quotes and references. The similarity index is given as a ratio of the amount of plagiarized material over the amount of text material, as a percentage. Teaching staff were familiar with Turnitin®, which was used by most institutions. Nearly half of the staff (47%) were willing to accept up to 15% of plagiarized material. Some staff would even consider larger amounts of plagiarized material, of up to 20% by 17% of the staff, and of up to 25% by 13% of the staff.

Table 3: Results of staff' views (in %) for Scenarios 1 to 6 (responses to statement 1: 'i believe this is a case of plagiarism').

<i>Plagiarism Scenario</i>	<i>0 Unsure</i>	<i>1 Strongly Disagree</i>	<i>2 Disagree</i>	<i>3 Agree</i>	<i>4 Strongly Agree</i>	<i>Overall Disagreement</i>	<i>Overall Agreement</i>
S1 – No source citation (<i>n</i> = 31, <i>M</i> = 3.45, <i>SD</i> = 0.77)	0.0	3.2	6.5	32.3	58.1	9.7	90.4
S2 – Self-plagiarism (<i>n</i> = 31, <i>M</i> = 3.48, <i>SD</i> = 0.63)	0.0	0.0	6.5	38.7	54.8	6.5	93.5
S3 – Partial referencing (<i>n</i> = 32, <i>M</i> = 3.53, <i>SD</i> = 0.62)	0.0	0.0	6.3	34.4	59.4	6.3	93.8
S4 – Collusion within group work (<i>n</i> = 30, <i>M</i> = 3.13, <i>SD</i> = 0.63)	0.0	0.0	13.3	60.0	26.7	13.3	86.7
S5 – Partial reuse of a friend's work (<i>n</i> = 31, <i>M</i> = 3.58, <i>SD</i> = 0.56)	0.0	0.0	3.2	35.5	61.3	3.2	96.8
S6 – Back-translation (<i>n</i> = 32, <i>M</i> = 3.63, <i>SD</i> = 0.79)	3.1	0.0	0.0	25.0	71.9	0.0	96.9

Note. Values in bold indicate overall disagreement exceeding 50%. S = scenario.
n = number of replies. *M* = mean value. *SD* = standard deviation value.

Table 4: Results of staff views (in %) on statements related to cases of plagiarism S1 to S6.

<i>Statement</i>	<i>S1</i>		<i>S2</i>		<i>S3</i>		<i>S4</i>		<i>S5</i>		<i>S6</i>	
	<i>D</i>	<i>A</i>	<i>D</i>	<i>A</i>	<i>D</i>	<i>A</i>	<i>D</i>	<i>A</i>	<i>D</i>	<i>A</i>	<i>D</i>	<i>A</i>
'I believe this is acceptable'	89.6	10.3	92.8	7.2	96.4	3.6	96.4	3.6	100	0.0	76.8	16.2
	<i>n</i> = 29		<i>n</i> = 28		<i>n</i> = 28		<i>n</i> = 28		<i>n</i> = 28		<i>n</i> = 29	
'My students would believe this is acceptable'	41.3	55.1	42.9	53.6	37.9	58.6	25.9	66.7	57.1	35.7	58.6	34.5
	<i>n</i> = 29		<i>n</i> = 28		<i>n</i> = 29		<i>n</i> = 27		<i>n</i> = 28		<i>n</i> = 29	
'According to my institution's policies, this is acceptable'	78.6	14.3	85.7	3.6	86.2	3.4	88.5	7.7	92.9	7.2	93.1	3.4
	<i>n</i> = 28		<i>n</i> = 28		<i>n</i> = 29		<i>n</i> = 26		<i>n</i> = 28		<i>n</i> = 29	
'I believe some of my students engage in similar activities'	17.2	75.9	17.8	71.5	17.2	79.3	17.9	78.5	2	71.4	34.4	48.2
	<i>n</i> = 29		<i>n</i> = 28		<i>n</i> = 29		<i>n</i> = 28		<i>n</i> = 28		<i>n</i> = 29	

Note. Values in bold indicate overall agreement exceeding 50%. S = scenario. D = overall disagreement. A = overall agreement. Remainder = unsure.

Table 5: Results of staff replies to the question 'how would you react if xxx was your student?' for the cases of plagiarism S1 to S3.

	<i>S1 (n = 30)</i> <i>No source citation</i>		<i>S2 (n = 28)</i> <i>Self-plagiarism</i>		<i>S3 (n = 29)</i> <i>Partial referencing</i>	
<i>Q: How would you react if xxx was your student?'</i>	Provide advice / educate / counsel	53.3%	Provide advice / educate / counsel	42.9%	Provide advice / educate / counsel	44.8%
	Penalty / plagiarism procedure /report to faculty	26.7%	Resubmit assignment	25.0%	Penalty / plagiarism procedure /report to faculty	20.7%
	Resubmit assignment	13.3%	Penalty / plagiarism procedure /report to faculty	17.9%	Resubmit assignment	20.7%
	Fail / reject work	6.7%	Fail / reject work	10.7%	Fail / reject work	6.9%
			Written warning	3.6%	No reaction / accept work	6.9%

Note. Replies in bold indicate main replies.

Table 6: Results of staff replies to the question 'how would you react if xxx was your student?' for the cases of plagiarism S4 to S6.

	<i>S4 (n = 27)</i> <i>Collusion within group work</i>		<i>S5 (n = 28)</i> <i>Partial reuse of a friend's work</i>		<i>S6 (n = 28)</i> <i>Back-translation</i>	
<i>Q: How would you react if xxx was your student?'</i>	Provide advice / educate / counsel	59.3%	Provide advice / educate / counsel	35.7%	Provide advice / educate / counsel	42.9%
	Penalty / plagiarism procedure /report to faculty	18.5%	Penalty / plagiarism procedure /report to faculty	32.1%	Penalty / plagiarism procedure /report to faculty	35.7%
	Resubmit assignment	14.8%	Penalty / plagiarism procedure /report to faculty	21.4%	Resubmit assignment	10.7%
	Fail / reject work	7.4%	Fail / reject work	10.7%	Fail / reject work	10.7%

Note. Replies in bold indicate main replies.

Table 7: Staff replies to questions related to plagiarism.

Questions	Yes	No
At your institution, have you been given:		
Clear and specific information on the procedures regarding plagiarism cases? (n =32)	81.3%	18.8%
Do you know of any students who plagiarize at your institution? (n =32)	78.1%	21.9%

Note. Numbers in bold indicate 'Yes' replies exceeding 50%

Table 8: Staff replies regarding the acceptable level of the 'Turnitin® similarity index'.

Question	Acceptable Level of Similarity Index	Replies
Please indicate the percentage amount of the 'Turnitin® Similarity Index' that you deem acceptable in your students' work (excluding titles, quotes and references) (n = 30)	None (0%)	3.3%
	0-5%	6.7%
	Up to 10%	13.3%
	Up to 15%	46.7%
	Up to 20%	16.7%
	Up to 25%	13.3%

Note. Replies in bold indicate response levels exceeding 25%

Assessing staff replies to open-ended questions on plagiarism

Table 9 shows the staff replies to open-ended questions on plagiarism. The following comments can be made:

- The concept of plagiarism was adequately defined by most staff (85%). The definition of plagiarism was judged adequate if it included the following words (or similar): (1) words/ideas; (2) taken; (3) from a source; (4) without proper acknowledgement / referencing, following the suggestion given by Li (2015). This interesting comment from one staff member replying to the question 'How would you define plagiarism?', highlighted the pressure faced by some students: "An act of desperation to complete one's work" (SP 28).
- Nearly all staff (96%) considered digital plagiarism to be more common than traditional plagiarism, because of convenience, the ease of copying and pasting, and the amount of material available online.
- A quarter of the staff respondents believed that there are times or situations where plagiarism is acceptable, with 10% of the respondents being unsure. The main response, at 33%, was 'for similar case studies'. The following comment from one staff member to the question: 'Are there times or situations where plagiarism is acceptable?' illustrates this view: "If the materials that are available are mostly identical and it is because students submit answers using the same cases and statutes" (SP 19). This raises the case of students submitting near-identical pieces of work due to the narrow focus of the assignment.
- Nearly all staff (92%) agreed that students should be penalized for plagiarism, the majority (65% of the respondents) indicating that they would deduct marks, or that they would follow the formal student plagiarism procedures.
- All staff (100%) agreed on educating students on plagiarism, the main suggestions being a 'training workshop' (50%) and an 'induction session' (25%). A training workshop would involve training students on plagiarism, interactively, over a period ranging from a few hours to a few days, whilst an induction session would be a short lecture on plagiarism. A module on plagiarism would be a complete module / unit on plagiarism that would be taken over the duration of the term (usually a trimester).

- The main reasons given by staff members for students' plagiarism were, in decreasing response levels:
 - Lack of knowledge about plagiarism: 31.5%
 - Easy way out / laziness: 29.6%
 - Poor time management / time constraints: 9.3%
 - Difficult assignments / weak student: 7.4%
 - Couldn't care less / lack of ethics: 7.4%
 - Leniency of tutor / can get away with it: 5.6%

To the question 'In your view, what are the underlying reasons or the factors that contribute to students' plagiarism?', one staff member replied: "One of the major problems is the assignment components. The questions are very similar and hence easily attainable from varied sources" (SP 32). This raises the question of the recycling of some assignment questions and the likelihood of students re-using past assignments, if they can get hold of them.

Table 8: Staff replies regarding the acceptable level of the 'Turnitin® similarity index'.

Q1 How would you define plagiarism? (n = 27)	Adequately defined	Inadequately defined
	85.2%	14.8%
Q2 Is digital plagiarism (online material) more common than traditional (print material) plagiarism? (n = 28)	Yes	No
	96.4%	3.6%
Why / Why not? (n = 24) Main answers given:	Easier, more convenient: 50.0% Copying and pasting: 33.3% Easier access to information: 16.7%	
Q3 Are there times or situations where plagiarism is acceptable? (n = 28) (unsure: 10.5%)	Yes	No
	25.0%	64.3%
Main replies to Q3 given by some staff who answered yes (n = 6)	For similar cases studies: 33.3% When sourcing data, definitions, principles 33.3% In small amount: 16.7% About 20%: 16.7% Up to 20%: 66.7% Less than 10%: 33.3%	
If so, how much plagiarism is acceptable? (n = 3)		
Q4 Should students be penalised for plagiarism? (n = 28)	Yes	No
	92.9%	7.1%
If so, how? (n = 26) Main answers given:	Deduct marks / follow procedure: 65.4% Resubmit with capped mark: 23.1% Award zero mark / fail: 7.7% Provide training / counselling: 3.8%	
Q5 Should students be educated about plagiarism? (n = 27) (unsure: 0.3%)	Yes	No
	100%	0%
If so, how? (n = 24) Main answers given:	Training workshop: 50.0% Induction session: 25.0% Help during lectures: 8.3% Online learning / videos: 7.3% Module on plagiarism: 4.2% Better education by institution: 4.2% Reminders on plagiarism issues: 4.2%	
Q6 In your view, what are the underlying reasons or the factors that contribute to students' plagiarism? [n (replies from 28 staff) = 54]	Lack of knowledge: 31.5% Easy way out / laziness: 29.6% Poor time management / time constraints: 9.3% Difficult assignments / weak student: 7.4% Couldn't care less / lack of ethics: 7.4% Leniency of tutor / can get away with it: 5.6% Lack of adequate information: 1.9% Similar assignment questions: 1.9% Heavy workload / stress / pressure: 1.9% To get higher marks / to pass: 1.9% Cultural backgrounds: 1.9%	
Main reasons given:		

Note. Significant values and replies shown in bold.

Insights from the staff interviews

Perception of plagiarism (Q1 and Q2)

Nearly all of the staff members (93%) perceived plagiarism as a real problem. Over 50% of the staff members also found plagiarism to be quite common among students. One member of staff was willing to discount unintentional plagiarism: "It is unintentional, it is not so much of a problem" (IP11). Others blamed plagiarism on differences in previous academic practices: "Yes, it is [common], especially with foreign students from [universities' names] because back at home they can copy" (IP10). Some spoke of a lack of knowledge: "Yes, very often students do not see the boundaries [between what is or what is not plagiarism]" (IP7); "It is becoming more common. Students don't understand what constitutes plagiarism" (IP9). Still others mentioned both previous academic practices and a lack of knowledge: "Yes. Students were free to copy for many years in their home country and showing them one slide on plagiarism doesn't help" (IP1). Some members of staff blamed plagiarism on academic difficulties students may have: "If students' abilities are not too strong, students are likely to plagiarize" (IP6); "When students have difficulty in doing the work or they don't grasp the content. They might be lazy or have language issues" (IP1). The uncertainty behind recycling and collusion remained one of the major issues: "Yes, here, there are many cases of collusion and recycling but sometimes it is unintentional" (IP13).

Plagiarism in the digital era (Q3)

All staff members emphasized the strong relationship between digital technologies and plagiarism, as these make it easier to plagiarize. The facilitation of plagiarism through the use of digital technologies is exemplified by this comment: "Extremely high [relationship]; they just take from online sources and amend; they do patchwork" (IP7). Digital technologies have aided the two conflicting aspects of plagiarism, facilitation and detection, as reported in these two comments: "It [Turnitin®] is an enabler... and makes detection easier" (IP5); "[Turnitin®] helps to catch but students are clever, they manipulate digital info[rmation]" (IP6). One member of staff, emphasising the current 'culture of sharing' among students, indicated: "Students borrow assignments from each other, they like to share" (IP1). One member of staff highlighted the educative role of a plagiarism detection software: "Turnitin® is [a] very useful 'formative' [tool]. Students can submit multiple times" (IP3).

Ethical issues and reputational consequences (Q4)

Most staff members (over 67%) agreed that plagiarism problems within an institution can tarnish the quality of its education, its reputation and its credibility. There was a more relaxed view by some members of staff (at 16%) that all universities had the same issues. One staff member noted that reputational consequences only exist if plagiarism problems are picked up by the media: "Plagiarism is unethical but the quality consequences are only adverse if they get publicised" (IP14). One member of staff argued that there are

no real reputational consequences, as plagiarism is present in all universities: "Reputational?? Plagiarism happens in the four to five uni[versitie]s I am working in" (IP7).

Provision of information about plagiarism (Q5 and Q6)

At the interviews, staff members were equally divided on whether they, or the students, were well informed on plagiarism, on how to avoid it, and on its consequences. This is in contradiction with the findings from the survey in which they believed that they were well informed on plagiarism policies and procedures. It could be that these beliefs, when probed further, often prove to be less robust than expected, when confronted with the realities and complexities of plagiarism. This intriguing phenomenon was also observed for the students (Palmer et al., 2019). There were many comments which illustrate the diversity of views on the matter. Some staff members found that information is either incomplete, or, when adequate, not sufficient on its own. There is a need for further training, for both students and staff: "Students have been informed but they don't have sufficient skills... Staff have a general understanding but they don't know how to read Turnitin® reports" (IP13); "Affiliate teaching staff? It depends...some don't bother, they are lenient, generous" (IP10).

The following observations captured staff concerns, indicating that students and staff were not really informed on plagiarism: "Students are not really informed" (IP10); "Students: we cannot expect them to know, they are not trained; Staff: yes, but it could be better, they are not trained on plagiarism. Until I bumped into it, I didn't know that it was plagiarism, for example for recycling" (IP4); "As an affiliate staff, I was never trained. I was not told what to do" (IP1); "No, staff are not adequately trained, students don't understand the gravity and what constitutes plagiarism" (IP5).

Staff members also had different views on information related to consequences of plagiarism. Some staff members highlighted the uncertainty on what actions needed to be taken:

About the consequences? I am not sure, I try to scare them [students]. I report them but the school is too lenient; there are no consequences for the student. Sometimes students get a warning letter or the case is dropped. Cases have been ignored. (IP7)

It was left to us to decide on what to do; [I] reduce marks. (IP1)

Probably they [staff] have been, but not really well informed; there is no clear understanding. The information is disorganized and hard to access. The criterion is not clear, what is major, what is minor? There is information about the problems but not on process, on judging the severity; this leads to poor decision making. (IP13)

Others mentioned the willingness of some students to engage in plagiarism, despite any potential consequences: "No, not [the] students [they are not aware of the consequences]. They think they can appeal. The first few semesters they are less aware" (IP2); "All have been briefed but some choose to ignore, they don't care and they don't have the time" (IP10).

Acceptable amounts of plagiarized material (Q7)

The responses of staff on the acceptable amount of plagiarized material (excluding quoted material and references) varied greatly, from 0% to 50%. The diversity of views is apparent in Table 10 and in the following comments which reveal further insights into the individual beliefs held by the staff.

Some staff members strongly believed that amounts of plagiarized material, as picked up by text-matching software, remained unreliable:

Zero percent could be plagiarism! It could be paraphrasing without citations. Turnitin® does not solve the problem, it encourages [students] to find synonyms or to change the word order. (IP9)

I don't like Turnitin®. There are ways of switching [it] off to reduce [the] similarity index. (IP6)

Some staff members revealed their uncertainty on the matter, their own individual choice and the lack of guidance from the home campus:

It is a difficult question to answer, about 20%... 35 to 40%, but if an entire paragraph has been copied, that is not acceptable. (IP10)

The 'rule of thumb' is 25% ...use it in a calibrated way. (IP3)

Until today I don't know the percentage. If it is 50% I penalise but if it is one paragraph, then it is ok. Are we expecting too much of them? (IP4)

I don't know. I usually tell the students to get less than 20%. (IP12)

Table 10: Acceptable amounts of plagiarized material.

Q7	In your opinion, is there an acceptable similarity index (%), in text-matching software, e.g. Turnitin® (excluding quoted material and references)?
Replies	Up to 20%: 21%
(n = 14)	Up to 50% is ok: 14%
	0%: 14%
	Index not reliable: 14%
	Up to 40% is ok: 7%

Note. Replies in bold indicate response levels exceeding 20%

Knowledge of plagiarism cases (Q8)

All staff members knew of plagiarism cases. One lecturer mentioned that he knew of many such cases: "Yes, a number of them" (IP13). Another pointed out the need for further training as the plagiarism cases, according to the member of staff, were unintentional: "Yes, but these cases were unintentional... they were not taught on referencing skills" (IP11). One member of staff underlined the attitude of denial of some students: "Yes, they plead innocence" (IP10). One particular member of staff made a strong claim about the effect that some students' previous academic and cultural differences have on their current stance on plagiarism:

Students are not used to referencing in their home country...Many think it is not a serious offence, it is common practice. Copyright is not protected or respected. In their mind, there is no clear respect, it is not such a big offence. (IP1)

What could be done to reduce plagiarism (Q9)

To reduce plagiarism, staff members suggested a variety of educative and punitive measures, in the ratio of 70% to 30%, respectively, as shown in Table 11. The following comments identify in more detail measures recommended by some of the staff.

This comment from one member of staff offered a combination of both educative and punitive approaches:

Greater training; disseminate info to students and staff; Reinforce penalties...Use software to help detect... Blind marking or double marking/ randomise marking may reduce soft-marking. (IP5)

Some staff members recommended a more educative approach, based on the ethics of academic integrity: "Currently we are using the stick approach. We could highlight the value of academic integrity instead of punishing them. The stick approach doesn't work; we need to highlight the importance for a fair and honest society" (IP13); "Plagiarism/ academic integrity should be part of every subject; it should be embedded, followed by tests" (IP1); "Students and staff to be better informed about the non-ethical aspects of plagiarism and about its consequences" (IP14).

The importance of a study skills module was also emphasized: "General study skills module" (IP3). Some staff members suggested some practical measures: "Emphasize [adequate citation] before deadlines; give scenarios of past students - make it real! Real cases" (IP2); "Assignment questions should be changed, not recycled" (IP1).

The language skills issue was seen by some staff members as one of the main causes of plagiarism: "In transnational education, lack of awareness is not the issue. The issue is students' language skills, their lack of confidence in rephrasing" (IP9); "Look closely at the quality of the students, their English language proficiency" (IP6).

Table 11: What could be done to reduce plagiarism (Staff).

Q9	In your opinion, what could be done to reduce plagiarism?
Replies (n = 17)	Educate students: 42% Reinforce penalties: 18% Reinforce value of academic integrity: 12% Constant reminders: 12% Improve English language skills: 12%

Note. Replies in bold indicate response levels exceeding 20%

Leniency of part-time teaching staff towards plagiarism (Q10)

A large number of views was expressed on the leniency of part-time staff towards plagiarism. These views can be grouped under the following main categories:

- Concerns part-time staff have about their teaching evaluation by the students, which may influence renewal of their contract (at 39%)
- Reporting of plagiarism cases is hard work and too time-consuming (at 27%)
- Ineffective interaction with faculty at home campus (at 12%)
- Some part-time staff would still report plagiarism cases (at 12%).

The staff interviewed were 50% full-time and 50% part-time. The extensive comments below reveal the underlying reasons behind the views expressed by the staff. For this particular question, the participant providing the comment is further identified as being either full-time (FT) or part-time (PT). The hard work and time required in pursuing cases of plagiarism was seen as one of the main reasons for part-time staff leniency: "How willing are the lecturers to report [it]? To what point do you report?... and it is too much work" (IP4, FT); "It all depends on how hard-working the lecturer is" (IP3, FT); "It is a matter of cost and benefit.... They [part-time staff] could ignore it... they won't invest time; this includes full-time staff as well" (IP5, PT); "Most [part-time staff] do [ignore plagiarism cases]! The reasons are to save time" (IP14, FT); "Probably [part-time staff ignore plagiarism cases]. It takes a lot of work to review Turnitin® reports" (IP13, FT); "Also, if the plagiarism system is too complicated, they [part-time staff] will ignore it. They already have lots of work, why bother? They want to avoid all possible complications" (IP1, PT); "They see it as too much trouble" (IP12, FT); "Yes, because the UCs [Unit Coordinators] are watching; it is time consuming; large volume of students...too much work" (IP2, FT).

The dependency of part-time staff on good evaluations from their students for renewal of their contracts is seen by many as the other main reason for their leniency towards student plagiarism, as revealed by this typical comment:

The system is set that way... If staff get 80% evaluation from students, then they [part-time staff] get hired again. So, lecturers try to please the students by ignoring plagiarism. There is a big pressure to get good feedback from students... (IP1, PT)

One member of staff suggested a more educative approach:

Some adopt a more formative approach... I would give the student a chance ...for example, two days to fix it. Students learn and don't live in fear. (IP3, FT)

Another mentioned the lack of clear guidelines from home campus:

I have flagged a 'recycling' case to the UC (Unit Coordinator) but the UC accepted the assignment and passed the student. The UC said, there is no policy related with students' recycling assignments. The university doesn't have clear guidelines. (IP10, PT)

Staff action on plagiarism cases (Q11)

The interviewees were asked which action they would take for plagiarism cases where there was evidence of copied material without any citation. Staff replies varied from counselling (at 25%), following formal reporting procedures (at 25%), taking their own punitive action (at 24%), to being uncertain on what to do (17%).

Further insights can be gained from the following comments. Some staff members would take their own initiatives, irrespective of the institution's policies and procedures: "I counsel them; I tell them it was 'inadvertent' and I explain" (IP3); "I would punish and apply a penalty. For [the] worst case scenario, I would ask the student to resubmit. I apply the penalty myself by reducing marks" (IP11); "I would call and question the student" (IP10); "I would emphasize to students to re-transcribe in their own words" (IP7).

Some staff members openly admitted their lack of knowledge about how to deal with plagiarism cases: "I have not been informed on the process" (IP5); "I haven't been inducted into the process – maybe consult with the UC?" (IP2); "The UC has not informed me but I would investigate further, get some advice on plagiarism and see what needs to be done" (IP12).

Some staff members would follow the institution's policies and procedures: "I would follow the institutions' procedures; I would gather evidence and report it to the misconduct officer" (IP14); "I would review the Turnitin® report then refer it to the academic misconduct person" (IP13).

Discussion

Assessment of findings from staff survey and interviews

Understanding of plagiarism

The level of understanding of plagiarism among the staff was found to be much higher than reported in other studies (Bennett et al., 2011; Halupa & Bolliger, 2013), with levels of agreement on all cases of plagiarism including recycling and collusion exceeding 87%. This could be due to the high level of work experience of the teaching staff working within the transnational environment that is Singapore, which is characterized by the availability of good and experienced teaching staff and rigorous pre-selection of the staff by the home institution at faculty level.

However, in contrast to their high level of understanding of plagiarism issues, up to a quarter of the staff surveyed were of the opinion that there are times or situations where plagiarism would be acceptable, with acceptable amounts of plagiarized material ranging from 10% to 20% for most of the staff, and even reaching 50% for some interviewees. This could be due to the lack of clear and specific guidelines from the institution. This fairly relaxed attitude towards plagiarism acceptance on behalf of some of the staff was also observed in home campus institutions (Bennett et al., 2011; de Jager & Brown, 2010; Halupa & Bolliger, 2013). It characterizes both the reluctance from the staff to deal with cases of plagiarism and the ineffective monitoring by the institution of its plagiarism procedures. This stresses the need for clearer guidelines from the institution and an adequate induction for all new teaching staff.

Some members of staff also pointed out that any percentage amount of plagiarized material as indicated by plagiarism detection software may not be a reliable value, since students can make subtle changes to their work to disguise any similarity with other works.

Most of the staff also expected their students to plagiarize, implying the need for a more effective interaction between the teacher and the student. This aspect does not seem to appear in previous studies and may be more characteristic of staff within a transnational environment which, due to the nature of the logistics (mainly part-time teaching and limited time for effective feedback), does not always facilitate an effective student-staff interaction.

Most of the staff considered self-plagiarism and collusion within group work as clear cases of plagiarism, in opposition to the views held by many students (Palmer et al., 2019), although some comments in the survey did mention the difficulties encountered when dealing with such cases, mainly from a lack of clear guidelines. This implies the need for teaching staff to make their assignment specifications and marking criteria quite clear to their students. It is noted that this stance from the transnational staff is much stricter than that adopted by some lecturers in home campuses, as reported in some studies (Bennett et al., 2011; Halupa & Bolliger, 2013) where staff and students are often divided on issues of self-plagiarism and collusion within group work (Childers & Bruton, 2016; Fraser, 2014; Halupa & Bolliger,

2015). The transnational staff seemed to blame the students, yet did not seem to have provided enough guidance to dissipate the confusion in the students' perceptions, probably because of a lack of adequate guidance from the institution.

Reasons given by staff for student plagiarism

Nearly all of the staff members perceived plagiarism as a real problem. Over 50% of the staff members also found plagiarism to be quite common among students. They gave several reasons for plagiarism among students: (1) General lack of knowledge of plagiarism; (2) Lack of knowledge, arising, for some students, from their previous academic and cultural backgrounds in another country which formed their different approaches to learning; (3) Easy way out and laziness; (4) Academic difficulties (students struggling with academic level, language problems); (5) Culture of sharing; and (6) Uncertainty on self-plagiarism and collusion. These reasons are in line with findings reported on student plagiarism in home campus environments (Bretag However, in the transnational environment, inadequate knowledge of plagiarism arising from previously acquired different approaches to learning, language problems and insufficient guidance arising from lenient or busy staff and from a distant institution are likely to exacerbate plagiarism issues. et al., 2014; Gulifer & Tyson, 2014; Halupa & Bolliger, 2015; Sutton et. al., 2014).

Inadequate information on plagiarism policies and procedures

On the provision of information about plagiarism policies and procedures, members of staff were divided on whether they themselves, or their students, were well informed about it, as reported in other studies (Bennett et al., 2011; Gourlay & Deane, 2015; Halupa & Bolliger, 2013). The need for further training on plagiarism was often emphasized as some remained uncertain about the action required of them when dealing with plagiarism cases.

Suggestions by staff to reduce student plagiarism

To curb plagiarism, staff members were overwhelmingly more in favour of an educative approach than of punitive actions, as reported in other studies at home campuses (Bruton & Childers, 2016; Gourlay & Dean, 2015). The majority of the staff (70%) suggested a variety of educative approaches: (1) Training on academic literacies; (2) Embedding the teaching of plagiarism in every module; (3) Using past plagiarism cases to reinforce the issue to students; (4) Avoiding tempting students into plagiarism (by avoiding recycling of assignments or questions); (5) Providing more information on plagiarism; (6) Reinforcing the value of academic integrity. The punitive approach mentioned the following measures: "reinforce penalties"; "reinforce the consequences"; "fail them". The training on academic literacies suggested by many members of staff in both survey and interviews is in line with the recommendation made in many studies which advocated the incorporation of academic literacies in

university programmes as an effective approach to improve students' awareness in dealing with plagiarism issues (Murray & Nallaya, 2016; Newton et. al., 2014; Palmer et al., 2019; Powell & Singh, 2016). Of particular interest here is the suggestion to embed some form of plagiarism teaching within every module/unit. This particular approach has only been mentioned by one other study on plagiarism (Rets & Ilya, 2018). It could prove quite effective as the lecturer would emphasize any aspects of plagiarism that could be relevant to the particular module. Reminding students of past cases of plagiarism and of their consequences is also quite effective (Owens & White, 2013). Students tend to pay more attention to real cases of plagiarism, learn from them and improve their understanding of plagiarism (Divan et al., 2015; Wingate & Tribble, 2013). Along the same lines, Li (2012), suggested an educative approach using the Turnitin® originality reports.

Leniency of part-time staff

Regarding the belief that some part-time staff may ignore plagiarism cases, most of the part-time and full-time staff agreed that this was the case, with the main reasons being: (1) The need for part-time staff to be lenient towards their students to ensure good evaluations and renewal of contracts; and (2) the amount of hard work and extra time required to deal with plagiarism cases. Similar views were shared by the students in transnational campuses, who seemed quite aware of the particular working conditions in which part-time staff operate within such an environment (Palmer et al., 2019).

Recommendations to reduce plagiarism issues through improved interaction: faculty - staff – students

This study reported on the need to improve the staff-student interaction, which was found to be rather limited within a transnational environment, characterized by an overreliance on part-time staff. Part-time staff within a transnational environment need to improve their interaction with the students. The study also reported on the need for the institution to provide clear guidelines on plagiarism policies and procedures to both staff and students. The institution would also need to provide an induction session to staff and adequate training to students. From the findings reported in this study, a detailed triangular interaction between the institution (or faculty), staff and students is suggested here to ensure an effective and more educative approach to reduce plagiarism within a transnational environment. This interaction is illustrated in Appendix A below, with the various obligations / actions between faculty (or institution), staff and students detailed in Appendix B. In most institutions, there will be staff from the 'Teaching and Learning' unit who would provide teaching specific to academic literacies and plagiarism. Where such a unit is not present, staff with experience in these areas would provide the teaching. In some institutions, procedures on academic misconduct, which embeds plagiarism, but also includes other acts of misconduct, such as cheating in an examination, may be provided on a separate information platform. The actions and obligations presented in Appendix B ensure: (1) a pro-

active engagement of the staff towards reducing plagiarism, as recommended by McCabe et al. (2012) with a dominant educative approach, often suggested as the appropriate action by several researchers on student plagiarism (Bruton & Childers, 2016; de Jager & Brown, 2010; Li, 2015; Sutherland-Smith, 2014); (2) the necessity for the institution / faculty to provide clear guidelines on plagiarism policies and procedures and adequate training to both staff and students; (3) a pro-active engagement of the students to improve their understanding of plagiarism and their level of academic integrity; and (4) alleviate the deficiencies on plagiarism of the transnational environment, as reported in this study, and characterized by an over-reliance on part-time staff, often operating under a dual management system, away from the main institution's campus (Dobos, 2011; Healey, 2015a, 2015b; Henderson et al., 2017; Palmer et al., 2019).

Conclusions

This study investigated the views on plagiarism of teaching staff working in a transnational higher education environment using a survey and interviews. A transnational environment differs to that of a home campus from its greater diversity of students and staff, from its mostly part-time staff working under a dual management system, and from the more limited level of services afforded locally to its staff and students. Findings from this study point to an inadequate level of understanding of plagiarism policies by the staff and a lack of application of the corresponding plagiarism policies. Some students and staff have difficulties in understanding some complex aspects of plagiarism, especially in relation to self-plagiarism and collusion within group work, in a similar vein to those encountered within a home campus, but probably exacerbated by the characteristics of the transnational environment. This study suggests the need for a more effective and integrated interaction between the institution, staff and students.

It is therefore vital for transnational higher education providers to ensure clear, unambiguous and inter-university academic misconduct policies and procedures, which will enable academic staff to make the right decisions on academic misconduct, and support the students in their compliance with academic integrity. Sets of detailed actions and obligations between the institution, staff and students are recommended here to provide such a holistic approach to ensure and maintain academic integrity within a transnational higher education environment.

Declaration

The data used in this article has been taken from the Author's unpublished PhD thesis.

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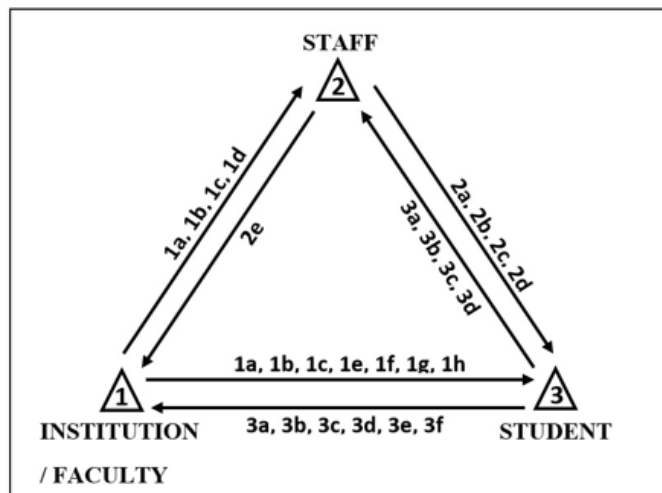
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Appendices

Appendix A.

Diagram illustrating an improved Faculty-Staff-Student interaction to reduce plagiarism



Appendix B.

List of interactive actions between faculty, staff and students

Action from Institution/Faculty (1):

- 1a: To provide clear and specific information on plagiarism policies
- 1b: To provide clear and specific guidelines on plagiarism procedures, including detailed information on consequences of plagiarism (penalties on breaches of plagiarism)
- 1c: To provide clear guidelines on academic misconduct procedures, when provided separately from information in 1b
- 1d: To provide an induction session for new staff on plagiarism policies and procedures, and academic misconduct
- 1e: To provide an induction workshop for new students on academic literacies
- 1f: To provide a compulsory unit on plagiarism for all new students
- 1g: To provide online information on plagiarism
- 1h: To inform students of alleged cases of plagiarism

Action from Staff (2):

- 2a: Staff from 'Teaching and Learning' to teach an induction session on academic literacies
- 2b: Staff from 'Teaching and Learning' to teach a compulsory module on plagiarism to new students
- 2c: To continuously educate students on plagiarism within units and courses
- 2d: To provide feedback to students on plagiarism issues in formative assignments
- 2e: To report plagiarism cases to the Institution/Faculty

Action from Student (3):

- 3a: To attend an induction session on academic literacies
- 3b: To pass a compulsory module on plagiarism
- 3c: To submit formative assignments for feedback
- 3d: To be allowed multiple submissions through online plagiarism detection software to develop understanding of plagiarism prior to submission deadline
- 3e: To reply to any alleged academic misconduct case
- 3f: To be able to appeal a misconduct penalty

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Customised study companion improves student exam performance: a retrospective study in an undergraduate medicine course

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Keywords

Assessment;
cognitive load;
extraneous load;
pharmacology education;
study companion.

Abstract

The aims of this study were to retrospectively analyse the relationship between usage of a customised learning tool and medical student performance in an examination, and to solicit student feedback on the learning tool. Learning theories and strategies have long suggested that reducing extraneous load, e.g. by reducing learner attention to multiple information sources, could enhance learning in medicine because of more effective use of cognitive load. A customised learning tool, termed "Study Companion" (Pha1SC), was developed that integrates key analgesic pharmacology contents from several major textbooks. The entire cohort of 231 pre-clinical Medical Year 3 students was offered Pha1SC during the academic year, and 82 of them ("Users") made use of the learning tool to various extents. Overall, Users earned higher scores than Non-users on exam questions regardless of their relation to the contents of Pha1SC. However, Users were more likely to score higher in pharmacology questions than Non-users. More importantly, Users tended to fare better on the Pha1SC-related question independently, regardless of their scores on the question not related to Pha1SC. Findings in this study support the adoption and refinement of Pha1SC to enhance student learning outcomes in pharmacology.

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Introduction

Pharmacology is a discipline among other foundation sciences subjects, such as physiology and biochemistry, that constitutes the core of medical education. What may make pharmacology more distinctive is that this subject is taught in typical syllabi of both pre-clinical and clinical medical education (Jefferies et al., 2010). Starting from pre-clinical years, medical students already are inundated with an enormous amount of information in pharmacology, from basic principles of drug action to mechanisms of action and adverse effects of individual drugs. Practising physicians often would recognise patterns of presenting symptoms in their patients to make diagnoses and devise treatment strategies. Seemingly, little knowledge from pre-clinical pharmacology education is explicitly applied in clinical medicine. The importance of pre-clinical pharmacology is not trivial though, since safe and effective clinical practice builds upon having prior, solid knowledge of the foundation sciences subjects. Determining the appropriate level of pre-clinical pharmacology education to prepare a medical student for clinical training and practice remains a working problem among medical educators (Achiike, 2010). As Baños et al. (2002) noted in an article about pharmacology teaching in the 21st century, the great advances in drug discovery and development means "there is no realistic possibility of teaching all facts about all drugs to each student". Pharmacology educators have to juggle between which essential drugs and their mechanisms of actions to teach, and which ones to omit in the constantly updating curriculum (Karaksha, 2018).

In pre-clinical medical education, student learning is largely motivated by earning high scores on summative assessments (Jefferies et al., 2010). It is not uncommon for pharmacology teachers in pre-clinical years, who may not be clinicians themselves, to put greater emphasis on therapeutic mechanisms than clinical application (Jefferies et al., 2010; Achiike & Ogle, 2000). Information overload is a less than optimal by-product of pre-clinical health sciences education, especially considering the average physicians-in-training being more of "science users" or "medical technologists" rather than "scientists" in their future careers (Dornhorst, 1981), and the challenges faced by nursing students in approaching this subject (Mauldin, 2021). Undeniably, a good number of medical students possess remarkable memory skills, but these often prove futile in the face of information overload (Cutting & Saks, 2012). Cognitive load theory has been increasingly accepted in the medical education community (Young et al., 2014). This theory states that excessive extraneous load (e.g. vast amount of details in a pharmacology textbook) will diminish the learner's ability to process the taught materials and to convert them into long-term memory to complete the learning process (Young et al., 2014). The level of learning an individual learner achieves depends on the amount of working memory, which is limited (by definition of cognitive load theory) and is reduced to a large extent when extraneous load is high (Young et al., 2014). Different teaching strategies have been described that help to lighten extraneous load, including the recognition of split attention principle in teaching (van Merriënboer & Sweller, 2010).

Split attention principle calls for the presentation of learning materials that have been integrated from separate sources by the teacher (van Merriënboer & Sweller, 2010). The learner's limited working memory would be spared from having to locate key points from different textbooks, for example. Consequently, the learner is able to make more effective use of the working memory to carry out the learning process. The split attention principle is also considered in the delivery of pharmacology contents in several pre-clinical Medical Year 3 classes at a local university. Specifically, the teacher has compiled a supplementary learning tool called "Study Companion" that is intended to be read alongside the lecture slides on analgesic pharmacology (Pha1SC). The Study Companion (Pha1SC) contains key information sourced from several major pharmacology textbooks that is deemed to be relevant to pre-clinical medical students. Information is carefully selected to minimise extraneous load on the student learner. Students can freely access Pha1SC on the university's Learning Management System (Blackboard®). The aims of this retrospective study were to examine whether Pha1SC positively impacts student performance in the year-end examination, and to solicit student feedback on the usefulness of Pha1SC.

Methodology

A pharmacology study companion (Pha1SC) was offered to all 231 Medicine Year 3 students as a supplement to an two-hour analgesic pharmacology lecture. Data on student usage and feedback on Pha1SC were collected and analysed retrospective of the generation of Pha1SC. Without randomly assigning students to any specific treatment groups, all students could choose to use Pha1SC voluntarily. Thus, there was no control group in this quasi-experimental study. A null hypothesis was set before data analysis that states: Pha1SC usage did not improve performance on a related exam question, and the alternate hypothesis states that exam performance was better with Pha1SC.

Figure 1 shows the user interface and sample page layout of Pha1SC. Referring to Figure 1c which shows a sample page of Pha1SC describing the pharmacology of methadone, students are expected to know only the factual information presented on the left of the page (which shows the lecture slide). On the right of the page is the Pha1SC contents. As an example, methadone pharmacology is the topic of interest. Two "must-know" facts about methadone are: it has a long half-life, and it can be used for management of opioid dependence. To help the learner relate these two facts, Pha1SC provides some of the underlying reasons: e.g. methadone can be given by mouth (unlike other opioid painkillers); longer half-life translates to more convenient, less frequent dosing regimens. Opioid-dependent persons also suffer from withdrawal symptoms which can be alleviated by the long-acting methadone that can be given once every few days. Pha1SC presents in a more coherent manner elaborative but concise explanation and/or discussion of key points covered in the lecture slides. After the lecture, where students had been presented with the lecture slides (which were also available for view prior to the lecture), students could voluntarily log onto the university's learning management system (LMS: Blackboard®) to access

Pha1SC any time before the year-end examination. Pha1SC was created using ActivePresenter® (Atomi Systems, Inc., Hanoi Vietnam) and packaged as a Shareable Content Object Reference Model (SCORM) for user access on Blackboard®.

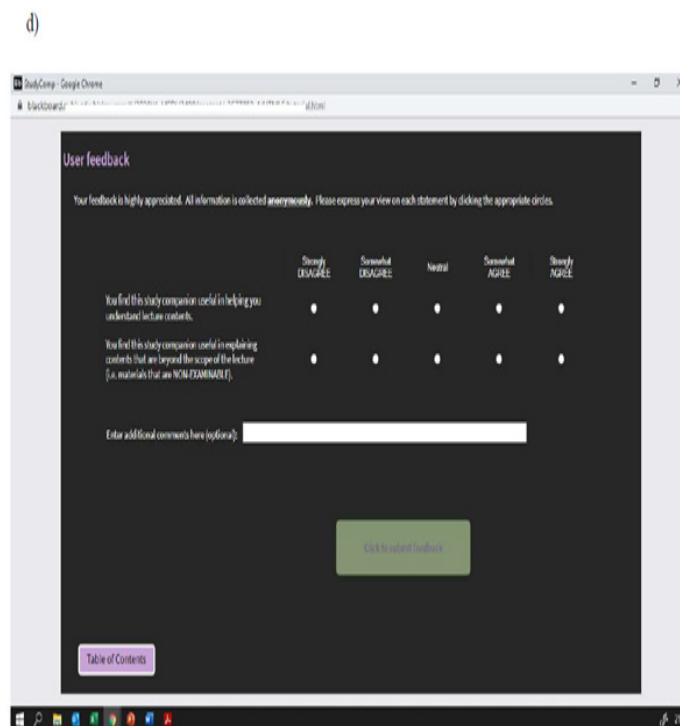
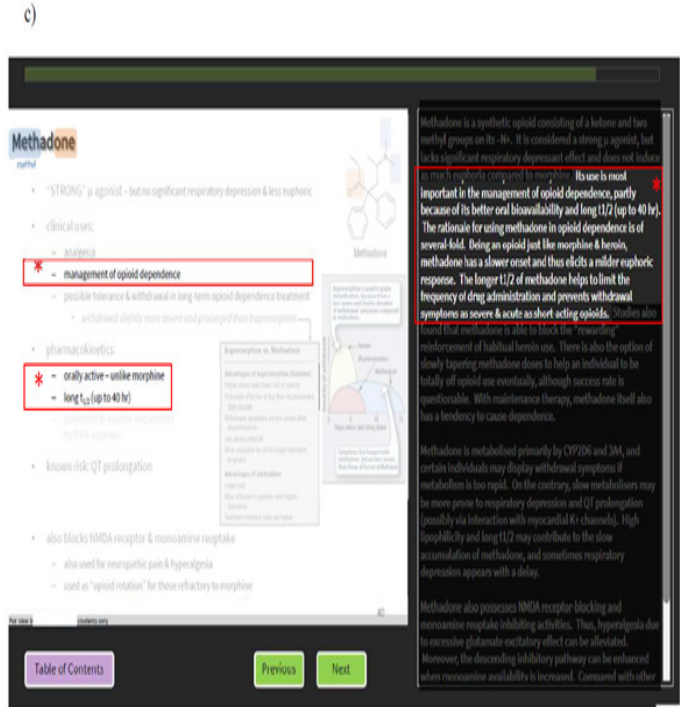
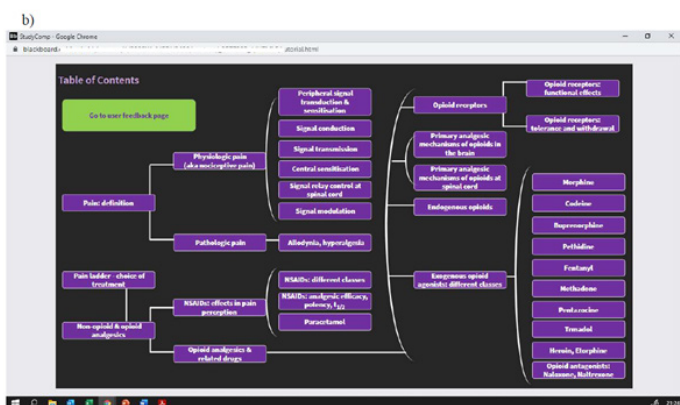
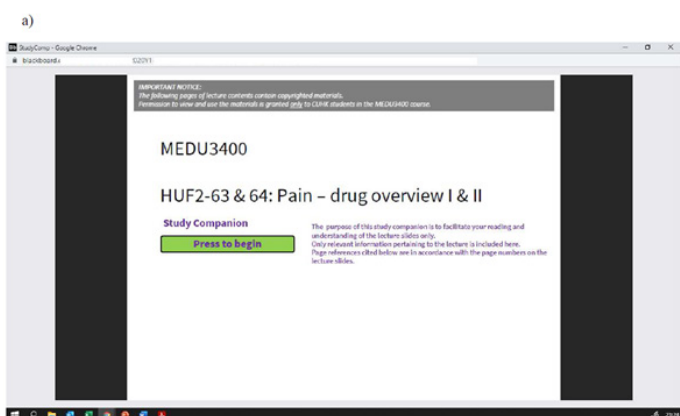


Figure 1. User interface and sample page layout of Pha1SC. a) Title page displaying lecture topic. b) Table of contents where the user can click and access a specific sub-topic of interest. c) Sample page layout showing lecture slide with alongside key points integrated from multiple sources. Refer to the boxes marked with red asterisks (*): In this example, factual points about methadone are listed on the left (showing lecture slide). These factual points are further explained with the relevant background provided on the right to help the learner understand the information better. For illustrative purposes, other parts of the sample page are shaded. Bar at the top of the page shows user progress in the lecture. d) User feedback page.

The amount of time that a user has logged onto Pha1SC was recorded on Blackboard®. To account for outliers, namely those users who logged onto but simply advanced through Pha1SC without reading any part of it, a "User" was regarded as such only if the usage time exceeds two minutes. Usage time of two minutes or shorter would fall under the category of "Non-users". Usage data of Pha1SC were analysed after the year-end examination, which consists of questions related to contents in Pha1SC as well as other topics. Student scores on short-answer questions, covering the following topics: analgesic pharmacology (Pha1Q), neuropharmacology (Pha2Q) and endocrine physiology (PhysQ), were subject to statistical analyses. Contents of Pha1Q were covered by Pha1SC, which is unrelated to the contents of either Pha2Q or PhysQ. Mean scores on the questions were compared between Users (defined as those who had registered usage of Pha1SC for two minutes or more) and Non-users (defined as the remainder of the cohort) by Mann Whitney tests. Median, 25th and 75th percentile scores were also qualitatively compared. Chi-square tests for trend were used to identify any relationship in the range of marks obtained in Pha1Q, Pha2Q or PhysQ (namely 0 to 19, 20-39, 40-59, 60-79, 80 and above, all in percentages) with Pha1SC usage. Correlation analysis was performed between scores on

Pha1Q and Pha2Q among Users and Non-users, followed by comparison of the correlation coefficients. All statistical analyses, with the exception of correlation coefficient comparison, were conducted in GraphPad Prism® version 5 (GraphPad Software, San Diego, CA, USA). An online calculator (<http://comparingcorrelations.org>) was used to determine statistical significance between correlation coefficients (Diedenhofen & Much, 2015).

Results

Scores obtained by Users and Non-users of Study Companion (Pha1SC) on a related exam question (Pha1Q) and on unrelated exam questions (Pha2Q, PhysQ)

Out of a total of 231 students, 82 (35%) of them (referred to as “Users”) read the Study Companion (Pha1SC) for a meaningful duration (i.e. two. minutes or more as stated earlier). On the pharmacology question (Pha1Q) which tests on contents supplemented in Pha1SC, the mean scores were significantly higher compared to Non-users who did not register usage of the study companion for more than two minutes (Table 1). Table 1 also shows that the median, 25th and 75th percentile scores were higher among Users.

The study companion (Pha1SC) does not include contents that are tested on one other pharmacology question (Pha2Q) and one other physiology question (PhysQ). Among Users, the mean scores were significantly higher than Non-Users on both questions (Table 1). Other parameters such as median, 25th and 75th percentile scores were higher among Users as well, although the differences were smaller in the physiology question (PhysQ).

Relationship between Pha1SC usage and Ph1Q, Pha2Q and PhysQ scores

The higher mean scores on both related (Pha1Q) and unrelated (Pha2Q, PhysQ) questions among Users did not serve to determine the effectiveness of the Study Companion (Pha1SC) yet. It is conceivable that Users may be more able learners in general, who tend to perform better in an exam, with or without Pha1SC. No statistically significant relationship between usage duration and scores on any question was observed: Spearman correlation coefficients (P values in parentheses) are -0.021 (0.8483) for Pha1Q, -0.005 (0.9674) for Pha2Q, 0.1973 (0.0756) for PhysQ. On the other hand, results from Chi-square (χ^2) tests reveal that Users of Pha1SC were more likely to score in the higher mark range on both Pha1Q ($\chi^2 = 5.576$; $P = 0.0182$) and Pha2Q ($\chi^2 = 5.298$; $P = 0.0214$) but not PhysQ ($\chi^2 = 1.579$; $P = 0.2089$). Figure 2 shows that higher mark ranges in Pha1Q and Pha2Q were more favoured by Pha1SC usage, which has no impact on PhysQ scores.

Table 1. Student scores (from a total of 231 students) on short-answer questions in a Medical Year 3 final examination.

	Users (n = 82)				Non-users (n = 149)			
	mean $\pm$ S.D.	median	25th	75th	mean $\pm$ S.D.	median	25th	75th
Pha1Q	65.24 $\pm$ 14.59 (U = 5066; P = 0.0294 vs Non-user)	70	57.5	80	58.93 $\pm$ 19.73	60	50	70
Pha2Q	72.93 $\pm$ 16.40 (U = 4744; P = 0.0048 vs Non-user)	75	60	85	64.36 $\pm$ 22.26	70	55	80
PhysQ	56.95 $\pm$ 10.03 (U = 4658; P = 0.0028 vs Non-user)	56.67	51.67	62.09	51.42 $\pm$ 12.55	51.67	43.33	60.00

Scores (mean $\pm$ S.D.) obtained by Users (defined as those who had registered usage of a customised study companion (Pha1SC) for two minutes or more) and Non-users (defined as the remainder of the student cohort) on three questions of the following topics: analgesic pharmacology (Pha1Q), neuropharmacology (Pha2Q) and endocrine physiology (PhysQ) were compared. P values smaller than 0.05 as computed from Mann Whitney tests are considered statistically significant. Abbreviation: U = Mann-Whitney U score.

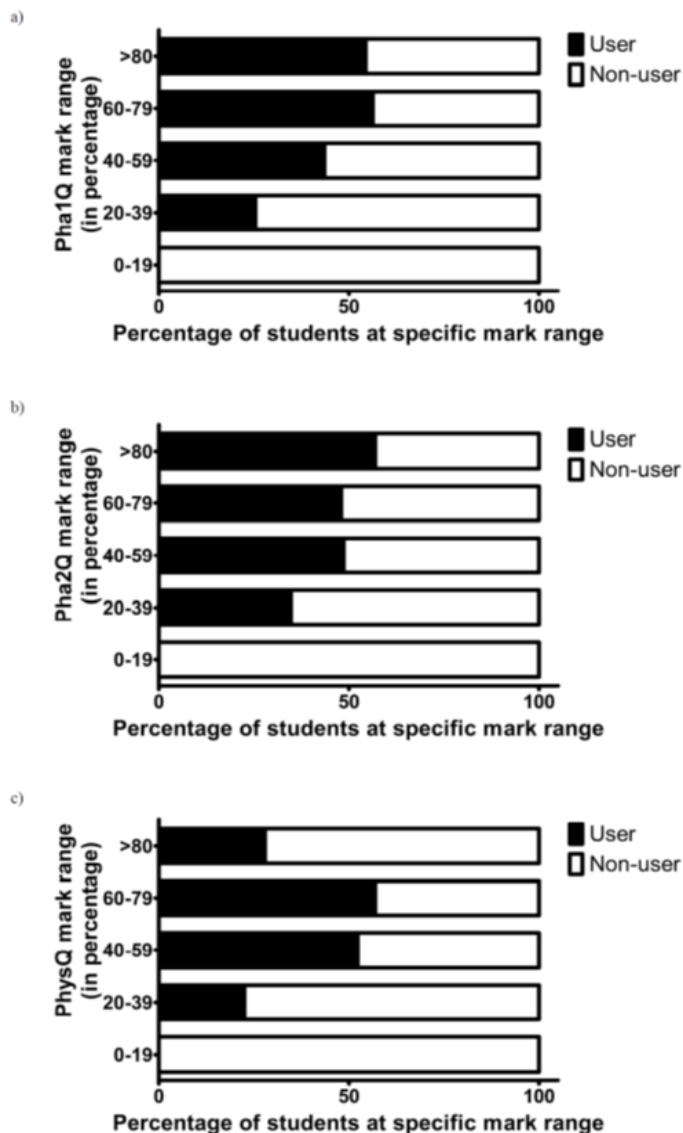


Figure 2. Stacked bar charts of scores obtained by Users and Non-users of Pha1SC. Scores are expressed as mark ranges from 0 to 19, 20 to 39, 40 to 59, 60 to 79, and 80 or greater (in percentages) on three questions related to: a) analgesic pharmacology (Pha1Q), b) neuropharmacology (Pha2Q), c) endocrine physiology (PhysQ).

Correlation differences between User and Non-user scores on the pharmacology questions (Pha1Q and Pha2Q)

The positive impact of Pha1SC usage on student performance on both pharmacology questions (one related to Pha1SC – Pha1Q; one unrelated – Pha2Q) was demonstrated. However, it remains unclear whether Pha1SC usage produced an outcome that is specific to its intended pharmacology question content only (i.e. Pha1Q). Figure 3 shows the distribution of Pha1Q and Pha2Q scores among Users and Non-users.

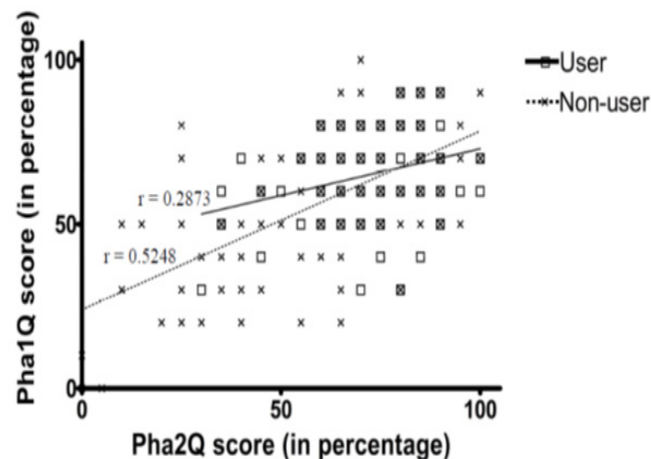


Figure 3. Correlation between scores on Pha1Q and Pha2Q obtained by Users and Non-users of Pha1SC.

Table 2 shows the results of correlation analyses, separately within Users and Non-users, between Pha1Q and Pha2Q. Correlation was significantly lower among Users, suggesting individual Users earned higher Pha1Q scores more independently of Pha2Q scores, a result more attributable to Pha1SC usage. In other words, Users who achieved higher Pha1Q scores after Pha1SC usage were no more likely than Non-Users to obtain higher Pha2Q scores. In contrast, individual Non-users' Pha1Q and Pha2Q scores were more correlated in the absence of Pha1SC intervention.

Table 2. Correlation analyses of student scores on two pharmacology questions (Pha1Q and Pha2Q) in a Medical Year 3 year-end examination.

	Users (r1)	Non-users (r2)	Comparison of r1 and r2
Pha1Q vs Pha2Q	0.2873 ($P=0.0089$)	0.5248 ($P<0.0001$)	$P=0.0397$ (correlations are different)

Spearman correlation coefficients (r1 and r2) represent values among Users and Non-users, respectively. The two values (r1 and r2) were subject to comparison subsequently based on principles described by Diedenhofen & Much (2015). P values smaller than 0.05 are considered statistically significant.

User feedback to Pha1SC

Users may opt to fill out a survey after using part or all of Pha1SC (Figure 1d). Out of 82 Users, 26 provided their views to two statements and a few also wrote additional comments. On a 5-point Likert scale, all respondents selected either "Strongly Agree" or "Somewhat Agree" to statement 1) "You find this study companion useful in helping you understand lecture contents". To statement 2) "You find this study companion useful in explaining contents that are beyond the scope of the lecture (i.e. materials that

are non-examinable)", all respondents selected "Strongly Agree" or "Somewhat Agree", except two who selected "Neutral". Figure 4 shows the distribution of user feedback to the two statements on Pha1SC usage. Representative user feedbacks are shown in Figure 5.

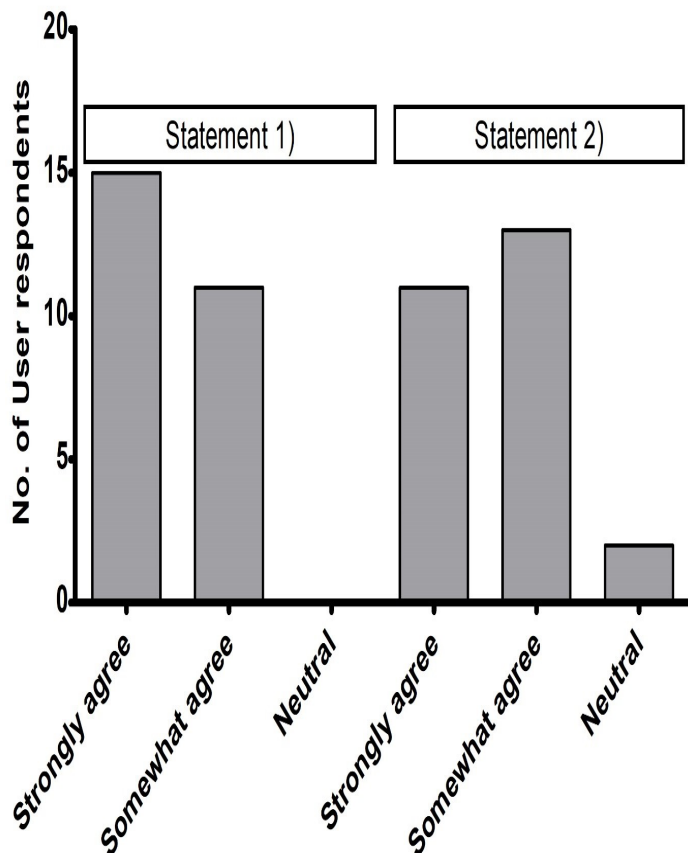


Figure 4. Users' views on usefulness of Pha1SC. 26 out of 82 Users expressed their views using a 5-point Likert scale on two statements that ask whether Pha1SC was useful in helping the understanding of lecture contents (Statement 1) and contents beyond the scope of the lecture (Statement 2). All the expressed views were accounted for in the bar graph above.

4. (Attempt 1 of 1)

Grade Previous Item

Grade Next Item

LEARNING OBJECT INTERACTIONS

Learning Object Name	Total Time	Status	Scaled Score	Learner Response
Study Companion for Analgesics	1 hour, 43 minutes, 51.42 seconds	N/A	N/A	
Result	N/A	N/A		
StudyComp	1 hour, 43 minutes, 51.42 seconds	N/A	N/A	N/A

51. (Attempt 1 of 1)

Grade Previous Item

Grade Next Item

LEARNING OBJECT INTERACTIONS

Learning Object Name	Total Time	Status	Scaled Score	Learner Response
Study Companion for Analgesics	1 hour, 39 minutes, 9.78 seconds	complete	0%	N/A
Result	N/A	N/A		
StudyComp	1 hour, 39 minutes, 9.78 seconds	complete	0%	N/A
studyCompLikert_0	N/A	N/A	5	5
studyCompLikert_1	N/A	N/A	5	5
63_30	N/A	N/A	good for revision	good for revision

29. (Attempt 1 of 1)

Grade Previous Item

Grade Next Item

LEARNING OBJECT INTERACTIONS

Learning Object Name	Total Time	Status	Scaled Score	Learner Response
Study Companion for Analgesics	1 hour, 23 minutes, 1.6 seconds	complete	0%	N/A
Result	N/A	N/A		
StudyComp	1 hour, 23 minutes, 1.6 seconds	complete	0%	N/A
studyCompLikert_0	N/A	N/A	6	6
studyCompLikert_1	N/A	N/A	6	6

88. (Attempt 1 of 1)

Grade Previous Item

Grade Next Item

LEARNING OBJECT INTERACTIONS

Learning Object Name	Total Time	Status	Scaled Score	Learner Response
Study Companion for Analgesics	5 hours, 34 minutes, 28.74 seconds	complete	0%	N/A
Result	N/A	N/A		
StudyComp	5 hours, 34 minutes, 28.74 seconds	complete	0%	N/A
studyCompLikert_0	N/A	N/A	6	6
studyCompLikert_1	N/A	N/A	6	6
63_30	N/A	N/A	Could not copy the words inside this study companion, better if the pdf file is also provided	Could not copy the words inside this study companion, better if the pdf file is also provided

90. (Attempt 1 of 1)

Grade Previous Item

Grade Next Item

LEARNING OBJECT INTERACTIONS

Learning Object Name	Total Time	Status	Scaled Score	Learner Response
Study Companion for Analgesics	6 hours, 11 minutes, 26.2 seconds	complete	0%	N/A
Result	N/A	N/A		
StudyComp	6 hours, 11 minutes, 26.2 seconds	complete	0%	N/A
studyCompLikert_0	N/A	N/A	6	6
studyCompLikert_1	N/A	N/A	6	6
63_30	N/A	N/A	thank you!	thank you!

129.

Attempt 1 of 1)

Grade Previous Item

Grade Next Item

LEARNING OBJECT INTERACTIONS

Learning Object Name	Total Time	Status	Scaled Score	Learner Response
Study Companion for Analgesics	2 hours, 2 minutes, 1.18 seconds	complete	0%	N/A
StudyComp	2 hours, 2 minutes, 1.18 seconds	complete	0%	N/A
studyCompLikert_0	N/A	N/A	N/A	6
studyCompLikert_1	N/A	N/A	N/A	6
63_30	N/A	N/A	Thank you for the highly informative slides! Is it possible to arrange the content in point form instead of paragraphs so it is easier to follow the flow? Thank you!!	Thank you for the highly informative slides! Is it possible to arrange the content in point form instead of paragraphs so it is easier to follow the flow? Thank you!!

Figure 5. Representative user feedbacks of Pha1SC. User identities are redacted. The headings "studyCompLikert_0" and "studyCompLikert_1" refer to statements 1) and 2) as stated in the text, respectively. The statements aim at determining user satisfaction on contents covered in class as well as contents that fall outside the scope of the course. Users opted in to give a 5-point rating ranging from "Strongly Disagree" (denoted by a system-built-in numerical value of "2") to "Strongly Agree" (denoted by a system-built-in numerical value of "6") to the statements.

Discussion

A number of teaching methods have been proposed to tackle the problem of information overload in medical education, especially in the area of pharmacology education. More recently with reference to cognitive load theory, strategies designed to reduce extraneous load and to improve intrinsic load presentation are put into use so that germane load on the learner is optimised for learning (van Merriënboer & Sweller, 2010). An ideal medical curriculum should help a student to build a solid knowledge base (Achiike and Ogle, 2000) for the sake of enhanced patient safety, considering that one in five medication errors could potentially be attributed to poor understanding of the pharmacological properties of drugs (Rubaiy, 2021). Pharmacology educators are tasked to select an appropriate breadth and depth of contents for teaching, to enhance student learning and yet to prevent information overload. Reducing extraneous load with reference to split attention principle represents one way to free up the learner's working memory to accommodate other cognitive loads to effect the learning process (van Merriënboer & Sweller, 2010).

Extraneous load experienced by the pre-clinical Medical Year 3 students in this study was reduced by the availability of a customised analgesic pharmacology Study Companion (Pha1SC) that integrates information from multiple sources. Students' learning efforts need not be expended on locating useful information from textbooks, but rather to focus on the essential contents as presented in the lecture instead. A similar practice in nursing pharmacology education was

reported elsewhere. Kaylor (2014) described the use of annotated lecture slides in the Notes section of Powerpoint® presentations, which were well-received by the students as reflected in qualitative feedbacks (Kaylor, 2014). User feedback in the present study was also overwhelmingly positive. Furthermore, findings in this study suggest greater correlation between exam performance and Pha1SC usage. As pre-clinical students are more driven by assessment performances in their learning (Jefferies et al., 2010), a comprehensive, yet concise, Study Companion (Pha1SC) that provides the learner a "one-stop" source of information would likely appeal to students. Considering its non-mandatory nature, the fact that over one-third of all students opted to use Pha1SC to various extents represents a reasonable value of this learning tool. While the Users might be more self-directed learners as reflected in their overall better performance on questions not related to Pha1SC, their scores on the related pharmacology question (Pha1Q) indicate a less significant relationship with their individual ability. Scores of Non-users of Pha1SC on Pha1Q (related to Pha1SC) and Pha2Q (unrelated to Pha1SC) were more strongly correlated, as shown by the findings in this study. One of the "Twelve Tips" for health professions education by Gooding et al. (2016) states that to reduce extraneous load, the essential material (text and graphics) should be presented together. The present Pha1SC, as well as the method described by Kaylor (2014), did exactly as suggested (Gooding et al., 2016) and demonstrated promising results. The use of enrichment tools to improve student learning outputs has been in long practice across many disciplines. In medical education, animations and narrated videos play crucial roles in illustrating pharmacological and physiological concepts (Karaksha et al., 2011; Young et al., 2014) and in demonstrating surgical techniques (Bernado et al., 2004). Interestingly though, animations may not be preferable over traditional lecture slides (van Wyk, 2018), as long as extraneous cognitive load is minimal, e.g. by integrating contents from multiple sources, or by combining different modes of information delivery (Mauldin, 2018). Cognitive load of the student learner can be optimised when these learning tools are designed and used appropriately. In spite of technological advances, one traditional learning tool – textbook – remains an important information source for the learner. Medical textbooks are often voluminous, and plenty of valuable information is contained in them. For a student learner, deciding on a single textbook as a major reference is already a challenging endeavour. Even more frustrating is the enormous task of selecting which of the textbook contents should a student be more concerned with. In an article on the overload of pharmacology information, it is said that the goal of teaching pharmacology to medical students is to equip them with a basic knowledge of drugs in order to prescribe them wisely (Achiike and Ogle, 2000). Thus, the pharmacology teacher bears the responsibility to provide a succinct yet credible source of the most important contents to prevent overloading students who are in the early phase of undergraduate studies. The current Pha1SC shares similar features of the nursing pharmacology lecture notes (Kaylor, 2014) but also has marked differences in serving distinct student populations. Instead of showing bullet-point items, Pha1SC contents are presented in prose so the learner may better appreciate the logics behind interlinking concepts, as exemplified in Figure 1c) and

described in the Methods section. Timing the release of the lecture slides and Pha1SC for student access may also be significant in further reducing the extraneous load. Pha1SC was only available to students after they have viewed the lecture slides, which already could be accessed prior to the lecture. The learner would have the opportunity to scan through the lecture slides before learning these contents in class. After the lecture, the learner would be able to consult Pha1SC directly with the accompanying lecture slides. This sequential release of contents in Pha1SC may also help the learner in managing intrinsic load. Key facts about a topic (e.g. properties of a drug) are presented first in point form in lecture slides, followed by Pha1SC which connect these facts together (e.g. how individual properties of a drug contribute to its preferred usage). The contents of Pha1SC then serve as a stimulus in forming a germane load to effect learning as a constituent of the intrinsic load (Young et al., 2014).

In future versions of Pha1SC, other teaching methods may also be considered in order to further enhance students' learning experiences. Cutting and Saks (2012) wrote on tips to support medical education (Cutting & Saks, 2012). One of the tips describes the integration of learning contents provided by the teacher that serves as triggers to students to compare and contrast related topics (Cutting & Saks, 2012). The learner will be required to re-organise information that is provided and which fosters deeper learning in the process. As such, open-ended questions may be included in a newer version of Pha1SC that allows user responses to be recorded and feedback to be provided via the LMS platform. As another tip suggested by Cutting & Saks (2012), these in-depth questions with instructor feedback should enhance the ability of the learner to monitor their own learning. Presently, Users of Pha1SC could already monitor their own progress of the analgesic pharmacology lecture by referring to a progress bar at the top of the user interface (Figure 1c). Nevertheless, the learner will certainly benefit more with the inclusion of interactivity elements (e.g. open-ended questions or simpler recall-of-facts questions), which offer ideas in the development of an upgraded, enhanced version of Pha1SC.

A good balance needs to be struck in creating learning tools, such as the said study companion, with desirable difficulty levels (Cutting & Saks, 2012; Gooding et al., 2016) that the learner can choose according to their proficiency on the topic. Presentation of contents that are too difficult inevitably overwhelms the learner's intrinsic load and consequently exhausts the total cognitive load available for learning. There are also concerns of expertise reversal effect when more able learners may be disengaged from learning the content if it is presented at an excessively elementary level (van Merriënboer & Sweller, 2010). Therefore, it is the responsibility of the teacher to design learning tools wisely and to guide learners of varying abilities in the knowledge acquisition process. Ideally, a refined version of the study companion (Pha1SC) will cater to the learning preferences and needs of the entire student cohort universally. Future versions of the study companion can be improved by categorising information into "must-knows", "explanation of the must-knows", and "extras". "Extras" of a Study Companion are to be read by students who want to explore further on the topic. This "extra" reading may

be done before or after course assessments. "Explanation of the must-knows", sometimes encompassing advanced pharmacological concepts or drug mechanisms could pose a great challenge to both the teacher and the student. In a review article, Engels (2018) emphasises on the importance of pedagogical content knowledge (PCK) in teaching pharmacology, where the teacher should be an expert not only in the subject content, but also in the range of teaching methods to deliver the content to students (Engels, 2018). Mnemonics represent an aspect of PCK a teacher frequently uses to target novice learners in medicine (Young et al., 2014). A future, upgraded version of Pha1SC (or other Study Companions in general) will require a more advanced comprehension and application of PCK, with a broader variety of assessments that allow more precise measurement of student understanding of different pharmacology topics. The teacher bears the responsibility to load the student learner with the appropriate amount of subject contents and at the appropriate difficulty level. As stated earlier, suggested improvements of an existing study companion may combine the introduction of open-ended questions and categorisation of contents to engage and encourage the student learner to gradually adapt to an active learning behaviour. One of the tips on the science of learning refers to the creation of retrieval exercises where the learner needs to generate answers to questions, rather than choosing from a range of options (Gooding et al., 2014). Moreover, provision of regular feedback serves to enhance learning further (Gooding et al., 2014). A more advanced design of Pha1SC (and similar study companions in general) may support near real-time feedback by the teacher who may be alerted at a given time every day whenever a student works on the retrieval exercise. Where "must-knows" contents are distinguished from "extra" ones, students are invited to transform into active learners. The learner can assume control on the rate and depth of learning while the bare minimum of content knowledge is maintained. A transformation from a teacher-centred to a student-centred approach of learning can occur with a mixture of the traditional mode of content delivery and retrieval exercises with feedback to the learner. The learning tool described and evaluated in this study has the potential to be further promoted in other subject areas, noting that a number of these have also invested into the student-centred approach of learning (Wright, 2011).

Teaching the right amount of information at an appropriate level of difficulty remains an ongoing challenge in medical education. Data from this retrospective study provide solid evidence of improving learning outcomes with the reduction of extraneous load in pharmacology. An indigenous learning tool (a Study Companion) that integrates key information from multiple sources resulted in better student performance in a summative assessment of a medical course. Higher scores on questions were attributed to the specific area of content coverage in the Study Companion. It is envisaged that further developments based on this tool and others will serve as practical means to optimise the cognitive load in facilitating learning in medicine and other disciplines.

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A year of online classes amid COVID-19 pandemic at a Bangladeshi university: Economics students' experience and suggestions for improvements

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Abstract

Current works perusing online learning amid the COVID-19 pandemic have several drawbacks, i.e., non-representative sample, closed-ended questions, and ignoring students' opinions about improvement. Also, most studies were carried out in the first weeks of online classes, and no study focused on university-level economics students. This paper uses a convenience sampling technique and open-ended questions and collects data from 154 university-level economics students who have participated in online learning for a year. According to the findings, advantages of online classes include that students can do classes from home avoiding health risks, easy accessibility, flexibility, cost-saving, reducing the likelihood of semester loss, and learning new technologies. Major disadvantages are network problems, difficulties in understanding the topic, unsuitability for mathematical courses, concentration problems, non-interactive classes, financial constraints, adverse health impacts, device and internet problems. Disadvantages outnumbered advantages. Students made several suggestions: using state-of-the-art digital tools, recording and uploading lectures, resolving internet and network issues, holding classes that comply with a fixed schedule, greater efforts to make the topics easier, reducing class duration, institutional support, and introducing an online assessment system. The study makes several policy suggestions and reveals that 70% of problems can be resolved by the Department, the University, and the University Grants Commission.

Introduction

Bangladesh reported the first COVID-19 case on March 8, 2020, and as of May 22, 2021, there were 786,698 confirmed cases and 12,310 deaths (WHO, 2021). The Ministry of Education instructed the shutdown of educational institutions and evacuations of students' residence halls on March 17, 2020, and they have not opened yet as of May 23, 2021. The total duration of school and university closure has now exceeded 60 weeks at a stretch of more than a year. In total, around 40 million learners have been affected. Of them, 7.88%, i.e., around 3 million students, are at the tertiary level, with 59.47% male and 40.53% female (UNESCO, 2021).

There are 49 public and 107 private universities in Bangladesh (UGC, 2021). Some private universities commenced online classes in April 2020 (The Business News, 2020). In May 2020, the University Grants Commission (UGC) instructed all universities to commence academic activities online (Dhaka Tribune, 2020). Although public universities were not allowed to take final examinations, the UGC allowed private universities to hold online examinations. As a result, public universities are conducting classes without any final assessments, and their students are still in the same semester they were more than a year ago.

Against this backdrop, the study aims to delineate a comprehensive picture of a Bangladeshi public university's economics students' online learning experience after a year of initiation of online classes. In doing so, the paper addresses the following research questions: (a) With a year of experience with online learning at the university level, what are the advantages that economics students are enjoying? (b) What are the unaddressed disadvantages that university-level economics students face after a year of online learning? (c) What measures do the students think would improve the experience of online learning?

Although existing works in the field highlight the advantages and disadvantages of online learning, they suffer from several limitations. This study contributes to the field in the following ways: (a) The literature review suggests that there has not been any study focusing on Economics students at the university level. However, since economics has both mathematical and non-mathematical courses, economics students' perceptions deserve separate treatment. (b) None of the studies report students' perceptions about improving the quality and effectiveness of online classes. Unlike other studies, in this paper, a whole subsection is devoted to students' views about the steps required to surmount the obstacles in online learning. (c) All the studies employed closed-ended questions, i.e., the researcher provided a set of questions. Each question had a set of answers from which students were asked to select the appropriate one, and sometimes the answers were given using Likert scales. Examples of such studies include Putri et al. (2020), Rasmitadila et al. (2020); Agung et al. (2020), Octoberlina and Muslimin (2020), Subedi et al. (2020), Rafi et al. (2020), Muthuprasad et al. (2021), Biswas et al. (2020), Ramij and Sultana (2020) and Al-Amin et al. (2021). Dutta and Smita (2020), though, used open-ended questions and collected information through a telephone interview. This paper uses open-ended questions to divulge students' perceptions, and

respondents knew that their identity would not be revealed. More importantly, the information is about what the students think, not what the researcher thinks about what the students think. (d) Many of the existing studies have a small sample (for example, Putri et al., 2020; Rasmitadila et al. 2020; Agung et al., 2020; Octoberlina and Muslimin 2020; Dutta and Smita 2020). Here a sample of 154 students is used, making the sample more reliable and representative. (e) The existing studies were done immediately after introducing online classes. In contrast, this study is done after a year of online classes, enabling it to bring out meaningful insights and provide a comprehensive picture.

The remaining paper is organized as follows. Section 2 provides a brief review of the literature. Section 3 describes the materials and specifies the methods. Section 4 analyses and discusses the results. Finally, section 5 concludes the paper.

Literature review

The inception of distance education dates back to the early 1700s when clergymen were trained through correspondence (Adams and Olszewski-Kubilius, 2007). As gradually technological advancements such as radio, television, computer, internet, and today's electronic forums became available, distance education, especially, online learning became extremely popular (Olszewski-Kubilius and Corwith, 2011). However, Olszewski-Kubilius and Corwith (2010) warned about the effectiveness and success of distance education. Several studies have identified that online education, though convenient, inexpensive, technology-reliant, and useful, involves less social interaction, doubtful assessments, difficulties for instructors, and uneven technological costs (Kumar 2010). Following Fedynich (2013), online learning is easily accessible, easy to participate in, and it can be offered in a blended course. However, Fedynich (2013) identified inadequate computer literacy and poor internet facilities as obstacles. For successful online classes, the curriculum and the learning and teaching method should be modified. All stakeholders should understand the online learning styles and the environment (Lewis et al., 2015). To be flexible learners, students should be exposed to the heterogeneous learning experiences available (Zapalska and Brozik, 2006). Online students tend to possess a powerful visual and read-and-write learning style (Drago and Wagner 2004).

In the face of the COVID-19 pandemic, universities around the world have adopted online learning. However, they did not take up an identical approach. For example, Crawford et al. (2020) studied 20 countries, including 14 developing countries and 6 developed countries. In developing countries, some campuses are open, some universities are delivering education online, and some are closed with no option for online learning. However, in most developed nations, universities adopted online learning to avoid semester loss. The necessary technological infrastructure and the attitude of the teachers and students are absent in many developing countries. In a study of low-income countries, Jordan et al. (2021) cited mobile network problems and internet problems as significant impediments.

Many of the studies examining the challenges of online learning have focused on primary education. For instance, Putri et al. (2020) used a qualitative case study approach to diagnose the limitations of online learning in Indonesian primary schools. They reported three challenges that students face: students cannot communicate and socialize like in the pre-pandemic era, are required to look at the screen for a longer time, and students with special education needs faced a more significant challenge. Putri et al. (2020) used semi-structured interview questions to collect data. The sample consists of 15 teachers and parents of two primary schools who lived in the same area. Rasmitadila et al. (2020) collected data from 67 teachers in primary schools through surveys and semi-structured interviews and focused on teachers' perceptions of online learning. Following their analysis, factors like the flexibility of curriculum, technological preparedness, and facilitating roles of all stakeholders, i.e., institutions, teachers, guardians, community, and government, are crucial for Indonesia's online learning. Clark et al. (2020), using administrative data from three middle schools in China and employing the difference-in-difference approach, analyzed the causal effects of online learning on student performance. They found that students receiving online lessons from schools performed better than students in schools not offering online education. Students having access to online lectures of high-quality external teachers did better than students with access to online materials of internal teachers. Students using computers did better than smartphone users. Rural and urban students did not differ in terms of the benefits of distance learning. Also, online learning benefitted the low-achievers the most, and its impact on achievers was insignificant.

Using both open-ended and closed-ended questions, Agung et al. (2020) collected data on 66 Indonesian college students about their participation, accessibility, materials and assignment delivery, and suitability of the online platform used. They reported accessibility as the major problem affecting online learning. The study suggested using friendlier online platforms to increase students' participation. Octaberlina and Muslimin (2020) conducted a descriptive mixed-method survey. They gave 20 university students seven statements and asked them to give their opinion on a four-point Likert scale. They asked two questions to five students that had Yes/No as answers. The study identified unfamiliarity with e-learning, internet speed, and physical strain as the three obstacles. Students stressed the importance of training before attending the actual class. Also, they preferred breaks during the class and lower-sized files.

Muthuprasad et al. (2020) investigated Agricultural Student's opinions about online learning through a survey of 307 students. They found that most students preferred online classes during the closure, used smartphones, and preferred recorded classes with quizzes after each class. Flexibility and convenience were two essential benefits of online classes, while on the contrary, broadband connectivity was the main challenge in rural areas. Also, since agricultural education is practical-oriented, a complete shift to online learning is not pragmatic, and hence, a hybrid model is likely to do better. Rafi et al. (2020) listed barriers and perceptions about online classes reported by 364 undergraduate students after ten

weeks of online learning. The survey revealed that students preferred recorded classes over live classes, and around ninety percent of students favored a shorter duration of classes. Finally, Subedi et al. (2020) surveyed teachers and students of 13 nursing colleges of Nepal involved in online classes. Even though most students were using data packs and mobile phones for online classes, most of them described electricity and the internet as key problems.

Biswas et al. (2020) attempted to gauge university students' perception of mobile learning. They surveyed 416 undergraduate and postgraduate students of Bangladeshi universities. Using a five-point Likert scale ranging from 'Strongly Disagree' to 'Strongly Agree,' the study found that students had a favorable view of mobile learning. Students think it will reduce the study gap during COVID-19. The study collected data just after introducing online classes and asked 15 questions about students' perceptions of mobile learning. Ramij and Sultana (2020) collected data on 409 students from 12 private universities and examined the readiness for online classes in Bangladesh. They used the five-point Likert scale to capture students' opinions on different socio-economic and infrastructural situations. The findings revealed that significant obstacles identified by the students are the absence of technological infrastructure, expensive internet and its low speed, pecuniary difficulties of the family, and mental pressure. Al-Amin et al. (2021) used the convenience sampling technique and summarized students' opinions about 14 questions where the answer was given in the Yes/No format. They collected data on 844 students from different universities in Bangladesh. Their findings revealed that most students did not have a separate reading room, and many students did not have an internet connection. Students' problems during online classes are inattentiveness, not being able to follow the class easily, power disruption, and unstable internet connections. Also, almost half of the students considered online classes ineffective. Dutta and Smita (2020) examined the impact of the pandemic on tertiary education in Bangladesh using a semi-structured survey of 50 students. The questions were open-ended, and the interview was conducted via telephone. The challenges mentioned include unavailability of devices, accessibility, speed and price of the internet, and problems related to online platforms used.

Methods

This paper uses 'online learning' and 'online classes' interchangeably and follows Rapanta et al. (2020) to define 'online learning' as the learning provided and received using the internet. As evident from the literature review, most of the existing works gathered information through surveys with closed-end questions. In such surveys, the researchers specified students' advantages and disadvantages, not the students themselves. Besides, in such surveys, students were required to select the answer from a given set of answers. Consequently, closed-end questions can be incapable of portraying the actual scenario of the phenomenon. For this study, the authors surveyed with open-ended questions. They had no information about a student's identity, which is crucial in a conservative setting like Bangladesh, where freedom of expression is not usually the norm.

The participants are 154 full-time students of the Department of Economics at a public university in Bangladesh. The University adopted online learning in May 2020, and in April 2021, a year was completed with online learning in place. The survey made no distinction between undergraduate and graduate students. The participants had no prior experience in online learning.

The data were collected from a student survey using the convenience sampling technique, conducted via Google Forms. This simple survey consisted of three multiple-choice questions (MCQ) and three open-ended questions. The MCQ questions asked: (a) if the students were staying with their families during the pandemic, (b) if they needed to go out to attend online classes, and (c) about the type of device they were using for online classes. The three open-ended questions were designed to identify the advantages and disadvantages of online classes and recommendations for more effective online classes. Specifically, the questions were: (a) What are the advantages of online classes? (b) What are the disadvantages of online classes? (c) What should be done to improve the quality of the online class and make it more effective?

No identifying information was collected, and students were aware that there was no way to trace respondents, encouraging them to provide factual responses. This particular feature brought out an exhaustive list of benefits, problems, and recommendations for online classes and made the study stand out among similar studies in the field.

The paper uses simple frequency distribution tables to summarize students' perceptions about online classes. Each table reports the frequency of a particular advantage/disadvantage/suggestion mentioned by students. Additionally, the last column of each table shows the percentage of students reporting a specific advantage/disadvantage/recommendation. Identical responses, collected via students' open-ended statements, were grouped. 154 students reported advantages 336 times, disadvantages 452 times, and made suggestions for improvements 331 times. Lastly, the tables were analyzed, and the results were described.

Analysis and discussions

The participants of the survey are 154 students of the Department of Economics at a Bangladeshi public university. The survey was administered in April 2021 using Google Forms. 91.56% of the respondents stated that they stayed with their families during the pandemic, while 8.44% stayed outside the family. 71.43% of the respondents could join online classes from home, whereas 28.57% of students needed to go out to join online classes. 92.21% of students used mobile phones for online classes, while 7.79% used desktop computers. On average, a respondent reported 2.18 advantages, 2.93 disadvantages and made 2.15 suggestions.

Although six students found online classes to have no advantages, 148 students reported one or multiple benefits associated with online classes. Table 1 presents the 15 most frequently reported advantages of online classes by

the students. The most significant advantage of an online class for the students is that they can do it from home. 62 respondents, i.e., 40.26% of the students, mentioned it as an advantage. 23 of these respondents specifically emphasized the additional health benefits from social distancing by staying home during the COVID-19 pandemic.

Furthermore, 30.52% of students state that online class saves time, especially travel time. This benefit is followed by 17.53% of students reporting the flexibility that online classes give in terms of location, time, and situation. 16.23% of students say that they can remain connected with their studies because of online classes while the University is closed. 12.99% state cost savings as one of the advantages of the online class. Interestingly, saving travel costs was mentioned 12 times, whereas saving housing costs was brought up twice. 12.34% of the survey participants said that courses are getting completed even though the University is closed. Hence, without online classes, they would have faced session jams. 10.39% of respondents expressed that they can concentrate better in online classes. The reason cited is that the real classroom environment is noisy, but such disturbances can be minimized in a virtual classroom. A similar number of students found online classes advantageous as they can record and replay the class. 7.14% of students found the class schedule more convenient because of its flexibility. Many students (6.49% of respondents) found the virtual class easier to understand. Some of them attribute this to visual presentation, slides, and other tools in the online class. At the same time, two of them opined that this benefit is realized only for theoretical courses.

The following four advantages occurred in the survey with an identical frequency of 6 (3.89%). 1. Students can attend classes while doing something else. This flexibility has reduced student absenteeism. 2. When the University is open, many students must stay away from home in student dormitories or hostels. Now they can stay and spend time with their families. 3. Students are getting familiar with digital learning tools. 4. More materials can be covered quickly. As a result, courses are getting completed fast.

Table 1: Advantages of online classes

Advantage	Frequency	Percentage of overall frequency	Percentage of students
Doing classes from home	62	18.45%	40.26%
Saves time	47	13.99%	30.52%
Attending classes from anywhere/anytime	27	8.04%	17.53%
Students remaining connected with the study	25	7.44%	16.23%
Saves costs	20	5.95%	12.99%
Reducing the likelihood of session jam	19	5.65%	12.34%
Can concentrate better	16	4.76%	10.39%
Classes can be recorded and replayed	16	4.76%	10.39%
Convenient class schedule	11	3.27%	7.14%
Easy to understand	10	2.98%	6.49%
Less stressful	9	2.68%	5.84%
Can attend classes while doing something else	6	1.79%	3.89%
Can stay and spend time with family	6	1.79%	3.89%
Learning new technologies	6	1.79%	3.89%
Topics get completed fast	6	1.79%	3.89%
Others	56	16.67%	36.36%
Total	336	100%	

The longer duration of the class and the flexibility of attending classes during illness were cited as two benefits of virtual classes by 3.25% of the students. The following benefits were listed by 1.29% of the students: 1. More time

to study at home 2. A proper Q&A session 3. Online classes do not require interaction with others. Additionally, a good number of benefits of online classes were reported by a single respondent. The list includes submitting assignments instead of appearing in quizzes or class tests, not getting exposed to outside pollution, reducing the monotony during the pandemic, and courses can be completed with only a cell phone, to list a few.

As exhibited in Table 2, for university students, the mobile network problem is the biggest obstacle to a satisfactory experience in the online class. 59.09% of the participants cited this as an issue. The next major problem on the list is students facing difficulty grasping the material presented in class, which 36.36% of the participants indicated as an impediment. Some of the reasons mentioned are lack of hands-on experience, fast delivery of the lecture, not using boards, topics not explained sufficiently, and students not having books. Finally, as reported by 31.17% of students, the third major problem of an online class is that it is unsuitable for topics involving graphs and mathematics. Also, lab courses cannot be completed online.

Inability to concentrate was cited by 26.62% of students as a disadvantage. The family atmosphere is not conducive, some classes are longer than usual, and it is challenging to remain focused after a particular time (usually 30-40 minutes). The next hindrance is that online classes are not interactive and participatory like actual classes. Some of the views in this regard are that there is no face-to-face interaction, students cannot question as in the actual classroom, the environment is not lively, many do not or cannot participate, not as satisfactory as an actual class, etc.

Table 2: Problems of online classes

Problem	Frequency	Percentage of overall frequency	Percentage of students
Network problem	91	20.13%	59.09%
Difficult to understand	56	12.39%	36.36%
Okay for theoretical courses but not for mathematical courses	48	10.62%	31.17%
Cannot concentrate	41	9.07%	26.62%
Not interactive and participatory like a physical classroom	31	6.85%	20.13%
Financial constraint	26	5.75%	16.88%
Health issues	18	3.98%	11.69%
Device issues	17	3.76%	11.04%
Power outage	17	3.76%	11.04%
Unfamiliarity with digital technology	17	3.76%	11.04%
Students are not sincere	14	3.09%	9.09%
Internet problem	14	3.09%	9.09%
Erratic and unsuitable class schedule	11	2.43%	7.14%
Need to go out for class	8	1.77%	5.19%
Cannot benefit from peers	6	1.33%	3.89%
Classes not held regularly	6	1.33%	3.89%
Others	31	6.86%	20.13%
Total	452	100%	

Financial constraint was an obstruction for 16.88% of students. Though some specifically mentioned that their families were facing pecuniary difficulties, the majority found the internet expensive. In addition, many students, 11.69% of the participants, raised concerns about various health-related issues. For example, it is difficult to look at the screen for a more extended period, and it causes a headache, eye irritation, back pain, and neck pain. Besides, some get addicted to the device or the internet.

Many students (11.04% of the respondents) listed device issues, power outages, and unfamiliarity with digital technology as three obstacles they are facing. Students not having a proper device was recognized as an issue by the Government of Bangladesh at the beginning of the COVID-19 pandemic. Through the University Grants Commission (UGC), initiatives were undertaken to give students loans to purchase a device. 19 students of the Department of Economics initially applied for the loan, but later, when the preconditions of the loan were disclosed, only one student finally applied for it. Consequently, even after a year of the commencement of the online classes, the device-related problem remains. Electricity-related issues are something that cannot be resolved overnight. According to the survey, many instructors and students are not comfortable with the state-of-the-art digital tools for online classes. An online lecture should be different from an actual lecture since the setting is entirely different.

A good share of the students (9.09% of the respondents) informed that many of them were not sincere about the online class. Some get busy with other tasks during class, and many do not attend classes regularly. A similar number of students mention that the internet issue is causing a problem in the online class. 7.14% mentioned that the class schedule is not fixed, and sometimes classes are held at an inconvenient time. 5.19% of students said they need to go outside the home to join the class as the network is not available at home. Many classes are held in the evening. Some students need to go out at night for these classes, which raises security issues, especially for female students. 3.89% of students said they could not benefit from peers as they cannot discuss or do group study with their classmates. An equal percentage of students stated that classes are not held regularly, which happens without prior notice.

Additionally, there were nine disadvantages, each of which was reported by two respondents, and there were 13 disadvantages, each having a single respondent. As reported, some are not studying much now, and students have no scope for socializing. Some believe that online classes are inefficacious without assessments. A few expressed concern that the online class creates inequality between rural and urban students as infrastructure is better in the urban areas.

Notable suggestions made by students to improve the experience of the online class are reported in Table 3. The use of state-of-the-art digital tools tops the list of suggestions. It was proposed by 35.71% of the participating students. They suggested using tools like slides, whiteboard, digital pen, touchpad, tripod, screen sharing, Google classroom, messenger groups, and apps. Almost half of them said that better use of digital technology would help them understand topics entailing graphs and mathematics. The survey also reveals that student experience would be improved if teachers use the same apps.

The second most prominent suggestion on the list is recording the lectures and uploading them on some platform for students to access the lectures whenever they want. This suggestion is followed by resolving issues related to internet facilities. Most of these respondents espoused special internet packages for all students free of charge or

at a reduced price. The rest requested for ensuring a higher speed internet. The subsequent two suggestions in the Table are to hold classes regularly and undertaking greater efforts to make materials easy to understand, with each being mentioned by 19.48% of students. Students suggest that there should be a schedule to be followed strictly, i.e., taking at least two classes per week per course, which would help finish topics and hence, courses in time. Students also felt that there should be more significant efforts to make study materials easy to understand. This broad suggestion includes providing lecture notes and materials before class, explaining with examples, both teachers and students should come to the class prepared, slowing down the pace, giving time to copy, giving review classes, and reducing the syllabus.

Next came resolving the network-related issues that involve a considerable investment by both public and private sectors and cannot be solved quickly. 18.83% of students proposed this. 12.34% of students suggested reducing the duration of the class. According to the students, some classes are 3 hours long, which makes them difficult to concentrate. They suggested a class duration of 40-60 minutes. Also, some believe that topic-based classes will be better. A similar share of the students expects a more supporting role from the institution. The specific suggestions that fall into this category are: giving stipends to necessitous students, providing teachers and students with all the required equipment, arranging training for faculty members, counseling sessions for students, and creating an online institutional platform.

Table 3: Suggestions for improvement

Suggestion	Frequency	Percentage of overall frequency	Percentage of students
Using state-of-the-art digital tools in class	55	16.62%	35.71%
Recording classes and uploading online	35	10.57%	22.73%
Resolving internet issues	33	9.97%	21.43%
Holding classes regularly	30	9.06%	19.48%
Greater efforts to make materials easy to understand	30	9.06%	19.48%
Resolving network issues	29	8.76%	18.83%
Reducing class duration	19	5.74%	12.34%
Greater institutional support	19	5.74%	12.34%
Resolving device-related problems	18	5.44%	11.69%
Solving class schedule-related problems	12	3.62%	7.79%
Online assessment system	10	3.02%	6.49%
Making the class more participatory	10	3.02%	6.49%
Creating a student-friendly environment	8	2.42%	5.19%
Better discipline in the class	7	2.11%	4.54%
Addressing the issue of student inattentiveness	4	1.21%	2.59%
Others	14	4.23%	9.09%
Total	331	100%	

Solving device-related issues was recommended by 11.69% of students. In their opinion, all students, especially the poor ones, should be given a mobile phone at a reasonable price. Some suggested that the device should be given free of charge. Solving the problems related to class schedule, such as adhering to a fixed schedule and giving sufficient breaks between classes, were put forward by 7.79% of students. 6.49% stated the need for an online assessment system. Up to now, there has not been any assessment of student performance except assignments. Students suggested not only taking quizzes or class tests online but also taking final exams online. A similar number of students say that making the class more participatory would help make the online class better. Some students also requested Q&A

sessions which would make the class more participatory. This proposal was followed by the suggestion of creating a student-friendly environment. Students opined that their problems should be acknowledged and addressed in the class, they should be allowed to enter the class if late by 10 minutes, and they should be notified at least 24 hours before an unscheduled class is held. 4.54% of students advocated for better discipline in the class. They suggested ensuring that students attend classes regularly, keeping and updating attendance records, and a strict late entry policy. Also, 2.59% of students suggested that teachers should address the issue of student inattentiveness. However, six students gave no suggestions. One of them gave no solution to the problems, and one expressed facing no problem in online classes.

Now, this paper's findings and some contemporary related works are juxtaposed to provide a comparative picture. Students' concern about session jam was also identified in Biswas et al. (2020). Muthuprasad et al. (2021) emphasized the flexibility and convenience of online classes as two prime advantages. Compared to these studies, this research has provided a much detailed account of the advantages of online classes (listed in Table 1). When the comparison is made based on the problems of online classes, the existing literature provides a much more comprehensive range of problems. Ramij and Sultana (2020) identified technological infrastructure as one of the bottlenecks. Network problems were mentioned in Jordan et al. (2021). Jordan et al. (2021), Octaberlina and Muslimin (2020), Muthuprasad et al. (2021), Ramij and Sultana (2020), Subedi et al. (2020), Al-Amin et al. (2021), Dutta and Smita (2020) – all cited internet problems as an impediment. The non-participatory nature of online classes was mentioned in Putri et al. (2020). Health concerns were raised in Putri et al. (2020), Octaberlina and Muslimin (2020), and Ramij and Sultana (2020). Unfamiliarity with digital tools was reported by Octaberlina and Muslimin (2020). The other problems of online classes during COVID-19 reported by current works include difficulties in understanding the class (Al-Amin et al., 2021), inability to concentrate (Al-Amin et al., 2021), financial constraints (Ramij and Sultana, 2020), device problems (Dutta and Smita, 2021) power outage (Subedi et al., 2020 and Al-Amin et al., 2021), and inattentiveness or lack of sincerity of students (Al-Amin et al., 2021).

Additionally, in contrast to Al-Amin et al. (2021), where almost half of the students considered online classes ineffective, students' perception survey of this paper did not reveal similar views. Again, problems of online classes, as presented in Table 2, suggest that this research encapsulates almost all the problems identified in other studies dealing with problems of online classes in the COVID-19 pandemic. Furthermore, it reveals a problem specific to economics students. Many economics courses are mathematical, involving graphs and equations. Almost one-third of the students opined that online classes are suitable for theoretical courses but not for mathematical courses. In the literature, no study surveyed students for their opinion to improve the effectiveness of online classes and reports the suggestions students made. As a result, a comparison cannot be conducted with other studies based on suggestions made by students. Nevertheless, the findings of this paper in this regard are broadly in line with Fedynich (2013) and

Lewis et al. (2015), who emphasized that online learning and teaching methods and the environment should be different.

By examining the problems of online classes and the suggestions for improvement, some useful policy recommendations can be made. The recommendations are divided into three categories. The first group of policies is to be implemented by the Department and the University. These include training teachers and students to make online classes more effective (efficient use of digital tools, improving the class environment, etc.), preparing a class schedule, adhering to it, and lowering class duration. These policies address problems faced by around 60% of the students and cover suggestions made by 70% of the students. The second category of policies is to be implemented by the University Grants Commission (UGC) and the University. They include allowing public universities to hold online exams, providing students with appropriate devices, and giving stipends to students facing financial constraints. These policies address 10% of the students' problems and cover suggestions made by around 11% of the students. The third group of recommendations, which include resolving mobile network and internet-related issues, must be implemented jointly by the government and private sector investors. They address problems of around 27% of the students and cover suggestions made by around 19% of the students.

A limitation of the study is that it did not interview the faculty members. Since, apart from the students, they are essential stakeholders, their perceptions might have contributed to a complete evaluation of online classes. In addition, the faculty members are likely facing some of the students' constraints. Thus, future research should explore both the students' and teachers' perspectives simultaneously. Additionally, such research could be extended to incorporate other stakeholders like the UGC, the government, and the private sector.

Conclusions

Online classes enable students to do classes from anywhere, especially from home. However, accessibility is marred by network problems. Although many students mentioned accessibility as an advantage, more students mentioned experiencing network or internet problems. However, a smaller number of students mentioned improving accessibility as a suggestion. This is probably because resolving countrywide network and internet problems are long-term issues and require huge investment. According to the students, flexibility is another advantage of online classes. Online classes can be recorded and played anytime. Therefore, the class schedule is convenient, and students can attend classes while doing something else. However, an erratic class schedule was found to reduce flexibility to a certain extent. Therefore, many suggested that faculty members should record lectures, upload them on some online platform, and solve class-schedule-related problems. These suggestions will improve flexibility.

Students felt that they have remained connected with the study because of online classes, reducing the likelihood of semester loss. Since online classes had started a year ago

and the university, like other Bangladeshi public universities, has not conducted any exams, some students felt that the classes are not very effective without exams, and many advocated for introducing an online assessment system. Many students found the learning environment of online classes favorable. They were able to concentrate better, could grasp the materials quickly, and topics were getting completed faster. Notwithstanding, a more significant number of students expressed dissatisfaction about the learning environment in online classes. They found the class challenging to understand, especially when the topic was mathematical. The online class was not interactive and participatory like a real class, and students could not benefit from their classmates. Also, classes were not held regularly. There were a good number of suggestions specifically to improve the overall learning environment of an online class. These include more outstanding efforts of faculty members to make topics easily understandable, holding classes regularly, reducing the duration of lectures, creating a student-friendly environment, enforcing better discipline in the class, making the class more participatory, and addressing student attentiveness.

Online classes save costs of transportation, boarding, and food. Nevertheless, some students faced financial constraints during the pandemic and could not buy a suitable device, i.e., a cellular phone. In addition, some found the mobile data package expensive. Students sought greater institutional support to resolve these issues. Since students are attending classes from home, they are less exposed to the coronavirus and outside pollution. In addition, online classes are less stressful. They can spend more time with their families, which might positively impact their mental health status. In contrast, longer screen time has adverse health impacts. Reducing class duration can help in this regard.

Power outages, network errors, and internet problems are three obstacles students face while doing online classes. Unfortunately, solving these issues requires investments in both the public and private sectors, and these problems cannot be resolved readily. Students are getting acquainted with new digital tools owing to online classes. However, many cited unfamiliarity with digital tools as an obstacle. Following their suggestions, recording and uploading the lectures and using state-of-the-art digital tools will solve the problem.

The paper aimed to provide a detailed account of students' perceptions about the advantages and problems of online classes and their suggestions for improvements. Current works examining online learning amid the COVID-19 pandemic have several drawbacks, i.e., non-representative sample, closed-ended questions, and ignoring students' opinions about improvement. Also, most studies were carried out in the first weeks of online classes, and no study focused on university-level economics students. This paper uses a convenience sampling technique and open-ended questions and collects data from 154 university-level economics students who have participated in online learning for a year. Because of the methodology, compared to other studies, this research provided detailed descriptions of benefits, and problems of, and suggestions for, online classes. Also, it made several policy suggestions like training teachers and

students to make online classes more effective, strictly complying with a class schedule, reducing class duration, holding online exams, providing students with appropriate devices, and giving stipends to students facing financial constraints, resolving mobile network and internet-related issues. The study reveals that problems faced by 70% of students can be resolved by the Department, the University, and the UGC. Future research should broaden the scope by incorporating perceptions of other stakeholders, especially those of faculty members.

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Effects of School closures in COVID-19 era: Evidence from Uganda Martyrs University

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Abstract

Introduction: As of March 1st, 2020, many governments embarked on nationwide school closures due to the deadly coronavirus pandemic. As the month of March came to an end, about 185 countries across the globe had closed their schools. This affected about 90% of the world's students and Africa was significantly hit by this closure. The speed of these closures and the rapid move to distance learning gave very little time for planning or any other alternative form of learning. In Uganda, the education of 15 million children and students was disrupted. Learners had to spend the majority of their time at home playing, helping their parents with chores, engaging in agriculture and also spare some hours a day to study. The education of learners was impacted greatly. In urban areas, some learners relied on lessons available online, televisions and radios, while in rural areas, learners had to fall back on their notebooks and printed learning materials provided by the government.

Objective: The objective of this study was to ascertain the effects of school closure on different stakeholders.

Methods: A qualitative phenomenological study was carried out. A sample of eight lecturers, eight students, four administrators and four community members were purposively recruited for the study.

Results: The results show that the impact of the closures on teachers resulted in: (1) leaving the teaching profession, and (2) financial distress. On the part of learners, the effect was a disruption of learning. Schooling provides essential learning and when schools closed, learners were deprived of opportunities for growth and development. The disadvantage of the disruption was disproportionate for under-privileged learners who tend to have fewer educational opportunities, apart from being in schools.

Conclusion: Undoing the effects of learning disruption may require years in Uganda.

Introduction

According to the United Nations Children Educational Fund (UNICEF), research on past school closures indicated that any slight interruption in schooling can result in significant learning loss. Such interruptions include regular scheduled breaks, among others (UNICEF, 2020a). In a study in Malawi, Slade et al. (2017) showed that transitional breaks from grade 1 to 2 and grade 2 to 3 led to an average reduction of 0.4 standard deviations on four different measures of reading skills. School closures due to teachers' strikes can also lead to reduced learning (UNICEF, 2020b). In Canada, it was pointed out that school closures caused by teachers' strikes are associated with a loss equivalent of half (0.5) a standard deviation in math test scores (Baker, 2013). Similarly, in South Africa (Wills, 2019), it was found that a student's performance in subjects taught by a striking teacher was approximately 0.1 standard deviations lower than in subjects taught by a non-striking teacher.

Evidently, school closures have significant effects on learning. Whereas the full impact of the COVID-19 school closures on learning may not be known for many years, forecasting exercises and other statistical simulations have pointed to a bigger problem (UNICEF, 2020b). In the United States, Kuhfeld et al. (2020) projected that students could return to school with 32–37% less progress in reading as compared to what they would have achieved in a typical school year. The predictions are said to be even worse for math, with losses estimated between 50–63%. This result is similar to one found in another study (Kaffenberger, 2020). The COVID-19 pandemic was announced in Uganda in March 2020 and thus, closure of schools followed. Education of the 15 million Ugandan learners was disrupted. Learners had to spend the majority of their time at home. This was spent helping their parents with chores, engaging in agriculture and some hours of daily studies (UNICEF, 2020a). The education of learners was indeed impacted severely. In urban areas, some learners relied on online lessons, television and radio, whereas those in rural areas fell back on their notebooks and printed learning materials provided by the government (UNICEF, 2020b).

As seen in many countries worldwide (Butler-Henderson, et al., 2020, 2021; Crawford et al., 2020; Hawley et al., 2020; König et al., 2020), the pandemic also led to university closures in Uganda (they closed in March, 2020).

Some schools and universities began to partially reopen two months later in May 2020, with far-reaching restrictions remaining in place. Uganda Martyrs University was among the first few universities in Uganda to partially reopen. The university had to immediately adopt online teaching. Consequently, teachers/lecturers faced significant challenges. This was to maintain at least a minimum of communication with students and support students' learning and development. However, the extent to which teachers successfully mastered these challenges is yet unclear.

The research questions for the study were as follows;

- 1) What were the home-schooling experiences of students following COVID-19 school closure of Uganda Martyrs University?
- 2) What was the impact of COVID-19 school closure on teachers/lecturers of Uganda Martyrs University?
- 3) What was the impact of COVID-19 school closure on administrators of Uganda Martyrs University?

Literature review and background

Effects of school closures on different stakeholders

For many governments and policy makers across the globe, school closure and home confinement were the two measures of lockdown implemented to limit the spread of COVID-19. Even so, there is still an open debate about the actual impact of school closure on education, the reduction of infection risk for children, as well as the infection risk for other age levels – parents, guardians and others care-takers (Petretto et al., 2020). The effects of school closure, thus, varied according to the different categories of stakeholders.

Teachers

Although the long-term implications and effects of the COVID-19 pandemic on education are yet unknown (Flores & Swennen, 2020), they will surely be more challenging for educators and learners in more fragile and unstable contexts, including Uganda Martyrs University. Most universities and educational institutions in Uganda and worldwide experienced an unprecedented total or partial lockdown, culminating in the immediate closure of universities and schools. As such, teachers and students had to learn instantly how to adapt to remote teaching. This is also true for faculty at Uganda Martyrs University.

The need to rapidly adapt to this new context of teaching and learning online revealed how educational institutions and lecturers experienced the challenges and opportunities to carry on their job in such unexpected circumstances (Flores & Gago, 2020). Lecturers had to adapt to the restrictions in interaction and the move to new ways of teaching and learning.

The COVID-19 crisis raised questions about the nature of teaching and ways of supporting the learning of students. It also challenged the educational institutions to rethink ways of re-educating teachers/lecturers for scenarios that are unpredictable and unknown. This raises questions related to equity and social justice. Observationally, teachers experienced the following:

- 1) **Confusion and stress for teachers:** When universities closed unexpectedly and for unknown durations, such as in the COVID-19 era, teachers were often unsure of their obligations and how to maintain connections with students to support learning. Transitions to distance learning platforms tended to be a messy and frustrating process, causing confusion and stress for teachers.
- 2) **Loss of jobs:** When universities closed, teachers or lecturers tended to lose their jobs. The impact of closures on teachers led to: (a) teachers abandoning the profession; and (b) financial distress, as teachers struggled to make ends meet.
- 3) **Challenges in creating, maintaining and improving distance learning:** Demand for distance learning skyrocketed when universities closed and remote education portals were overwhelmed. Learning was moved from classrooms to homes at an accelerated pace. This event presented enormous challenges, both in human and technical terms.
- 4) **High economic costs:** Many lecturers were parents and, thus, working parents were more likely to miss work when schools closed in order to take care of their young children. This resulted in wage loss and tended to negatively impact productivity.
- 5) **Challenges measuring and validating learning:** Calendar assessments, such as high-stakes examinations that determine advancement of students to new educational levels, were thrown into disarray due to school closures. Strategies to postpone, skip or administer examinations at a distance raised serious concerns about fairness, especially when access to learning varied from student to student. Disruptions to assessments resulted in stress for students and their families and triggered disengagement.
- 2) **Rise in university dropout rates:** It is very challenging to ensure that students return and stay in school or university after universities reopen after closures. Protracted closures and economic shocks place increased pressure on students to work and generate income for financially distressed families.
- 3) **Increased exposure to violence and exploitation:** As universities shut down, chances of unplanned marriages increase, more students are recruited into militias, sexual exploitation of girls and women rises, unplanned pregnancies become more common, and poverty levels rise (UNESCO, 2020a).
- 4) **Social isolation:** Universities are hubs of social activity and human interaction. When universities close, many students miss out on social contact that is essential to learning and development (UNESCO, 2020b).

Administrators

On the part of administrators of the university and different university faculties, the following effects ensued:

- 1) **Loss of jobs:** As there was limited opportunity for physical supervision and a diminished financial base for private universities following universities closure, many administrators lost their jobs. The impact was triggered by: (a) departing administrators; and (b) financial distress.
- 2) **Challenges in creating, maintaining, and improving distance learning:** Demand for distance learning when universities closed overwhelmed administrators. This resulted in messy and stressful administration of remote education. Moving learning from classrooms to homes at an accelerated pace presented enormous challenges, both technically and in terms of administrative competencies.
- 3) **Challenges measuring and validating learning:** Supervision of assessments, such as high-stakes examinations that determined advancement of students to new educational levels became challenging for administrators. They, therefore, had to delegate this task to the individual lecturers. Strategies to postpone, skip, or administer examinations at a distance raised serious concerns about fairness, especially when access to learning differed amongst students.

Students

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020a), school closures carry high social and economic costs for people across communities. The impact, however, is more severe for the most vulnerable and marginalized learners and their families. The resulting disruptions exacerbated the already existing disparities within the education system as well as in other aspects of their lives. These include, among others:

- 1) **Interrupted learning:** Schooling is known to provide essential learning and therefore, when schools or learning institutions close, students are deprived of opportunities for growth and development. These disadvantages are disproportionate for underprivileged learners who tend to have fewer educational opportunities beyond school or university (Wills, 2019; Baker, 2013; UNICEF, 2020b).

Parents

On the part of parents, school closures following the COVID-19 pandemic had the following effects, among others:

- 1) **Parents were unprepared for distance and home schooling:** when schools closed, parents were asked to facilitate the learning of children at home. This challenge had a greater impact on parents with limited education and resources.
- 2) **Gaps in student care:** in the absence of alternative options, working parents left their children alone when universities closed, and this could have led to risky behaviours, including undesirable influences from peers and substance abuse.
- 3) **Unintended strain on healthcare cost:** Healthcare costs were inevitable during university closures. Some students fell sick because of undue stress and financial losses. Parents had to bear these unforeseen burdens.

Community members and other stakeholders

Similarly, the community felt the effects of school closures following the COVID-19 pandemic:

- 1) **Increased exposure to violence and exploitation:** as universities shut down, the chances of unplanned marriages increased, more students were recruited into dangerous groups, sexual exploitation of women rose, unplanned pregnancies became more common, and poverty levels surged. This became a huge burden for the communities where the students live.
- 2) **Unintended strain on healthcare systems:** Healthcare workers could not effectively handle healthcare obligations that resulted from closures of educational institutions. This means that many medical professionals were not at the facilities where they were most needed during a health crisis.
- 3) **High economic costs:** As many parents had become jobless due to the pandemic, economic productivity was disrupted. This resulted in wage loss and tended to negatively impact productivity.

From the above literature review and background analysis, it is evident that COVID-19 school closures affected almost all higher institutions of learning. Uganda Martyrs University was not spared either. However, to cope, the university embarked early on online learning which had its own challenges.

Methods

Study design and sampling

This qualitative study was executed as a phenomenological research initiative. The choice of the design was based on the fact that a phenomenological approach attempts to understand problems, ideas, and situations from the perspective of common understanding and experience rather than differences. Phenomenology is about understanding how human beings experience their world. It gives researchers a powerful tool with which to understand subjective experiences (Austin, 2014). According to Sadrudin (2018) and Abayomi (2017), phenomenology is a philosophy and a method of inquiry that is not limited to an approach to knowing, but that is rather an intellectual engagement in interpretations and meaning-making that is used to understand the lived world of human beings at a conscious level. Historically, it is a science of understanding human beings at a deeper level by gazing at phenomena. Such a design helped the researcher to ascertain the effects of school closures during the pandemic.

A sample of eight lecturers, eight students, four administrators, and four community members were purposively recruited for the study.

Study area

Uganda Martyrs University (UMU) is a private not-for-profit Catholic university. It is owned by the Episcopal Conference of the Catholic Bishops of Uganda. Archbishop Kiwanuka first conceived the idea of starting the university in the 1940's but circumstances would not allow its implementation. His proposal was later renewed in the 1980's and endorsed by the Uganda Episcopal Conference in 1989. The university was officially launched in 1993 by Uganda's President Yoweri Kaguta Museveni. The university received its civil Charter on April, 2, 2005 (Uganda Martyrs University [UMU], 2020).

UMU is located along the Equator at Nkozi, 80 kilometres west of Kampala, the capital of Uganda. The university was opened in October, 1993, with 84 students and two academic departments. UMU currently has seven faculties, one institute, three schools, and three directorates. The total number of students, postgraduates and undergraduates combined, is about 5,000 (Uganda Martyrs University [UMU], 2020).

Target audience

The participants were Uganda Martyrs University students (postgraduates and undergraduates), administrators, teachers/lecturers and community members (parents and non-parents).

Data collection

Qualitative data were collected using interview protocol guides. Interviews were conducted in English, lasting 30-40

minutes and digitally recorded. The interviews were coded and thematically analysed, revealing significant changes in the participants' care work following COVID-19 school closures.

Data analysis

The recorded audio files were imported directly into NVivo 12 for thematic coding, while the interviews were eventually transcribed. Coding refers to the identification of topics, issues, similarities, and differences that are revealed through the participants' narratives and interpreted by the researcher (Sutton & Austin, 2015). This process enabled the researcher to begin to understand the world from each participant's perspective. Coding was done by hand on a hard copy of the transcript, by making notes in the margin and by highlighting and naming sections of text (Sutton & Austin, 2015). The researcher then proceeded straight to coding sound bites within the audio files. A few notes were attached to each coded sound bite to remind the researcher of their content, and only sound bites deemed relevant for inclusion in this paper were transcribed. Drawing on Attride-Stirling's method (2001) of thematic network analysis, the researcher organized the sound bites thematically (Primdahl, et al., 2020; Attride-Stirling, 2001).

All audio recordings were transcribed verbatim, regardless of the intelligibility of the transcript. Lines of text were numbered. Once the transcription was complete, the researcher read it while listening to the recording and did the following: corrected any spelling or other errors; anonymized the transcript; inserted notations for pauses, laughs, looks of discomfort; inserted any punctuation, such as commas and full stops. This was done in line with Sutton & Austin's (2015) principle of data management.

Ethical considerations

The researcher adhered to ethical considerations involving research on human participants. The researcher sought and received informed consent from all participants. Names and other personal identifiers were anonymized to protect the identity of participants.

Results

All participants in this study unanimously expressed concern about the COVID-19-related school closures. Several lecturers mentioned students whom they were particularly worried about and for whom they went to significant lengths to stay in touch with. However, the lecturers faced numerous challenges in translating their concerns into practical improvements.

Home-schooling experiences of students

On 18 March 2020, the Ugandan government announced an abrupt school closure effective immediately. All students were asked to go home and learn remotely. The university

soon afterwards started an online learning approach, which was both synchronous and asynchronous. Uganda Martyrs University adopted Moodle as an online Learning Management System for all students. Students were required to register for continuity of learning and lecturers were urgently trained to commence this way of learning as a 'new normal'. The students were subsequently oriented on this new learning platform.

The experiences of the students are described through the themes that emerged as:

Theme 1: Interrupted learning

Schooling is known to provide essential learning and therefore, when schools or learning institutions close, students are deprived of opportunities for growth and development. These disadvantages are disproportionate for underprivileged learners who tend to have fewer educational opportunities beyond school or university.

"The closure has spoiled my plan. I wanted to finish my university education this year (2020) and do something else. But now, I have nothing else to do [...] I may not realize my dream as planned" – Student A (3rd year, undergraduate)

"This COVID-19 has really affected my plans" – Student C (2nd year, postgraduate)

"Our lecturer could not reach us as it used to be. Giving us examination alone was a huge struggle. We had to follow up for nearly three months before we could be examined as a class. So terrible" – Student B (2nd year, undergraduate)

"For me, I failed to graduate this year (2020). It's a loss" – Student F (3rd year, undergraduate)

"They wanted us to use computer for learning and have reliable internet. This was not easy on my side [...]. I come from a rural area and having access to stable electricity is a big challenge which affected my learning significantly" – Student D (2nd year, undergraduate)

From the narratives above, it is clear that the school or learning disruption was heavily felt by many students, both undergraduates and postgraduates.

Theme 2: Rise in university dropout rates

It is very challenging to ensure that students return to, and stay in, university when universities partially reopen after closures. This is even more so for protracted closures and when economic shocks place pressure on students to work and generate income for financially distressed families. In an interview with one student who never reported back to university, the student had this to say:

"After the closure, I got so many issues at home. I fell sick and my guardian spent a lot of money to offset my sickness. We also lost our jobs. With all these, I couldn't be able to report back or progress with my studies [...]. I'm still planning raise more money and then make up my mind to finish schooling"— Student H (2nd year, postgraduate)

"I will struggle to rejoin" – Student G (3rd year, undergraduate)

It is evident that university dropout rates are likely to rise due to the COVID-19-related school closures.

Theme 3: Exposure to violence and exploitation

As universities shut down, unplanned marriages increased, more students were recruited into problematic groups, sexual exploitation of women escalated, unplanned pregnancies became more common, and poverty levels surged.

Sub-theme 3a: Exposure to violence

"My house was broken into [...]. But I can't tell whether it was done by a university dropout student"— Student G (3rd year, undergraduate)

"There is too much theft these days" – Student C (2nd year, postgraduate)

Sub-theme 3b: Exploitation

"I know of a friend, my course mate who got married because of frustration from this school closure. It's terrible" – Student G (3rd year, undergraduate)

Theme 4: Social isolation

Universities are known as hubs of social activity and human interaction. When universities closed, many students missed out on social contact that is essential to learning and development.

"I miss my friend and discussion group mate. She would help me a lot in learning" – Student F (3rd year, undergraduate)

"Being together physically is far better" – Student D (2nd year, undergraduate)

Effects of COVID-19 school closure on lecturers

According to the lecturers, some learners did not have a computer or WiFi at home. Several did not have credit on their mobile phones to buy internet data and therefore could not learn effectively. Similar technology barriers have been described as a huge barrier for engagement with learners.

Theme 1: Confusion and stress

When universities closed unexpectedly and for unknown durations, teachers were unsure of their obligations and how to maintain connections with students to support their learning. A transition to distance learning platforms was quite messy and frustrating, causing confusion and stress for many teachers.

"The start was too difficult. I didn't know well how to proceed but I adopted to the new normal system of learning much later" – Lecture X

"It took me a lot of time to settle down and do my work" – Lecturer W

"It is not easy. But we have learnt something" – Lecturer Y

It is evident that adopting the online teaching system caught many lecturers without adequate preparation. It took them much time to adapt.

Theme 2: Loss of jobs

When universities closed, some teachers and lecturers lost their jobs. The impact of closures on teachers led to leaving the teaching profession and financial distress.

"I could not continue with the teaching profession. I had to leave and look for ways to earn a living. I couldn't get alternative work easily but I got it later" – Lecturer V, who did quit the teaching profession

"For me I had to look for survival coping approach to support my family" – Lecturer Y

Theme 3: Challenges in creating, maintaining and improving distance learning

The sudden demand for distance learning overwhelmed existing portals to remote education. Moving learning from classrooms to homes occurred at a large scale and in a hurry. This presented enormous challenges for many lecturers.

Theme 4: Challenges measuring and validating learning

Assessments of learning, such as high-stakes examinations, that determine advancement of students to new educational levels, were thrown into disarray due to the COVID-19-related schools closure. Strategies to postpone, skip or administer examinations at a distance raised serious concerns about fairness, especially when access to learning varied from student to student.

"My Dean queried the quality of how I assessed the performance of my learners. I had to explain to her" – Lecturer X

"It's not easy to have uniform and fair assessment for all students because there are in a different environment at the time of assessment. You just have to assume that all was well" – Lecturer W

It is thus evident that the quality of student assessment became highly subjective and questionable.

Effects of COVID-19 school closures on administrators

The experiences of university administrators were related to:

- 1) **Loss of jobs:** as there was limited opportunity for physical supervision and due to the low financial base for private universities following the closure of universities, administrators either resigned or were made redundant.
- 2) **Challenges in creating, maintaining and improving distance learning:** Demand for distance learning when universities closed overwhelmed the administrators. It resulted in a suboptimal and stressful administration of remote education.
- 3) **Challenges measuring and validating learning:** Supervision of assessments, such as high-stakes examinations that determine advancement of students to new educational levels became challenging for administrators. They thus had to delegate this task to individual lecturers. Strategies to postpone, skip or administer examinations at a distance raised serious concerns about fairness, especially when access to learning differed greatly amongst students.

"Most of the lecturers were demanding for more than usual from me [...] and I could not provide all [...] I did my best" – Administrator 1

"I became confused and didn't know how to proceed with my work" – Administrator 4

Effects of COVID-19 school closures on community

The community and other stakeholders equally suffered:

"I used to make money from petty business and students were my customers. It's a loss now" – A community business woman

Discussion

As a consequence of the school closures during the COVID-19 pandemic, the teachers and learners in this study experienced a number of barriers to their abilities to provide and support learning. Thus, having to teach and communicate with the learners remotely meant that teachers could not reach all learners equally due to technical and other limitations. Primdahl et al. (2020) found similar

results. In the context of widespread school closures to slow the spread of COVID-19, UNESCO is now working with many ministries of education in affected and concerned countries to ensure continued learning for all children and youths through alternative channels (UNESCO, 2020b).

The results of this study demonstrate an increase and change in workload for both lecturers and students. Kaden (2020), found a similar change in workload for lecturers in his study. On the flipside, the forced move to online learning may turn out to be the catalyst to create a new, more effective hybrid model of educating students in the future.

Conclusions and recommendations

In conclusion, the results of this study demonstrate an increase and change in workload for both lecturers and students. Online education could support learning for many students but needs to be carefully designed and individualized. Otherwise, it could deepen inequality and social divides. The forced move to online learning may have been the catalyst to create a new, more effective hybrid model of educating students in the future. Kaden (2020) previously noted that not one single model for online learning will provide equitable educational opportunities for all and that virtual learning cannot be seen as a cheap fix for the ongoing financial crisis in funding education.

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Supporting casual teaching staff in the Australian neoliberal university: A collaborative approach

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Abstract

In this paper, we argue for a collaborative approach to online education as a corrective to many of the challenges of contemporary tertiary teaching. The recent intensification in online teaching due to the COVID-19 pandemic suggests that articulating an effective model of online teaching is judicious. While the model we propose is apposite for all teaching staff, we focus on its benefits for casual staff due to their increasing share of teaching responsibility yet limited access to institutional support.

Using a collaborative auto-ethnographic framework, we analysed reflections from past and present members of our teaching team. We contend that collaborative teaching counters teachers' typical experience of isolation and facilitates personal and professional learning. By providing institutional support for regular productive interactions, staff wellbeing is promoted, and the precariousness of contemporary university teaching is reduced. These aspects of collaborative teaching speak to its sustainability both for staff and the institution. We conclude that it is in the university sector's best interest to implement similar collaborative teaching models.

Introduction

The neoliberal turn in higher education has changed the very nature of academic work (Connell, 2013). Among the effects of sector restructuring are the development of a competitive workplace culture with an emphasis on measurement and assessment and a concomitant decline in collegiality between academics (Berg & Seeber, 2016; Hartman & Darub, 2012; Sparkes, 2021). The widespread casualisation of the workforce has produced an academic precariat (Gill, 2014; Hartung et al., 2017; Ivancheva, 2015; May et al., 2013) of which the authors of this paper are currently members.

As a corrective to neoliberal reforms, in this paper we examine a team-teaching model for online education that we have found to be collaborative and rewarding. We are a team of casual academics from diverse disciplines who have developed a community of practice (Canty et al., 2020) to guide our joint teaching and iterative development of an online undergraduate course on cultural diversity at a regional Australian university. Our experience of working in a collaborative teaching team points to a collegial and sustainable model of online delivery that can address some of the challenges of contemporary tertiary teaching. The rapid escalation in online teaching due to the COVID-19 pandemic (Hodges et al., 2020) suggests that articulating an effective model of online teaching is judicious.

Context: The neoliberal university and COVID-19

The intensification of academic life resulting from the structural transformation of universities has been well-documented (Gill, 2014; Hartung et al., 2017; May et al., 2013; Sparkes, 2021). The neoliberalisation of universities has produced working environments increasingly characterised by corporatisation, privatisation and managerialism (Hartman & Darab, 2012). For example, Price et al. (2015, p. 685) identify three interrelated themes of early academic career experience: "lack of job security; high workload pressures, including a constant pressure to publish; and a sense of professional and personal isolation". Subsequently, workplace camaraderie and academic collegiality have declined (Dugan & Letterman, 2008). Berg and Seeber (2016, p. 89) argue for the "conviviality of thinking together" as an antidote to the isolation that characterises work in the neoliberal university. The present study takes up their prompt for creating a collaborative model of creating content and teaching together.

Casual academics teach up to 80 percent of the first-year teaching load (Baré et al., 2021; Kniest, 2018; Ryan & Bhattacharyya, 2012). The challenges of working in the neoliberal university may be amplified for casual staff who often feel "isolated" and "invisible" (Fredericks & Bosanquet, 2017, p. 88; see also Brown et al., 2010; Lazarsfeld-Jensen & Morgan, 2009). Casual academics report issues such as high administrative burdens and a lack of on-campus office space (May et al., 2013). Moreover, pre-determined, by-the-hour pay schedules mean that casual academics may feel too time-poor to attend workplace events which can render them invisible to colleagues and reduce opportunities for developing peer relationships. The career progression of

casual academics is hindered not only by their exclusion from happenstance peer interactions (Price et al., 2013) but also formal career development opportunities (Crimmins et al., 2017; Fredericks & Bosanquet, 2017; Ryan et al., 2013). Exclusion is likely to be more acutely felt by those in the humanities and social sciences than in the natural sciences where research is often team based (Price et al., 2013). Our teaching model offers a way of supporting academics by countering the isolation that many academics experience (Dugan & Letterman, 2008). Crucially, while the model is relevant to all academic teaching teams, it is one of the few models which focuses on casual academics. These aspects of our teaching model speak to its sustainability. Nevertheless, this study does not address other problematic aspects of the neoliberal university, such as job security and pressure to publish.

Teaching online

The first wave of COVID-19 had dramatic impacts on 'business as usual' for the university sector (Elers, 2020; Lau et al., 2020; Peters et al., 2020). A key change was the widespread shift to teaching using online platforms (Hodges et al., 2020). While distance learning in higher education had been growing worldwide in the preceding decade (Canty et al., 2020), physical isolation requirements associated with COVID-19 led to a sudden escalation in this trend. This upheaval spawned extensive discussions, not only about the effectiveness of online courses and online learning, but the quality of the online teaching experience (Burbules, 2020; Johnson, 2020). As Canty et al. (2020, p. 3) note, the shift to online delivery "presents many transformational challenges to institutions in the ways in which they strategically plan for, develop, resource and deliver education that meets the changing needs and preferences of today's higher education students".

Online learning carries a stigma of being lower quality than face-to-face teaching; moreover, many academics rate online teaching as unrewarding and exhausting (Brookfield, 2015). One reason for this is that educational material is often prepared in isolation, with teachers and students engaged online in their own spaces (Taverna et al., 2015). However, echoing research in the field (Hodges et al., 2020), we argue that online teaching can provide fulfilling teaching experiences — provided teachers are given adequate support, and that dedicated online teachers can be deeply invested in creating effective online learning experiences. As Canty et al. (2020, p. 3) state, the increasing range of online technologies can provide "high-quality distance learning that is engaging, interactive and increasingly personalised". This study investigated the online teaching experience for members of our teaching team. Our aim was to support each other as academic staff and share our model with the teaching and learning community. While this project did not examine the impact of our teaching model on student outcomes, research in this field consistently asserts that team-teaching has positive outcomes for students (Benjamin, 2000; Colburn et al., 2012; Dugan & Letterman, 2008; Hoare et al., 2008). For example, team-teaching expands students' contact with experts, creating a stronger sense of academic community (Yanamandram & Noble,

2006). Student attention is heightened due to exposure to different teaching styles, while the contrasting viewpoints observed encourages independent thinking, active participation and improved interpersonal communication skills (Buckley, 2000). Similarly, Little and Hoel (2011) show that team-teaching is beneficial for changing student attitudes and expanding their worldviews. As Buckley (2000) concludes, team-teaching boosts student satisfaction which improves recruitment and retention. By and large the focus of the literature pertains to face-to-face teaching practice, with little or no consideration of the specifics of the online milieu. In contrast, our concern lies with online learning and teaching as a site of collaborative team-teaching.

Collaborative teaching practice

While there is a wealth of scholarship on collaborative learning and a consistent vein of scholarship about collaborative research teams, there is less scholarship devoted to collaborative teaching practice. We address this gap. Members of our teaching team argue for the effectiveness and resilience of this form of delivery citing its benefits for camaraderie, teacher satisfaction and professional development.

The various terms in the literature that describe team-teaching — including cooperative teaching, collaborative teaching, and co-teaching — tend to be used interchangeably. They reflect an ethos of sharing responsibility for planning, instruction, and evaluation of students (Fuller & Bail, 2011; Williams et al., 2010). However, there are marked differences between co-teaching models in which labour is shared but teachers work independently, and collaborative models characterised by mutual engagement. For example, Bedwell et al. (2012, p. 130) define collaboration as an “evolving process whereby two or more social entities actively and reciprocally engage in joint activities aimed at achieving at least one shared goal”. From this perspective, collaboration is an emergent process based on dynamic, adaptive and interdependent interactions between parties in which a team of experts becomes an expert team (Salas et al., 2000). Following Fuller and Bail (2011, p. 73), our model of teaching is “not just a division of labour but a synergistic effect and expectation of mutual engagement to provide greater clarity and interaction with students”.

For Salas et al. (2000, p. 341), the difference between loosely aligned ‘groups’ and synthesised ‘teams’ is the presence of teamwork — “dynamic, moment-to-moment behaviours and interactions”. In teams, interactions are optimised by co-operative behaviours, such as providing constructive feedback and resolving dissent, underpinned by “shared situational awareness” — a common understanding of the team’s internal and external context (Salas et al., 2000, p. 341). Requisite interpersonal skills are also noted in other scholars’ work. For example, Kelly et al. (2020, p. 217) state that effective research teams have a “clear and shared purpose...a commitment to shared outcomes, good communication patterns, social sensitivity, teamwork skills and capacity to integrate knowledge...diverse team members [and] good interpersonal skills”. In reference to teaching teams, Benjamin (2000, p. 193) argues that key

aspects of collaborative practices include “sharing new and untried ideas, critiquing ideas in order to improve them, and being comfortable with confrontation and cooperation”.

The aim of this article is to summarise our model of team-teaching by responding to the question ‘what are the critical elements of effective and sustainable collaborative teaching praxis for online tertiary education’.

The course

Our course on cultural diversity is based on a combination of constructivist and experiential learning approaches (Kolb, 1984), resulting in an emphasis on reflection as a learning method. The course is offered twice yearly to students from multiple disciplines. Course content is delivered as a series of web pages, structured as three modules — individual behaviours, systemic issues, and strategies for equity (see Figure 1).

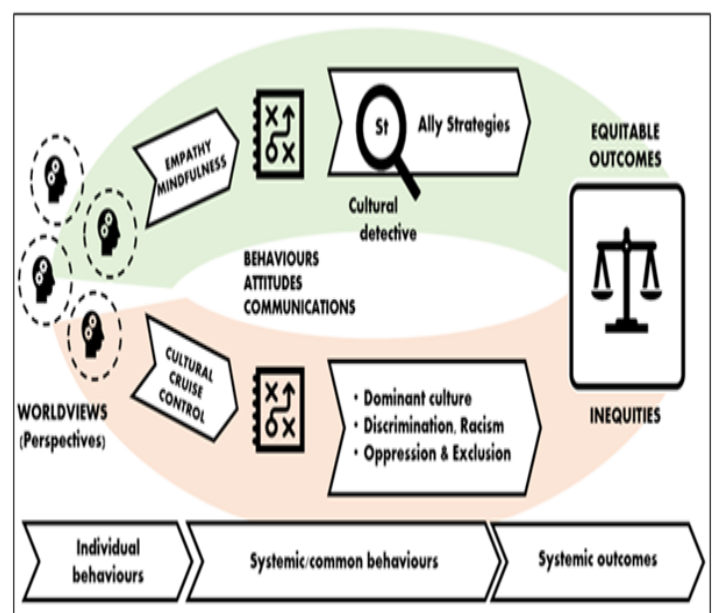


Figure 1. Pictorial representation of course progression.

Each webpage encompasses a short lecture, readings, videos, activities and reflections on an essential concept, such as ethnocentrism or allyship. Students work asynchronously, completing an average of one web page per week over 13 weeks of semester (see Figure 2). While we deliver a weekly online tutorial to provide direct, synchronous contact and peer learning, attendance is not compulsory, and students can listen to the session recording in their own time.

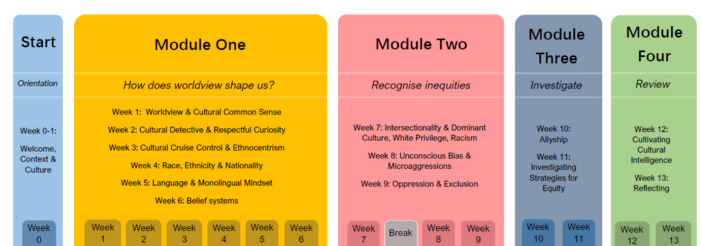


Figure 2. Course structure.

The teaching model

Course content is mostly compiled, curated, and updated prior to each teaching semester. This enables the teaching team to focus on student interactions and feedback during delivery. Members of the teaching team take 'ownership' of webpages or other content, such as assessment tasks, depending on their expertise, interest, or availability, with input and review from the whole team. This structure facilitates collaboration while avoiding doubling up on workload. Leadership is diversified; one team member handles most strategic and administrative matters and has overall responsibility for 'coordination,' with another staff member taking an active 'co-pilot' role. Those in the coordinator roles are consultative, with decisions discussed in meetings. During semester, the teaching team meet online at least weekly to share information, prepare synchronous sessions and moderate assessment tasks. Suggestions for amendments or improvements are recorded and brought to an in-person review day held twice yearly (following each delivery).

At its inception, the course was conceptualised as a cross-faculty collaboration, developed in response to the university's prioritisation of 'Breadth Units' (see Brown & Phegan, 2015). While the course has since been integrated within a particular school, the teaching team continue to represent multiple disciplines, including Fine Arts, Health Sciences and Social Sciences. Over time, the teaching team has transitioned from full-time tenured academic and professional staff to casual academic staff and PhD students. To the best of our knowledge, this transition has been organic rather than orchestrated. Changes in the employment status of the teaching team may reflect the workload pressure felt by tenured academics (Sparkes, 2021) and the rapidly escalating share of the university workforce with casual or fixed-term employment (Baré et al., 2021; Kniest, 2018).

Methods

This article examines the experiences of 11 teaching staff of an online undergraduate course at a regional Australian university. Our aim is to describe a model of collaborative online team teaching that is sustainable in the contemporary neoliberal university environment. By researching together, we also hope to extend and strengthen relationships within our teaching team (Kelly et al., 2020).

Given the collaborative nature of our teaching model, we were drawn to collaborative autoethnography (CAE) as a research method. This method is "simultaneously collaborative, autobiographical, and ethnographic" (Chang et al., 2013, p. 17). Whereas autoethnography "uses the researcher's personal experiences as primary data" (Chang, 2016, p.108), CAE is a co-constructed research design in which two or more researchers 'pool' and jointly analyse and interpret their autoethnographic data (Hernandez et al., 2017, p. 251). Although autoethnography is commonly written in the first person (Denshire, 2014), we use collective pronouns to signify our collaborative approach.

Collaboration enables more rigorous data analysis and deepens researcher relationships. In addition, this method has the potential to amplify previously silenced voices (Denshire, 2014), which reflects our enquiry into how to support casual academics in neoliberal universities. Nevertheless, CAE has been criticised for being non-accountable, non-generalisable and non-representative, with "the potential for narcissism and self-indulgence" (Roy & Uekusa, 2020, p. 388). While we were drawn to autoethnography because it addresses the ethical issues of speaking for others (Chang et al., 2013; Lapadat, 2017), we were acutely aware of the possibility of our project being self-congratulatory. Consequently, we supplemented our autoethnographic data by inviting participation from staff who were previously involved with the course as tutors, lecturers, advisors and coordinators. Incorporating this data returns us to the situation of speaking for others. However, including additional voices offsets the potential for self-commendation and provides a broader insight into our teaching model. Given that the research team comprises members of the current teaching team, extending our sample also facilitated appraisal of the unit over a longer period. We did not want to give the (false) impression that we had designed our collaborative model; the inclusion of past team members helped prevent this.

Data collection

Following ethics approval, all past and present members of the teaching team (n = 26) were contacted by email and invited to participate. Those who agreed to participate (n = 11) submitted a consent form and short answer questionnaire (42 percent response rate). The questionnaire prompted participants to reflect on their experiences with the teaching model in comparison to their other teacher experiences (Kelly et al., 2020). We chose questionnaires for data collection as written responses allow participants time for reflection and self-editing to provide data rich responses (Jones et al., 2015; Keightley et al., 2012). Open-ended answers allow for a nuanced understanding of past and present teaching team members' perceptions of both the course and their teaching.

Sample

As Table 1 shows, our sample is fairly homogenous in terms of age and monolingualism. Seven participants identified as female. Six participants were employed as casual academics and, of these, three were early career researchers. Two had not taught in a university setting prior to joining the teaching team. However, as noted in the introduction, diverse disciplines are represented within the sample, while 'years teaching at university' (column 4 below) suggests participants bring varied work and personal experiences to the university sector. To protect anonymity, we delinked some information from pseudonyms in the table below, such as identification as Aboriginal. Similarly, we have chosen not to name the course or the discipline in which it is situated.

Table 1: Participant demographics.

Pseudonym	Age	Gender	Years teaching at university	Languages spoken	Member of research team
Astrid	40-49	F	6-10	1	N
Betty	50-59	F	11-15	1	N
Brett	40-49	M	0-5	3	Y
Jason	40-49	F	20+	1.5	Y
Phillipa	50-59	F	6-10	1	Y
Pip	50-59	F	16-20	1	N
Poppy	<30	F	6-10	1	Y
Possum	50-59	M	20+	1	N
Rudy	40-49	M	0-5	1	N
Ruth	50-59	F	16-20	1	N
Sophie	50-59	F	11-15	1	N

Data analysis

Analysing open-ended answers may be onerous for large samples, but it is feasible for the number of participants in our study. Questionnaire data were analysed thematically following Boulton and Hammersley's (2006) method which offers a three-step process for rigorous analysis of qualitative data: 1) familiarisation with the data, 2) reading data to identify significant categories, patterns and aspects and 3) comparing and contrasting these categories to identify data segments. Lionnet (1990, p. 391) argues auto-ethnography 'opens up a space of resistance between the individual (*auto-*) and the collective (*-ethno-*) where the writing (*-graphy*) of singularity cannot be foreclosed'. Following Lionnet (1990), we began step one of the data analysis working individually before collaborating for the last two stages to prevent singularity of analysis.

Author two fulfilled the research assistant role for the project, anonymising responses by replacing names with participants' chosen pseudonym. She then forwarded one-four questionnaires to other members of the research team to analyse individually. In the initial data immersion stage, we (individually) noted any striking words, phrases or themes arising from the data. After sharing our individual analyses with the rest of the research team, we met (virtually) to discuss our preliminary analysis. We identified learning, relationships, support and limitations as the most striking themes in the data.

The next stage of analysis, in which we analysed each theme in depth, was completed collaboratively in pairs. These analyses were shared with the rest of the research team who provided critical feedback on the initial interpretation of the data. We discussed crossovers among the themes, variations within the sample and how the data corresponded with the research aims.

There are two key methodological implications to our design. First, the collaborative nature of data collection and analysis means there is potential for data to be re-identifiable. Participants are academic researchers who are aware of the risks involved. Moreover, respondents chose their own pseudonyms. Secondly, there is the risk of context collapse, where participants may be identified by readers of subsequent publications. The issues of compromised confidentiality and context collapse were explained to participants in the information sheet and addressed in the consent process. For example, participants had time to review and redact their questionnaires transcripts prior to

data analysis. They were also offered the option of vetoing any of their anonymised quotes prior to publications (such as this) or presentations.

Thematic analysis

Our thematic analysis is structured as two related themes, followed by a discussion of limitations of our teaching model. Firstly, we explore critical attributes of productive collaborations and, secondly, we unpack elements of our collaborative teaching model that relate to its sustainability. Theme One highlights aspects of the model which were valued by our participants. In line with the literature, we posit that basing collaborative teaching around regular interactions supports professional relationships, encourages broader knowledge, and leads to professional and personal growth. Theme Two, support and sustainability, refers to the potential longevity of the model for both staff and the course. We define sustainability prosaically as bearable or able to be continued.

Theme One: Critical attributes of productive collaborations

Collegial relationships

Echoing scholars in the field, we found that collegial relationships are a critical element of effective collaborative teaching for online education (see Bywater & Mander, 2018; Richardson, 2021). The development of peer relationships helps to counter the professional and personal isolation experienced by staff in the neoliberal university. In this section we describe what Bedwell et al. (2012, p. 137) refer to as "relational collaborative behaviors", or how relationships are developed and maintained in our teaching model through shared activities. We then investigate how these activities facilitate peer learning which benefits participants' personal and professional lives. We examine the interpersonal qualities and skills that facilitate productive collaborations.

The importance of collegial relationships is juxtaposed with the fact that our unit is run wholly online, which means that neither staff nor students need be based locally. This can increase employment opportunities for academics and make online teaching more financially viable for universities as demand for the provision of office and learning space is reduced. However, the recent intensification of online learning in Australian universities means that this form of teaching is new for many academic staff. Given casual academics are already under-supported in terms of professional development and tend to work in isolation, their professional wellbeing is likely to be jeopardised in the online teaching environment if supportive teaching models are not implemented (Hodges et al., 2020).

Joint activities

Bedwell et al. (2012, p. 134) observe that "all collaboration requires interdependent effort focused on joint activities". Similarly, Benjamin (2000) argues that effective tertiary

team-teaching relies on teams reflecting on, and evaluating, their practice together. This is a key difference between collaborative teaching models and those in which labour is divided but staff work independently. In our model, shared activities include development of course content and moderation of assessment tasks. These activities are facilitated by weekly online staff meetings leading up to and during each semester, supplementary ad-hoc online meetings, and twice-yearly face-to-face review meetings which sometimes include the wider course community (current, prior, interested contributors and instructors).

Participants identified regular meetings as vital to the maintenance of collegial relationships. Ruth valued *"the conversations that happened spontaneously — in moderating assessments, or re-designing content and rubrics"*. Similarly, Rudy appreciated *"interacting with the rest of the team"* and *"the great connection with everyone"* while Phillipa felt that her *"connection with other team members [was] extremely salient after these sessions"*.

The best thing about the model is the reflexive group activity. I highly value the staff meetings, the semester-by-semester review sessions, and the cyclic appraisal renewal of content. Meeting face-to-face with colleagues from time to time is brilliant. Jason

The weekly meetings help me to feel connected with other tutor members. Despite the unit and teaching being wholly online, the weekly catch ups during semester help to facilitate rapport and camaraderie. Poppy

In our model, embedding regular shared activities works to mitigate some of the challenges that academics experience in the Australian neoliberal university. For example, this sector has become increasingly defined by managerial practices in which many staff are excluded from active decision-making (Hardy et al., 2016). Collaborative models offer an alternative to a hierarchical structure in which tutors are deprived of participating in decision-making. In our approach, decision-making related to teaching, such as course content and delivery, is shared among the teaching team. The coordinator role is focused on external aspects, like strategic planning, brokering and administration, which relieves teaching staff of the high administrative burden felt by many casual academics (May et al., 2013).

I would describe the leadership model in [course] as democratic — decisions are made by leaders through a collaborative and consultative process involving all team members...All members of the teaching team contribute to decisions on included resources, lecture/webpage content, assessments, delivery of synchronized sessions, marking and sharing of ideas...It is distinctive in the expectation that all members of the team make significant contribution to the content, delivery and decision-making processes within the unit. Astrid

I think we strike a good balance between working independently and collaboratively, i.e. it could be really unwieldy if ever single micro-decision had to be discussed and agreed upon. Rather, we divide up tasks but invite comment/input from other team members. This model of working has developed organically rather than being planned, and it works really well. Phillipa

A particular type of high-level leadership needs to prevail to allow staff 'on the ground' to exercise their autonomy and best thinking, to experiment and take calculated risks. Jason

Reflecting on the review meetings, Possum outlines the decision-making process:

We would gather with a blank wall and map out the sequence and specific content...and we would have a lively debate about what is cutting edge, what is important, how to integrate each part, how to curate the enormous number of resources. Possum

Possum's reference to 'lively debate' echoes critical qualities of effective teams identified by Benjamin (2000, p. 193) — "being comfortable with confrontation and cooperation" in order to share and critique new ideas (see also McCormack & Kennelly, 2011).

Minett-Smith and Davis (2018) observe that allocating set tasks to staff can limit interaction, potentially undermining the effectiveness of team teaching. Again, our model offers an alternative, in which involvement is based on expertise, capacity and/or interest:

Some take on extra work, some demonstrate best practice in giving feedback, crafting lectures, finding relevant resources etc. Some research how the available technology can help improve our teaching, some advocate for the unit in their influence circles; some bring subject matter expertise. Brett

For Phillipa, recognising this opportunity required a shift in mindset from *"being a 'tutor' to realising that I could take the initiative and make a contribution beyond simply completing my allocated tasks."*

The dispersed leadership and decision-making features of our course model necessitate regular team meetings. This non-hierarchical structure means that these meetings are genuine collaborations in which ideas are discussed and debated. These joint activities, which are highly valued by the geographically dispersed participants in our study, support peer connections and help to counteract the potential for isolation and invisibility experienced by many academics. Joint activities are especially important for casual staff who are not provided with office space on campus. Full-time staff who work on campus can take advantage of happen-

stance meetings with colleagues or scheduled meetings with mentors or leaders to debrief and share issues. Casual staff and those who work from home have less access to these forms of support. Scheduling regular meetings fills this potential gap.

Scholarly cross-fertilisation

Collegial relationships enable an environment of peer learning. Participants in our study identified peer learning as a key strength of the model; one that contributed to a sense of connection and conviviality. Rudy attributed opportunities for learning to *"the collaborative approach to all aspects" of the course including "unit design, content development, assessment"*. Phillipa found *"collaborative sessions where we develop content, e.g. rubrics, have been really inspiring"*. Betty valued opportunities for *"learning from and with others"*. Similarly, Ruth said the unit was one of her *"best"* teaching experiences because she was *"learning the whole time"*.

Peer learning helps to counter the customary exclusion of casual staff from professional development opportunities. In Australia, casual academics teach up to 80 percent of the first-year undergraduate teaching load while having few opportunities to refine tertiary teaching skills (Ryan & Bhattacharyya, 2012; Kneist, 2018). Opportunities for professional development are an inherent right of casual teaching staff, yet casuals can feel uncomfortable seeking out opportunities to which they are entitled (Fredericks & Bosanquet, 2017). Restricted opportunities for the professional development of casual staff not only limits their capacity to obtain more secure work in future but renders a key aspect of contemporary universities precarious, potentially undercutting the future of academic teaching (Ryan & Bhattacharyya, 2012). Collaborative teaching models, with embedded opportunities for peer learning, help to address this weakness.

Several participants were doctoral students or early career researchers and this subset especially valued opportunities to learn about more about tertiary online teaching (see Greer et al., 2016). Poppy commented she had *"learnt lots! There are many opportunities for extending my learning of university teaching"*. Rudy shared how his experiences moderating assessment items gave him confidence to pursue tutoring in other units. All participants indicated they had learned new online teaching skills including *"instructional design and online teaching tools"* (Brett), *"netiquette"* (Jason), and mastering *"different [online platform] features"* (Phillipa). Ruth felt it was a *"big learning curve about online learning design"*. Jason indicated online live tutorials were their *"weakest area in teaching"* and appreciated the opportunity to develop online teaching skills. Possum, Ruth, Jason and Brett were empowered to transfer these new skills to other units. More senior participants also appreciated this aspect. For instance, Sophie encountered *"new approaches to student management and delivery"*.

Notwithstanding the benefits of peer learning, it can also cause feelings of exposure:

It can feel vulnerable knowing that all your student feedback, discussion posts etc. are visible to the whole teaching team. However, I've learnt a lot from other tutors because of this. Phillipa

Feeling very vulnerable in my first semester—finding it difficult to settle in and feeling intimidated by the expertise of the teaching team, as well as a bit lost in what was expected of me. In my second semester, I was more aware of how the team worked and the expectations of me from other team members. I found my confidence and connection with the group increased the more I contributed, and felt supported as team members appraised my work positively. Astrid

Astrid describes how her experiences helped her process her initial feelings of vulnerability. A fundamental aspect of collaborative teaching is the inherent welcoming and accepting nature of the team environment, one where staff can express feelings of vulnerability which in turn enables them to feel connected and develop collegial relationships characterised by trust and humility:

I have noticed that sometimes team members act quite autonomously and responsively, and at other times there is a lot of consultation, and that both these approaches entail a lot of goodwill and trust (self-trust and trust in others). Jason

I felt very included from the start because my contribution to the unit (ideas for tasks, activities, resources, readings, etc.) had always been well received and I felt valued. Brett

We got personal about what all this meant to us, what we struggled with, where the gaps and challenges in my own knowledge were. Ruth

The extracts in this section indicate that participants in our study experienced learning with and from peers as supportive rather than challenging, suggesting that team members possess and/or acquire the requisite interpersonal and teamwork skills for effective teamwork (Kelly et al., 2020; Salas et al., 2000). Similarly, key aspects of collaborative practice identified by Benjamin (2000, p. 193) — *"sharing new and untried ideas...and being comfortable with confrontation and cooperation"*— are demonstrated below:

Working on revising rubrics was a great experience, I felt highly connected—it was all the more interesting because we contested each other quite a bit...all of the colleagues are highly talented, but portray a real willingness to learn, and I think all of the team members have had multiple and different work roles, so there is a flexibility and lack of defensiveness that characterises all the colleagues. Jason

We had the lofty ambition of 'changing the world' through tolerance and celebration of diversity. Possum

Casual staff are at the 'bottom rung' of academia and can struggle to be treated as serious academics (Kneist, 2018). While this can be challenging, it means that casual staff may be somewhat shielded from the competitiveness and performativity identified by Sparkes (2021). Arguably, this may make it easier for casual staff to demonstrate vulnerability and/or have their ideas challenged and be open to learning.

Members of our teaching team come from diverse disciplinary backgrounds and, as part of course development and delivery, learn different disciplinary perspectives on key concepts, embedding peer learning into course delivery. Hoare et al. (2008, p. 477) indicate multidisciplinary teamwork supports "intellectual cross-fertilisation through the process of directing diverse specialist foci onto common issues". Nevertheless, when engaging with new disciplinary perspectives, tertiary teachers in Hoare et al.'s (2008, p. 477) study encountered "comfort-zone challenges". This was echoed by participants in our study, in which these challenges were exacerbated due to the consistent emergence of improved praxis regarding cultural diversity. In the context, Ruth felt vulnerable "*not feeling like an expert*". However, as Possum observes, these challenges create learning opportunities:

Working with other staff members from different disciplines was definitely memorable and highly valued. This took me out of my comfort zone...to appreciate a broader range of perspectives both in knowledge but also teaching styles. Possum

Participants reflected that collaboration led to improved course design and materials, suggesting benefits to students from collaborative teaching models:

Team-based, cross curricula (multi disciplinarity) allow for a much broader curriculum to emerge. Betty

We 'spark' off each other to develop content etc. that is far better than, I believe, we could have developed alone. Phillipa

In our teaching model, peer learning strengthens collegial relationships. Participants valued the chance to enhance skills in assessment, rubric design, content development and course composition — learning opportunities that casual academics typically struggle to obtain (Fredericks & Bosanquet, 2017). The interdisciplinary nature of our teaching team enhanced peer learning. Our participants described learning about pedagogy, diverse disciplinary approaches to course content and benefits to students. Extracts in this section demonstrate the vulnerability and trust necessary for productive collaboration. Collaborative teaching supports further development of team members' interpersonal skills. This professional development was found to also benefit staff in their personal lives, as discussed in the following section.

Reflexivity

For Benjamin (2000), joint reflection and evaluation of praxis are key elements of effective teaching collaborations. The imperative to reflect is encouraged in our model:

While reflection is integral to my teaching generally, being a part of a teaching team encourages reflection on the possibility of learning new/other ways of doing things from others and how these can benefit my own teaching. Astrid

Despite the recognised value of reflexivity to academic teaching and learning, McCormack and Kennelly (2011, p. 515) observe that "over time, reflective conversations seem to have disappeared from the everyday practice of our colleagues". Clegg (2009) argues that the importance of reflective and rhetorical questioning to personal and collective professional development is under-utilised. This is counter-intuitive to a recent trend in Australian universities to offer interdisciplinary studies (Millar, 2016) in which academic staff must work collaboratively across disciplines.

Reflexive practice was augmented in our model due to the course's subject — cultural diversity. As we explain to our students, developing cultural intelligence requires self-reflection on one's own cultural location in order to manage one's cultural assumptions and behaviours. Participants in our study recognised that their immersion in course content encouraged development of their cultural intelligence, demonstrating the maxim that teaching is an effective way to learn (Cortese, 2005).

A great source of success for the unit [course] and the team is the imperative to consider different perspectives (worldviews), and practice humility: as a matter of fact, these are the very techniques that can be used to improve one's cultural intelligence. Brett

Notably, participants applied this learning to both their professional and personal lives. For instance, Possum observed that course teaching "*allowed me opportunities to reflect on my own cultural competence and how I deal with prejudice, discrimination and racism in my workplace and in the community.*"

I am continually experimenting and trying to become better at applying respectful curiosity to unravelling opinions in situations with intimates and new acquaintances when I have felt a major difference in opinions or values, especially trying to do so when I feel in myself a hostility, or defensiveness, or a will to stop having a difficult conversation. Jason

Overall, [the course] has taught me how to communicate complex issues to the general public with a focus on developing mutual understanding and empathy. Reading students' assignments and discussion board posts shows me 'where people are at' and teaches me how to empathetically communicate issues about racism, ethnocentrism, intersectionality etc. without feeling agitated or triggered when a student/friend/parent/in-law is racist or prejudiced - I focus on the win-win end point of understanding in a conversation rather than the journey which, through tutoring in this unit, I've learned is messy and complex. I think this community of peer learning, between staff and students, is a strength of the unit. I apply this to all situations with friends and family and peers. Poppy

I felt very supported by the teaching team generally, and senior members in particular ... Weekly meetings were an opportunity to raise issues within an environment of shared understandings of the challenges of tertiary level teaching, on-line delivery and confronting content. Astrid

I don't feel alone – there's always someone with which to discuss issues, give a second opinion. Phillipa

Overall, I feel very supported. I am generally able to take time off and team members will competently step up to cover my duties. I am confident team members know enough about my work so they can handle any emergency or issue in my absence. Brett

Collegial relationships are pivotal for productive collaborations. Hence, well-developed interpersonal skills are vital for effective teamwork (Kelly et al., 2020). All topics discussed in this section — joint activities, scholarly cross-fertilisation and reflexivity — depend on mutually supportive peer relationships characterised by trust and humility. Supportive peer relationships enable staff to demonstrate vulnerability and humility as they reflect on their teaching praxis. As our teaching team members develop their reflexivity and cultural intelligence, they are enabled to successfully negotiate challenging aspects of collaborations, such as the ability to withstand having one's ideas questioned (Benjamin, 2000). This enhances the resilience of the teaching team, as discussed in the following section.

Theme Two: Support and sustainability

In this section, we discuss sustainability by which we mean the potential longevity of the model for both staff and the institution. As discussed in the previous section, peer support is an in-built feature of collaborative teaching models, which centre an ethos of sharing responsibility for planning, instruction and evaluation of students (Fuller & Bail, 2011; Williams et al., 2010). In addition to the practical support from spreading the responsibility of teaching burdens and pressures (Buckley, 2000), participants in our study noted that their peer relationships increased their investment in the course. These features enhance the course's sustainability for staff. We conclude this section by discussing the institutional support that is crucial for sustaining collaborative teaching models.

Support

Relationships with peers enabled participants to feel professionally supported. Participants described the team as a "community of learners" (Brett) where "people pick up after each other" (Jason). Rudy felt "super supported" and Ruth noted her "trust in the team". These elements of support demonstrate a community marked by teamwork:

In the extracts above, participants describe their experiences of our teaching model as supportive. For example, Brett shares how team members cover for one another as needed by stepping into different roles. This is distinct from the common experiences of casual academics feeling unable to take a break from tutoring for fear of being excluded from future opportunities (Richardson et al., 2021). Collaboration reduces the burden on individual teachers while ensuring continuity for the students and the course. In this regard, it is important to distinguish between team-teaching in which the overall workload is simply shared between members and our collaborative model which is "a synergistic effect and expectation of mutual engagement to provide greater clarity and interaction with students" (Fuller & Bail, 2011, p. 73). Team-teaching based on a division of labour would not necessarily leave teachers equipped to cover for one another. Our collaborative teaching model provides flexibility which is experienced as supportive. This can be contrasted with the 'flexibility' of insecure work lauded by neoliberalism (Gill, 2014).

Investment

Having a shared goal is an essential premise for successful collaboration: "without at least one shared goal or endpoint, there would be no reason for two or more entities to work together at all" (Bedwell et al., 2012, p. 134). Participants indicated that collegial relationships and shared goals helped them feel invested in the course and supported a sense of professional wellbeing. Participants did not discuss 'burnout' but highlighted ways in which they were invested in the unit:

I found my contributions enabled increased feelings of being valued as an active team member, as opposed to simply delivering weekly content designed by a sole unit coordinator in a somewhat passive manner. Astrid

Astrid highlights that she felt more confident which increased her participation in the course. Jason felt a "high level of ownership of the model" and Ruth explained that she "felt invested in it."

The peer-to-peer learning and collaborative model of teaching where all members can have their say and are listened to and have the opportunity to develop content. Shared ownership of the [course] encourages tutors to care about it — this is crucial to collaboration and sustainability of the [course]. Poppy

In the extract above, Poppy explicitly links staff investment to the long-term sustainability of the course.

Institutional support

As discussed above, collegial relationships based on shared activities are crucial for productive collaborations. Institutional support in the form of allocated time and funding is vital to facilitate shared activities such as meetings. Our teaching team has been fortunate to be housed within a supportive school within our university and to have had a 'champion' (recently retired) who recognised and supported the course. In practice, this means that staff are reimbursed for the time they contribute, whether that is developing content, moderating assessments, conducting online tutorials, participating in review days and so on. This model can be contrasted with those where a set number of hours is allocated for specific tasks, such as tutoring or marking, with no allowance for course improvement or contingencies. Participants reported on feeling 'valued' as there was sufficient, remunerated time *"to develop ideas and projects in collaboration"* (Brett).

Collegial attitude of the team members is a key enabler — also the support of line managers to spend the time to collaborate in a way that quality curriculum is supported. Very supported by [university] and my faculty. We had funds to support the development and employ staff and space in workload to contribute. Betty

I feel very supported...The School...is also really supportive in terms of having a 'champion' and financial support for us to meet to collaborate. Financial support for the work we do is a literal way to show that we're valued. Phillipa

Coming under the School...is enabling. Unfortunately, politics and economics matter, the School...is a stable school and is happy to fund the teaching unit. Poppy

I think the support from School...— i.e. trusting the team to do the work — has been fantastic. Also that they supported paying for marking etc., it never seemed to be a problem. Ruth

Successful, sustainable collaborative teaching teams rely on institutional recognition of their strengths and financial support. When casual staff are financially reimbursed for their time, their work is incentivised in a way that is not always possible for full-time, tenured staff. As Possum explains, tenured staff juggle multiple responsibilities:

Getting quarantined time away from the other units I teach and my research and admin work of my substantive position can be difficult. It felt like that I was often doing [course] 'off the side of my desk'. Possum

As 'greedy institutions' (Currie et al., 2000), universities can leave staff exhausted, and can do far more to care for their employees (Fredericks & Bosanquet, 2017), as asserted by Jason:

For me teaching into this unit has provided a curative or restorative experience...I earnestly believe that universities need to change radically to make good on their espoused values: this has to start with caring for people and placing value on collegiality. Part of this has to do with building in more reserves and redundancies and creating situations in which people can operate with genuine team spirit, with the appropriate skill sets for communicating openly and respectfully. Jason

Participants in our study observed that institutional support was foundational. Collegial relationships and peer learning would not be strengthened to the same extent without institutional (financial) support for collaborative activities. In addition to supporting staff, collaborative teaching models also help address the precariousness of teaching in the current university sector (Ryan & Bhattacharyya, 2012).

Limitations of the model

Our collaborative teaching model provides evidence of a sustainable and effective approach to supportive teaching and learning. However, time-poor academics may find the time taken to reach consensus frustrating:

While team-based teaching is a wonderful opportunity, sometimes reaching a consensus and progressing can be challenging. Betty

Another limitation is finding the time to collaborate: it requires coordination to enable synchronous meetings where a lot of the work happens. Brett

Yanamandram and Noble (2006) argue that the composition of the team is crucial for determining the success or failure of a team-teaching effort (see also Cheruvelil et al., 2014). Team composition has an additional complexity in our course on cultural diversity—multiple participants identified the lack of cultural diversity in the teaching team as a weakness:

We need to enlist more diverse team members and include some more content delivered by Indigenous colleagues. Jason

The other constraint I've felt is the 'people like us' nature of the teaching team — it was really hard to know how to recruit people other than people I/we knew...I think that's a problem. Ruth

It would be lovely to have a more diverse range of cultural backgrounds for the tutors and coordinators so as to bring in more diversity in a natural way. Sophie

As outlined by Ruth, the homogeneity of the teaching team is due to problematic recruitment processes — team members are usually invited to join, based on subject expertise. While we are fortunate to have team members who coincidentally have great teamwork skills, we argue that the environment into which new members are inculcated facilitates collaboration.

Conclusion

The impetus for this research arose from group reflexive processes that have become standard in our course delivery, in which we discuss student performance, moderate results and design and adapt the course together. These processes are predicated on our institution supporting us by agreeing to pay for this labour. We were motivated to go beyond our paid hours to extend our reflections in this study. The current team members had remarked to each other that, as well as enabling us to deliver our course effectively, our teaching experience has been particularly enriched from our membership in this team. Despite our diversity in terms of discipline, we share a critical reflexive approach, and commitment to both social justice and lifelong learning. Our enquiry into the experiences of previous staff members who have contributed to the course over the years corroborated the experiences of the current team members, with consistent themes emerging from the questionnaires we administered.

Thematically, the questionnaire responses indicate that the subject area we teach has impacted on how we teach and work together. Respondents commented that teaching about cultural diversity has made them aware of ways to keep working on their own interpersonal skills. Values intrinsic to working effectively with cultural diversity — empathy, mindfulness, and reflexivity — inflect our communication and exchanges with each other and make for a highly constructive team environment in which ideas are contested.

Institutional support has been a vital contextual component for our team development and teaching satisfaction which ameliorates aspects of the precarity of casual employment. Working together developmentally has provided highly valued opportunities for 'on-the-job' skills acquisition and fortified our deep commitment to refreshing course content and adapting it for different student cohorts. Our future research will aim to draw on small group theory and to demonstrate links between effective collaborative teaching, casual staff satisfaction and good student outcomes.

In conclusion, we call on universities to respond to the experiences of staff in the neoliberal institution by prioritising their wellbeing. In particular, we urge an increased focus on members of the academic precariat. Universities should take urgent steps to remedy the structures that have created an underclass of marginalised academics. We argue that collaborative teaching models provide a blueprint for a teaching environment which is supportive and enriching for staff and beneficial for the long-term viability of the institution. Despite the advantages of collaborative teaching models however, we caution that they cannot address many problematic aspects of the neoliberal university, such as insecure employment. We are wary of propping up a crumbling edifice and contend that deep structural reform is imperative.

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Australian Aboriginal education: The impacts of Riawunna's Murina program pedagogy during Covid-19

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Abstract

The Covid-19 pandemic disrupted our world on a major scale in 2020 and will continue to be part of our lives for some time to come. This paper examines how students in the Murina Program were supported by the Aboriginal and Torres Strait Islander Education Unit, the 'Riawunna Centre' at the University of Tasmania (UTAS), to help overcome the challenges of Covid-19 in 2020. It explores enrolment data, feedback and work samples provided by students about the ways in which Riawunna supported them to successfully transition to online learning and continue to meet unit level learning outcomes 2020. Data were collected in early 2021 and all ethical requirements for publication were met. The analysis of formal institutional level student feedback surveys suggest that Murina students highly valued the support provided by all Riawunna staff during the pandemic as highly critical to their engagement with Aboriginal pedagogy, through the sharing of Aboriginal knowledges and yarns within a curriculum that strengthened connections during this very challenging period. Ongoing research in this space will continue to investigate the impact of the Murina Program pedagogy to give students voice and agency to redefine their definition of success.

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1. Introduction and background

The purpose of this paper is to examine the impacts of Riawunna's Murina Program pedagogy during Covid-19 and present an analysis of student feedback about their online learning experiences in Australian Aboriginal education units of study during 2020, and to present conclusions from this analysis to guide further research in this important area. The first section introduces the Riawunna Centre at the University of Tasmania (UTAS) and its role in supporting Murina program students particularly during the transition to online learning during Covid-19 pandemic. The article then explores pertinent literature, the methods and methodology and the analysis and discussion of data. The article closes by presenting conclusions and making recommendations for future research specifically in the area of program efficacy and engagement in enabling programs for Aboriginal and Torres Strait Islander people.

1.1 The Riawunna Centre and the Murina Program

The Riawunna Centre was established in 1991 with its primary role to strengthen the participation rate in higher education for Aboriginal and Torres Strait Islander students in Tasmania. Riawunna provides a range of programs and wrap around support for students to help them succeed and has a presence on all three UTAS campuses in Hobart, Launceston and Burnie. The Murina Program is a pathway program for Aboriginal and Torres Strait Islander students delivered by the Riawunna Centre since 1991 initially as a Bridging Program and changing its name to Murina in the mid 1990's. Data between 1999-2020 reveals 532 Murina students have enrolled in the Murina Program with an average enrolment of 24 students per year over this time. In 2020, the focus period for this paper, 38 students were enrolled in the Murina Program with 10 of these students simultaneously enrolled in other UTAS courses by semester two and continuing into 2021, indicating good retention and participation rates for this current cohort.

Murina students engage in the program for a variety of reasons, however anecdotal evidence suggests that they enrol in the program principally to connect with community and each other, to express and strengthen their Aboriginal knowledges, to build their confidence, and to explore pathways beyond higher education, often taking their positive experiences back to their families and community. Many students who come into the program have experienced fragmented and disturbing formational educational experiences where their existence and recognition of rights as Tasmanian Aboriginal people continues to be an ongoing battle for justice in Lutruwita (Tasmania), so stepping foot onto university grounds is already a significant achievement and potential measure of success. To overcome barriers such as this, the Murina program has created a curriculum that values the lived experiences and knowledges of Aboriginal students through storytelling and yarning (a relaxed conversational approach suitable for Aboriginal and Torres Strait Islander people in the classroom), creating a place-based and student-centred two-way pedagogy at the cultural interface (Bessarab & Ng'andu, 2010; Hall, 2015; Leroy-Dyer, 2018; Martin, 2014; Martin et al., 2017; Nakata,

2009; Ober, 2004).

In 2020 the Murina Program delivered six units or courses of study that focussed on strengthening and sharing Aboriginal knowledges using narrative approaches, whilst ensuring that key skills and knowledges needed to transition into further education were advanced. Table 1 presents an overview of these six units. Please refer to the glossary for the translation of unit title's in palawa kani.

Table 1: Murina units of study 2020.

Semester One	Semester Two
RWA010 tunapri milaythina 1 The life, history and culture of Tasmanian Aboriginal people from invasion to the 1950's.	RWA020 tunapri milaythina 2 The people, place and politics of Tasmanian Aboriginal people from the 1950's to contemporary times within a national context
RWA030 University Preparation 1 Writing, research and study skills, that assist students to achieve success within a Tasmanian Aboriginal context.	RWA034 University Preparation 2 Advance the skills learnt in semester 1 within a Tasmanian Aboriginal context.
RWA148 kani Gathering Gathering of Aboriginal and Torres Strait Islander stories to examine their style, messages and importance of preserving stories.	RWA149 kani Sharing Students sharing a story using any creative medium or narrative styles to create and share their stories to give voice.

The Murina Program uses a range of assessments to engage students through a Tasmanian Aboriginal lens, to share their voice through yarns, presentations and writing using different creative mediums. Assessments align with theories of Western learning and teaching alongside pedagogies of Indigenous knowledges and cultural understandings. Table 2 presents the breadth of assessment types provided in the Murina program using storytelling and yarning as defined earlier in this article to share stories in a relaxed manner to strengthen connections.

Table 2: Unit assessments 2020.

RWA010 tunapri milaythina 1	Semester 1 RWA148 kani Gathering	RWA030 University Preparation 1
Assessment 1: 'Connection to Country' yarn	Assessment 1 Research Diary (gathering)	Assessment 1 Study Preparation
Assessment 2: 'Our People' Poster	Assessment 2 Mini Exhibition presentation	Assessment 2 Letter
Assessment 3: Cape Barren Island Life share	Assessment 3 Preserving Stories yarn	Assessment 3 Research and referencing
Assessment 4: Reflective Journal		Assessment 4 Sharing kani
RWA020 tunapri milaythina 2	Semester 2 RWA149 kani Sharing	RWA034 University Preparation 2
Assessment 1: Political Event paper	Assessment 1 Story Plan	Assessment 1 Sharing
Assessment 2: Game Changer paper	Assessment 2 Create a story	Assessment 2 Draft Photo essay
Assessment 3: Quiz	Assessment 3 Share a story	Assessment 3 Final Essay Presentation

1.2 Online learning in the Murina Program prior to Covid-19

Experience over time suggests that Murina program students prefer to engage and learn in a face-to-face mode, through which they can interact and yarn with each other as they strengthen their connections and relationships. At the heart of Murina pedagogy is the sharing by Pakana people (Tasmanian Aboriginal people) and 'On Country' learning experiences to strengthen and celebrate Aboriginal knowledges – each usually requiring face to face learning. The face-to-face mode has also been an important space to build student's Information Technology skills and to strengthen their engagement through the University Learning Management System (LMS). Riawunna also provides access to computer labs and the opportunity for students to borrow laptops. Using a product called MoCow (Mobile computer) in 2019, the Murina Program introduced classroom based, internet enabled technology to facilitate synchronous Skype connectivity between classes across the three UTAS campuses. This product was instrumental in developing student capacity and confidence in technology, which in turn assisted in the 2020 pivot to online learning required by Covid-19.

1.3 Online learning in the Murina Program during Covid-19

Covid-19 impacted learning and teaching at UTAS in early March 2020 when all students and staff were required to socially distance and to engage where possible in fully online learning and teaching by the commencement of week four of Semester 1, March 16, 2020. This presented an unprecedented pedagogical challenge for the Riawunna team as it was unknown how Murina students would respond to fully online learning and the potential isolation from their Aboriginal community.

During Covid-19 the core Murina pedagogy of incorporating knowledge-holders and Connection to Country (acknowledging the significance and deep connections to Aboriginal lands, territories, seas and waterways) was honoured by inviting Aboriginal staff and Pakana knowledge holders into the virtual classroom to yarn and share stories to create a collaborative and engaging classroom experience for Murina students. A safe and supportive virtual classroom was created for Murina participants through regular online meetings and opportunities to engage and stay connected. The Riawunna team also supported students through its Financial Hardship Scheme by purchasing extra laptops and loaning these out with internet connection dongles for mobile internet access.

Individual student support during the transition to fully online learning was provided over the phone to support Zoom use and online web conferencing. Riawunna also worked closely with other UTAS programs such as UTAS Living (accommodation) and Wellbeing (counselling and workshops) for coordinated and holistic support around issues exacerbated by Covid-19 isolation and related factors.

2. Literature review

2.1 Aboriginal higher education in Australia and Tasmania

Australian universities have "underperformed" in their obligations to Aboriginal and Torres Strait Islander peoples, with participation and retention in higher education by Australian Indigenous peoples being historically low (Universities Australia, 2017, p. 10). Coates et al. (2020) state that early "colonialised education" (p. 1) has left "a legacy of educational disparity between Indigenous and non-Indigenous Australians" (p. 1). Andersen et al. (2017), Biermann and Townsend-Cross (2008), Hall (2015) and Leroy-Dyer (2018) maintain that adopting decolonising methodologies and Indigenous pedagogy in higher education and enabling programs prioritises Indigenous values and worldviews and contributes to positive change. As reported by Hearn and Kenna (2020) "levels of key performance indicators for Indigenous students - access, participation, success and completion (attainment) - remain below that of the overall domestic student population in most institutions" (p. 1). Early activism brought about government policies to strengthen participation in and educational outcomes for Indigenous peoples in higher education (Coates et al., 2020). The result was the creation of government funding provided for 'enabling' programs like the Murina Program across the country to address what has traditionally been problematic for Aboriginal and Torres Strait Islander people and their aspirations to complete a higher degree program – access and equity.

In 2012 the Australian Government released the 'Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People: Final Report July 2012' known as the Behrendt Report (Behrendt et al., 2012). This report highlights the importance of Indigenising higher education curriculum to engage Aboriginal and Torres Strait Islander peoples and to strengthen educational opportunities as a means of improving their socio-economic status. The Murina enabling program continues to address high levels of socioeconomic disadvantage amongst Aboriginal and Torres Strait Islander peoples by providing a culturally responsive program that engages students to explore educational opportunities to help them achieve success (Behrendt et al., 2012).

Craven et al. (2013) maintain that enabling programs seed success for strengthening participation of Indigenous students in higher education. However, Bookallil and Rolfe (2016) argue that this does not necessarily translate into enrolments in undergraduate studies, further claiming that there is limited evaluation of the effectiveness of enabling programs to support the goal of transition (Lomax-Smith et al., 2011). The Murina program challenges perceived definitions of success based on enrolment and transition outcomes; rather, the Murina program seeks to connect participants through fostering relationships and by sharing stories.

The University of Tasmania responded to the Behrendt Report (Behrendt et al., 2012) by developing a number of strategies intended to overcome the barriers to higher

education participation faced by Aboriginal and Torres Strait Islander peoples. These strategies include the University of Tasmania Strategic Plan 2019-2024 (University of Tasmania, 2019) which drives place-based learning, that recognises the deep relationships with people and Country to increase the accessibility of higher education for Aboriginal people. Aligning with the findings of the Behrendt Report in 2017 the University of Tasmania released the Strategic Plan for Aboriginal Engagement (SPAE) 2017-2020 which "outlines the steps required to consolidate and reinvigorate, across all areas, the University's Aboriginal engagement" (University of Tasmania, 2017, p. 1). The 2021-2024 SPAE is being finalised and will be released soon.

2.2 Covid-19 and Aboriginal Higher Education in Australia and Tasmania

The pandemic has reinforced extant inequities in the higher education systems of many countries (Akuhata-Huntington et al., 2020; Butler-Henderson et al., 2021; Maddumapatabandi & Kelum 2020; UNESCO, 2020). At a recent online conference about online education in higher education during and beyond the pandemic, inequality of access to technology within ASEAN nations was a common theme (Australia-ASEAN Academics Forum, 2021).

The effect of the Novel Coronavirus (Covid-19) on individuals, societies and economies around the world has been profound and will continue to be so for decades to come. Education sectors around the world have been, and continue to be, deleteriously impacted by the social distancing requirements of combating the reproduction rates of the pandemic (Butler-Henderson et al., 2020). The effect of the pandemic on education and education systems has varied between countries and regions, and has changed over time, however, to illustrate some of the initial effect, according to Maddumapatabandi and Kelum (2020), some 1.3 billion students were impacted at the start of the pandemic (see also Pokhrel & Chetri, 2021).

There has been a concurrent explosion of literature related to the impacts of Covid-19 on higher education. One international consortium of academics has curated an open access Covid-19 Higher Education database, now in its second version (Butler-Henderson et al., 2021). One theme identified in the literature has been the potential ongoing impacts of the pandemic on higher education pedagogy. According to Mulrooney and Kelly (2020) "In the longer term, it is likely that much face-to-face teaching will be replaced with online provision" (p. 18), with Pham and Ho (2020) for example characterising a shift to online learning and teaching as a potential "new normal" in Vietnam (p. 1330).

Reedy (2019) maintains that "the educational inequity that Aboriginal and Torres Strait Islander people have experienced in higher education in Australia is replicated in virtual learning spaces, with generic models of online learning design taking little account of cultural factors that impact on learning" (p. 132). Reedy (2019) also found that the key pedagogical imperatives of "making connections"

(p. 135) and "establishing relatedness" (p. 136) can be negatively impacted by an online learning environment. Whilst not specifically about Indigenous students and the impact of Covid-19 there are two projects that are worthy of note because of their relevance to digital learning in Aboriginal knowledges: Kinship Project (Mooney et al., 2017), and Virtual Tours on Country (Prehn et al., 2020).

Supported by the Australian Government Office for Learning and Teaching, and foregrounding Indigenous stories and voices, the Kinship Project developed an existing module in cross-cultural learning, transferring this to the digital domain. The analysis of evaluative survey data of student experience of the module indicates that it was regarded as extremely effective as an online teaching tool. In Tasmania, Prehn et al. (2020) explored the use of video to support student learning in digital tours of Country. They conclude that these virtual tours were "received positively by students, evoke encouraging emotional responses towards Indigenous Lifeworlds, and are a resource-sensitive teaching tool to Indigenise curricula within tertiary education" (Prehn et al., p. 17).

In 2017 Universities Australia launched its Indigenous Strategy designed to improve Indigenous participation, engagement and experience in higher education (Universities Australia, 2017). Universities Australia published its third annual report of this strategy in March 2021, one of the themes of which was "Online education during the pandemic" (2021, p. 31). This report provides the only sector wide snapshot of the impact of Covid-19 on Australian Indigenous students. The Universities Australia report (2021) highlighted access issues for students, including to facilities and to internet and adequate bandwidth (p. 32), issues of feelings of isolation including 'restricted access to family and country' (p. 32) and issues with adapting to the online learning environment. These findings support the earlier research of Bennett et al. (2020) into the impact of Covid-19 on Indigenous students in Western Australian universities. They highlight the impact of layers of disadvantage when multiplied by Covid-19 stating that "the pre-existing digital divide in Australia creates challenges for Indigenous university students, in addition to those faced by all university students coping with the transition to online learning in a context of social isolation" (Bennett et al., 2020, n.p.). They also highlight the impact of Covid-19 on cultural and digital isolation, including being "cut off from extended family, community, and Country" and "inequitable access to the full range of digital infrastructure required for effective online learning" (Bennett, Uink and Cross, 2020, np). The authors argue that "Indigenous university students are at risk of experiencing multiple, intersecting and cumulative forms of isolation in the forced migration to online learning, due to COVID-19" (Bennett et al., n.p.).

3. Methods and methodology

This research has evolved over time as author 1 has explored her post graduate research journey and engaged with author 2 in this space. The research is a first step by author 1 into the publication space and to setting the parameters and tenor of her research. This has not been a short journey however,

as author 1 has for some time negotiated the liminal spaces between Aboriginal epistemes and western, white, colonial attitudes. In this regard this research represents a signpost on a lifetime journey for author 1.

Broadly speaking this research employs a qualitative, ethnographic methodology (Creswell, 2014, Sarantakos, 2013) to learning and teaching in tertiary Aboriginal education in one Australian state. From this point of view, it represents a contribution to the Scholarship of Teaching and Learning (SoTL). However, it is, likewise, an autoethnographic excursion for author 1, being grounded in her own narrative of being and becoming. For both authors this research is representative of a collaborative and respectful journey in SoTL focussed on the pedagogical imperatives in the Murina program that drove student learning during the pandemic.

The methods employed in this research have likewise evolved in response to changing post graduate research imperatives. The three data collection tools employed were: enrolment data, survey and student work samples. Due to the evolutionary nature of the research, approval for the use of data for this article was done retrospectively and informed by guidance provided by the Human Research Ethics Committee (Social Sciences) at the University of Tasmania. In May 2021, the researchers sought guidance as to the use of past formal institutional feedback surveys for this research - known institutionally as eVALUate surveys. These surveys are institution-wide and are anonymous. The analysis and reporting of these survey data deliberately de-identified any potentially identifying material by presenting a 'summary' of findings under a series of thematically devised headings. Some de-identified qualitative survey data was also used. The use of student work samples involved the researchers approaching individual Murina program students to request ethical clearance to use de-identified examples of their work. The requests for such permission were likewise informed by guidance provided by the Human Research Ethics Committee (Social Sciences) at the University of Tasmania.

Enrolment data were analysed by assembling enrolment statistics over time and calculating averages across time. Survey data were analysed thematically, and in a loosely inductive manner. The themes were refined and developed over a period of time in which the researchers sought linguistic and semantic meanings from short, qualitative survey extracts, an approach loosely informed by the thematic, inductive approach valorised by Braun and Clarke (2006). Over time this process resulted in a set of reliable themes for discussion. Analysis of student work samples employed an iterative process between the researchers shared by Jacobs and French (2021), which enabled 'close readings of artworks based on their individual qualities' (p. 6). This analysis responded to the question 'what do these images reveal about individual connections to Country?'

4. Analysis and discussion

This section presents an analysis and discussion of data in three sections: 1). enrolment data, 2). feedback surveys, 3) and student work samples.

4.1 Enrolment data

This section provides a brief analysis of enrolment data pre and post 2020 to examine the potential impact of the Global pandemic on Murina students in 2020. Between 1999 and 2019, 495 students have enrolled in the Murina program (n=495/21) over this time (an average yearly enrolment of 24 students). More recently and under the current program structure between 2017 and 2019, 124 (n=124/3) students enrolled in the Murina Program (an average yearly enrolment of 41 students). It must be noted that many students from the 2017-2019 data did not commence beyond their initial enrolment, so this data doesn't necessarily accurately reflect the number of students who actively engaged and further investigation is needed to understand why some students show initial interest in the program but do not progress.

In 2020, 38 students enrolled and engaged in the Murina Program for semester one, which is above the average enrolment of 23 students over the past 21 years and equal to recent average enrolments between 2017 and 2019 showing a consistency of engagement. Analysing enrolment data for semester two to examine potential Covid-19 impacts, revealed 20 students continued their studies into semester two in 2020 resulting in a retention rate of 53% (n=20/38). This means 18 students withdrew before semester two resulting in an attrition rate of 47% (n=18/38).

Anecdotal evidence collected by the Riawunna team to analyse this decline in enrolments suggests that 13% (n=5/38) of students withdrew due to direct impacts of Covid-19 relating to either limited technology capacity or home environments not conducive to online study despite various Riawunna interventions. Another 13% (n=5/38) of students transitioned into further UTAS studies in semester two. The third anecdotal attrition factor suggests 21% (n=8/38) of Murina students withdrew for pre-existing personal reasons before Covid-19 and therefore were not considered as Covid-19 impacted in this data analysis.

Table 3: Retention and attrition rates of Murina students semester two, 2020.

Enrolment Data	Percentage
Retention	53%
Attrition	47%
Anecdotal Attrition sub-factors	
-CoVID impact	13%
-Transition to further studies	13%
-Personal factors	21%

4.2 Student surveys

At the completion of a unit of study at UTAS students are invited to complete surveys on their experience of both the unit and the teaching (known institutionally as eVALUate). This provides students with the opportunity to provide feedback about their experiences, to help measure the level of satisfaction with the unit, and to provide feedback to teachers. Over the six units delivered in the Murina Program

in 2020, a total of 101 requests for student feedback were sent to students with a total of 47 students responding for a response rate of 47% (n=47/101). Survey items scoped student experience of workload, unit learning outcomes, assessment items and others (Likert style) and general feedback through open-ended response opportunities.

In order to measure the difference between pre-Covid-19 and during Covid-19 learning experiences, the agreement of eVALUate items for the Murina program for 2019 and 2020 were analysed. In 2019 the overall agreement to survey items was 99.5% and in 2020 dropped slightly to 94.45% possibly suggesting some Covid-19 impact on student satisfaction, but still indicating a very high level of respondent satisfaction. This level of agreement by Murina program respondents was higher than the institutional average for both years indicating strong student satisfaction. One of the survey items asks "My learning in this unit was effectively supported by technology", for which Murina program responses in 2019 produced a 96.96% agreement, and in 2020 a 92.76% agreement. This small decline again possibly suggests an impact on student satisfaction due to Covid-19, but still indicating a very high level of satisfaction in this area.

An analysis was also undertaken of the open-ended eVALUate data for the six units delivered in the Murina Program for Semesters one and two, 2020. Sixty nine such responses were extracted and analysed where two broad themes emerged: "engagement strategies" and "Aboriginal pedagogy". These were further analysed, resulting in four sub-themes one in engagement strategies and three in Aboriginal pedagogy. Table 4 presents these four themes as either positive or constructive (an area for improvement) in nature.

Table 4: Four quantitative themes.

Theme	Positive	constructive	N=	Percentage
Support	21	3	24	35
Peer collaboration	7	0	7	10
Aboriginal knowledges	16	2	18	26
Curriculum impact	15	5	20	29
Total			69	100

4.2.1 Engagement strategies: Support

The support provided by Riawunna staff to assist students to overcome the challenges of Covid-19, accounted for 35% (n=25/69) of the open-ended survey responses. As such this was the most numerous feedback provided. Comments such as, "I feel strongly the staff at Riawunna have adapted to covid restrictions and have successfully delivered the courses through online platforms", to "considering we all had to change to online learning, I honestly think the learning outcomes are still great, we all had access to online tutors if needed". One response reinforced the importance of the critical supports provided by the Riawunna team and programs stating that "support is in place for those that need it and the course is flexible for all". Some comments expressed concerns about health and wellbeing such as "I

feel that things are going OK as long as we all stay safe", to "over the last three months it has been hard for all of us with the virus around and making sure we all stay healthy and safe".

4.2.1 Aboriginal Pedagogy: Peer collaboration

Ten percent (n=7/69) of feedback related to the importance of peer connections and collaboration. Opportunities were provided for students to engage with each other in online break out groups, group activities and through the assessments encouraging peer discussion and collaboration. Comments such as, "it has been important to connect with people over this time in lock down", and "the collaboration with peers during this course has been very fruitful and a real positive experienced [sic.] for me personally" indicated the importance of building and maintaining connections with peers as a buffer to the isolation periods of Covid-19 in 2020.

4.2.3 Aboriginal Pedagogy: Aboriginal knowledges

Twenty six percent (n=18/69) of comments relating to the pedagogy of the Murina Program focussed on the inclusion of Aboriginal knowledges through the process of storytelling and the sharing by elders and Aboriginal knowledge holders. Sixteen of these comments related to the positive impacts of this approach including, "loved the focus on Aboriginal storytellers, what a great concept for a unit", "the culturally appropriate content made this unit very interesting and motivating", alongside "a great way to actively practise my culture and learn how to present". Some comments emphasised the importance of "On Country" experiences such as, "this course does lack from not having on country trips but that is not at the fault of the course", and "there is definitely the aspect of 'On Country' that this course requires, so hopefully it is a possibility for end of year", indicating the importance of face-to-face connection when sharing Aboriginal knowledges.

4.2.4 Aboriginal Pedagogy: Curriculum impact

Murina's teaching and learning design and delivery accounted for 29% (n=20/69) of the open-ended feedback. Fifteen of these comments suggested that the curriculum was interesting and engaging as demonstrated by the following comments, "I like the way the content flowed from one assignment to the next", "the content and information gained from all aspects of the unit are helpful", and further emphasised by "what we had was excellent, but I felt myself wanting a bit more", which also indicated the need by some students to be challenged and extended further. Five comments offered constructive feedback such as, "though I appreciated the flexibility surrounding the mini exhibition, I felt like it took up a bit too much of our class time", and "not to be openly negative or allowing students to be, about non-indigenous people", which highlighted the challenging discourse in the program for some students.

4.3 Student work samples

Students produced visually stunning assessments using technology to effectively engage peers and invited guests who joined classes through web conferencing. Students developed story maps, story plans and presented the achievements of Aboriginal and Torres Strait Islander storytellers through samples of song, art, film and writing. They gathered stories, voiced their position on contemporary issues impacting the community and shared how they 'Connect to Country' visually using Microsoft Power Point and other creative mediums as they took turns to present virtually in class. Themes evident in these presentations explored the impacts of invasion and colonisation on people and place, the importance of preserving stories and honouring the 'game changers' that advanced Aboriginal and Torres Strait Islander self-determination.

Analysis of student work samples employed an iterative process between the researchers shared by Jacobs and French (2021), which enabled 'close readings of artworks based on their individual qualities' (p. 6). Student names have been replaced with pseudonyms throughout.

Figure 1 was created by Tania in response to the Connection to Country assessment. Tania created this original colourful map of Lutruwita (Tasmania) with tribal boundaries and cultural symbols using an earthy yet vibrant palette of acrylic paint and digital media. This work highlights Tania's knowledge of tribal boundaries, a care for Country and a careful use of cultural symbols including an original border.



Figure 1. Map of lutruwita. Mixed Media. Tania.

Demonstrating her response to criterion two, 'describe connections of country today and its' continuing cultural practises' Tania expresses her personal connection to Country in contemporary times (Figure 2). Tania uses original mono prints, selecting earthy yet vibrant colours of green and ochre orange. These stunning works demonstrate the power of Tania's art practise and how it supports her cultural healing through art. Tania chose to highlight this by titling the work as she has. Again Tania uses symbols and shapes, this time from nature, to demonstrate her strong connection to and understanding of Country. These works provided Tania's peers with a powerful and inspiring narrative, revealing a window into Tania's identity as a Pakana woman and her relationship with Country today.



Figure 2. Connections to Trumanyapayna Country. Mono print, ink on paper. Tania.

In Figure 3 Hilary combines digital photographs with text to recall and reflect upon her "On Country" trip to Yingina, the Great Lakes in central Lutruwita. In the text Hilary describes the impact of this visit as "opening my eyes to a number of ways that knowledge could be delivered". Hilary shares her images of the vast and expansive country of 'Yingina' alongside the lake that laps upon 'Yingina's' soil, where ancient stone tools of thousands of years lay. Students walked on Country, picking up and identifying tools as Aboriginal Heritage Officers and community members shared their significance. This trip was in hindsight an extra special experience for students and staff as it was the last time everyone came together on "On Country" before Covid-19 restrictions were imposed.



Figure 3. "On Country" trip to 'Yingina'. Digital photographs and text. Hilary.

Figure 4 is a screen shot from a ten-minute pre-recorded video presentation by Danny in response to the 'Connection to Country' assessment task. In this presentation Danny shared with his Murina Program peers his 'Connection to Country'. Danny's Country is on the Bass Strait Islands (as seen in Figure 4). During his presentation Danny shared a heartfelt narrative that described the importance of family and ancestors that had shaped who he is today as a Pakana man. His presentation took students on a journey back to Country using a range of contemporary family photographs on Flinders Island, walking Country and sharing stories. Danny shared images of his ancestors connecting to 'Salt Water Country', including their boat making and sailing practices.

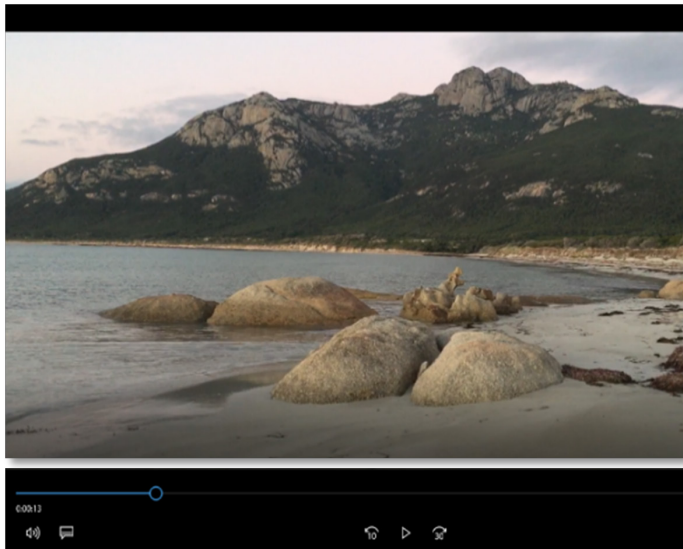


Figure 4. Connection to the 'Islands'. Digital image (screen shot). Danny.

Figure 5 is another strong student work sample from the 'Connection to Country' assessment task. Through her presentation Erica described her "Connection to Country" at Larapuna on the east coast of Tasmania as deep and meaningful. Erica presented live to students an inspiring yarn on how her 'Old People' lived on 'Country' before invasion, including her ancestor Mannerlagenna who is an important and significant figure and ancestor for many Pakana people. Erica shared how she spends time on 'Country' with family today and the importance of deepening these connections.

Figure 6 is a screen shot from a Microsoft Power Point slide, including original artwork of an 'old style' record, developed by Lisa as part of a kani sharing. Lisa's live presentation celebrated and honoured 'Islander' musicians the Brown Boys, who were from Cape Barren Island, in the early to mid 1900's. Using both visual stimulus and audio, Lisa embedded a musical example in the slide, transporting students back in time. The Brown Boys performed using a unique fusion of folk and Celtic instruments, including violins and guitar. Their music expresses their sealer ancestors and the self-taught musical talents of Tasmanian Aboriginal "Islanders". Lisa designed the gold record and plaque to honour the Brown Boys describing their achievements and

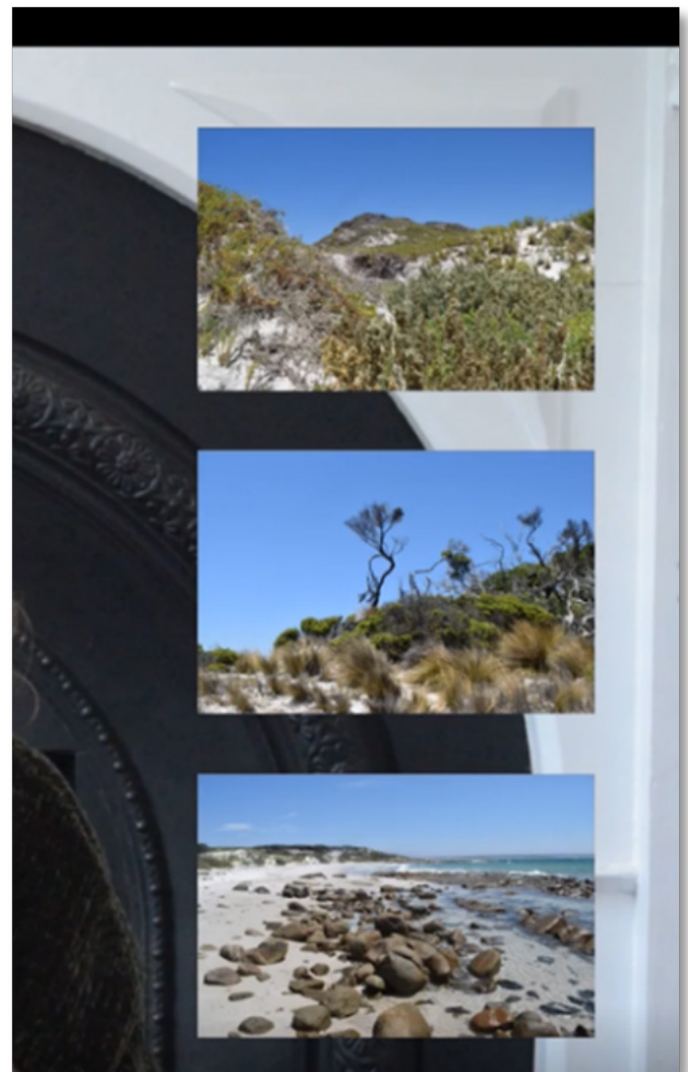


Figure 5. Connecting to Larapuna. Digital photographs in screen shot. Erica.

their influential legacy that continues through the lives of proud "Islanders" today.

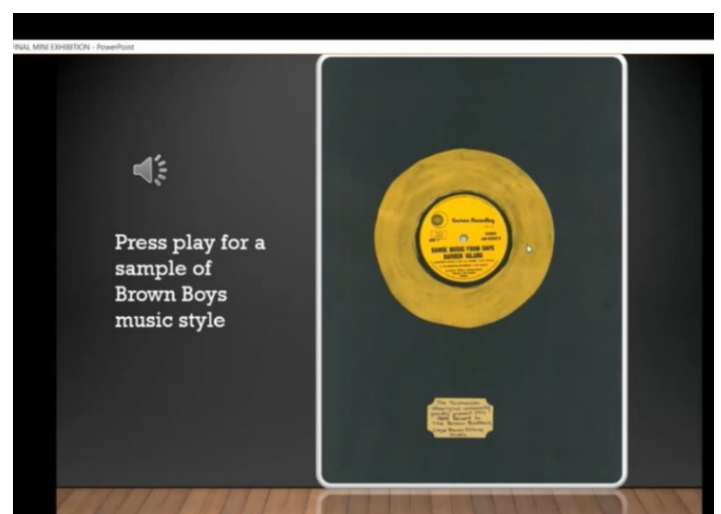


Figure 6. The Brown Boys Music. Original art work on PowerPoint screen shot. Lisa.

5. Key findings and recommendations

5.1 Key findings

This article examined Riawunna's Murina Program pedagogy during Covid-19 and how students in the UTAS Murina program navigated this upheaval and how this impacted their learning experiences in 2020. Three data sets were analysed and discussed: 1). enrolment data, 2). student experience surveys, and 3). student work samples. This section highlights the importance of these findings, acknowledges the limitations of the research, and suggests areas for further research.

According to anecdotal evidence out of the 38 students who enrolled and actively engaged in the Murina Program for semester one 2020, only 13% (n=5/38) of students were directly impacted by Covid-19 to the point that they withdrew from the course by semester two. This data analysis also revealed that 23% (n=9/38) of 2020 Murina students have transitioned into further UTAS studies in 2021. This is a positive outcome and contrary to the tide of evidence that highlights the impact of layers of disadvantage when multiplied by Covid-19 (Bennett et al., 2020).

The analysis of student experience surveys revealed a very high level of agreement responses exceeding the average institutional responses, indicating strong engagement and high satisfaction with the Murina program learning experiences. Furthermore, de-identified, open-ended responses revealed two main themes of importance to respondents: 1). engagement strategies, and 2). Aboriginal pedagogy. These were expressed as four sub-themes. 'Support' by Riawunna staff at 35% (n=24/69) was highly valued as a critical means to help students overcome the challenges of the pandemic in 2020. Riawunna staff, both Academic and Professional, also delivered important programs such as the Riawunna Tutoring Program and the Riawunna Financial Hardship Scheme to provide wrap around support. This feedback emphasised the importance of student-teacher relationships (Hall, 2015) to strengthen student engagement and resilience during isolation. These relationships are supported by the literature around online learning (Reedy, 2019) and were critical in overcoming some of the potential barriers caused by isolation through online learning as highlighted by the Universities Australia report (2021) and the work of Bennett, Uink and Cross (2020).

The data analysis also revealed that students equally valued the engagement and sharing of Aboriginal knowledge holders at 26% (n=18/69) and the impact of the curriculum at 29% (n=20/69) to enrich learning, a finding supported by literature on strengthening connections through the sharing of stories and yarns (Andersen, 2017; Bessarab & Ng'andu, 2010; Yunkaporta & Kirby 2011) and creating a pedagogy that Centres Aboriginal student's voices using decolonising approaches (Leroy-Dyer, 2018; Biermann & Townsen-Cross, 2008). The three themes of: 1). sharing Aboriginal knowledges, 2). curriculum impact, and 3). peer collaboration are entwined and when combined are at the heart of Murina's Aboriginal pedagogy making up 65% (n=45/69) of survey responses.

Finally the student work samples provided data that expressed participants' lived experiences of learning and teaching in the pandemic, and of Aboriginal knowledges, reflecting the value of the two-way pedagogy of the Murina Program (Bessarab & Ng'andu, 2010; Biermann & Townsen-Cross, 2008; Hall, 2015; Leroy-Dyer, 2018; Martin, 2014; Nakata, 2007; Ober, 2004; Purdie et al., 2011) intended to give voice to and to honour Pakana people and the lands of Lutruwita. This was evident in the assessments that invited students to share their Connections to Country using a wide selection of media and creative mediums to communicate their experiences, whilst preparing students for further tertiary studies as they operated at the cultural interface (Bat et al., 2014; Martin et al., 2017; Nakata, 2007; Ober, 2004) to strengthen their learning experiences and transition into further educational pathways.

5.2 Limitations and recommendations for future research

The authors acknowledge the main limitation of this research, being that data sources were limited. However, having said this, the cohort for any given year of the Murina program is similarly small. To overcome this limitation the authors received ethical approval to access data from a number of different sources. The analysis of these data has provided Author 1 with research findings that will frame her ongoing graduate research, and through this article, contribute to this important research area.

Whilst findings are consistent with existing literature this research has highlighted the need for further research into Indigenous enabling programs as supported by Bookallie and Ralph (2016). Further research to address a gap in knowledge regarding program effectiveness particularly in connection to early withdrawals, program impact and transition from enabling programs into further studies would be of particular value (Craven et al., 2013; Lomax-Smith et al., 2011). However, such research needs to move beyond enrolment data alone to understand and give voice to the students around the value and impact of enabling programs to understand their meaning of success.

Enabling program retention and transition data alone can present a distorted view of the value of such programs to higher education and more importantly to Aboriginal and Torres Strait Islander peoples, particularly when socio-economic factors such as those identified in the Behrendt report (2012) have such an impact on student learning. Research that focusses on student experience and that explores the reasons why Indigenous students choose to set foot in the door of an education system that has previously denied their existence, will place their voices at the centre of such research and empower them to become their own agents of change (Hall, 2015; Leroy-Dyer, 2018; Ober, 2004).

Glossary of terms

Some terms used in this paper use palawa kani, which means 'Tasmanian Aborigines speak', the language of Tasmanian Aboriginal people.

Pakana = Tasmanian Aboriginal person
 Lutruwita = Tasmania
 tunapri = to know
 milaythina = Country
 kani = To talk

Aboriginal Programs at the University of Tasmania in the 1990's used Plomely's (1976) word list and chose Murina for 'path' (p. 373) and Riawunna for 'circle' (p.183).

In this article 'Indigenous' is sometimes exchanged with the terms Pakana, Aboriginal or Aboriginal and Torres Strait Islander as the preferred terms in Lutruwita.

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Is there still a place for teacher-led learning routines in the Australian primary school classroom?

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Abstract

There is a commonly held perception that when students are motivated toward learning, finding it engaging and relevant, they experience academic success. This message, echoed loudly in Australian society, anywhere from researchers to social commentators; reflects a call for Australian educators to make content and learning experiences sufficiently appealing to students, thus providing the greatest opportunity for academic success. As a result, a trend toward student-centred learning routines, where learning is designed in accordance with what students deem interesting and relevant, is becoming increasingly popular in Australian primary school classrooms (6-12 year old students). This task can be confusing and daunting for teachers. In our current fast-paced, technology driven world, how does one make lessons about prepositions, the Cartesian plane or vowel alternations interesting enough to incite motivation and enthusiasm for learning? Or, could it be that academic achievement and student motivation is less influenced by an individual's personal interest in a learning task or domain, and more about what the teacher does to establish learning routines that enhance these factors for students?

Findings of this study propose that the way teachers establish effective learning routines has more influence on student motivation and academic achievement than the extent to which students might initially consider content engaging or relevant. The findings contribute toward the existing body of knowledge relating to teacher-led learning routines, academic achievement and student motivation in the Australian primary school context. While findings do not mandate an either/or position when considering teacher-led or student-centred instruction, educators are urged not to neglect teacher-led learning routines in the Australian primary school classroom. As such, pre-service teacher education and training should reflect accordingly.

Introduction

This study investigates the relationship between learning routines, student motivation and academic achievement in the primary years of an independent South Australian school. Current research yields contrasting views on the relationship between learning routines, student motivation and academic achievement and the manner in which these variables interact with one another. In other words, which variables influence the others, if at all?

The work of Gardner and Jones (2016) emphasizes the importance of student-centred learning routines, stating that minimally guided instruction allows students to interact with content deemed engaging and relevant, thus enhancing motivation and academic achievement. By contrast, Kirschner, Sweller and Clark's (2006) Cognitive Load Theory rejects the effectiveness of minimally guided learning routines, claiming they ignore the structure of human cognitive architecture. Instead, Kirschner, et al. (2006) encourage educators to employ teacher-led routines with a focus on direct instruction, as these enhance academic achievement, and subsequent student motivation. When researching the effect of contextual factors on student motivation throughout an inquiry process, Adler et al. (2018) found the teacher's role in providing students with comprehensive guidance (information, cues, examples, feedback and prompts) was essential for students to make informed decisions about their learning. In other words, learning routines, with clear teacher guidance and scaffolding, enhance student motivation and subsequent academic achievement.

As conflicting emphasis is placed on the way that these variables interact with one another, the current study explored a variety of general learning routines that primary teachers were exercising at the time of the study (see examples in Figure 1) and their influence on student motivation and academic achievement in an Australian primary years classroom.

	Student-Centred Learning Routines:	Teacher-Led Learning Routines:
1	Students are encouraged to make personal choices about where they sit and how/when they participate in learning times.	Teacher decides where students sit and sets expectations for how students should participate in learning times.
2	Students choose learning tasks from a variety of options, based on appeal and personal interest.	Teacher differentiates learning tasks according to student needs.
3	Curriculum is planned in accordance with national requirements, guided by student interest.	Curriculum is planned in accordance with national requirements, guided by student needs.
4	Students construct their own meaning and learning from investigations and/or exploratory play, allowing the learning outcomes to be determined by experiences.	Teacher explicitly teaches content, based on predetermined learning outcomes, and students consolidate understanding with teacher-led learning tasks.
5	Teacher views themselves as co-learner and mentor.	Teacher views themselves as instructor and leader.

Figure 1. Learning routines.

The study is significant because it aims to evaluate pedagogical practice, in the specified context, in order to provide recommendations to theory, practice and policy for future strategic direction.

This article is structured as follows: the next section explores the current body of research on the relationship between student motivation, learning routines and academic achievement. This includes a summary of the research on learning routines promoting *personalization, participation, independence, investigation and differentiation*. Justification of the conceptual framework and research methods are then discussed, with findings stated. The article concludes with a discussion of key findings, and recommendations, together with study limitations and avenues for future research.

Definition of terms

Learning routines: Patterns established to organise and manage student learning (Visible Thinking, 2008).

Teacher-led routines: Teacher-led and directed patterns for organising and managing student learning (Dietz, Hofer & Fries, 2007; Elkind, 2018). See Figure 1 for examples.

Student-centred routines: Student-centred and student-directed patterns for organising and managing student learning (Dietz et al., 2007; Elkind, 2018). See Figure 1 for examples.

Academic achievement: Domain specific scores given to students to reflect academic ability and progress. This study utilises Progressive Achievement Test (PAT) scores in reading, spelling and mathematics.

Student motivation: Intrinsic and extrinsic factors that inspire and motivate students toward learning (Reeve, 2012; Areepattamannil, Freeman & Klinger, 2011).

Primary years: Students aged between 6-12 years of age. The Australian primary school context is structured in such a way that students have a generalist 'classroom' teacher for all Literacy, Numeracy, Humanities and Science and Technology learning areas.

Literature review

Student motivation and academic achievement

Tseng and Walsh (2016) observe that students who hold the belief that a learning task is interesting and important, will engage in a higher level of metacognitive activity, resulting in enhanced levels of academic achievement. Similarly, Gardner and Jones (2016) suggest that when teachers provide students with choice, and allow learning to be driven by student interest, motivation for learning is enhanced. Fisher et al.'s (2015) research supports the relationship between student motivation and achievement, claiming that students who are engaged and attentive toward their learning experience high levels of success.

By contrast, Dishon-Berkovits' (2014) research on the connection between goal setting, student motivation and academic achievement reveal that student motivation waned quickly when designed around performance-based goals (eg. achieve top marks for narrative writing),

however, teachers who assigned their students learning-based goals (eg. use commas, exclamation marks and direct speech marks correctly in narrative writing) noted an increase in academic performance. This is likely due to the situationally determined nature of motivation and indicates that academic achievement requires more than a student's innate or pre-existing disposition toward learning, but rather, can be induced by teacher practices. Adler et al.'s (2018) research emphasizes that student motivation and academic achievement is influenced by the extent to which teachers provide students with clear guidance and extensive scaffolding, based on research-driven education interventions.

Learning routines and academic achievement

Personalization

Personalized learning emphasizes the individual learner in favour of broad instruction to mass students (Miliband, 2013). Models, such as blended delivery, allow students to tailor their accessibility and engagement of content to suit their learning. Tseng and Walsh's (2016) research into the effectiveness of highly personalized instruction, claimed that, in addition to increased motivation, students engaging in a blended learning course, generally "scored higher on their final grades than students in the traditional course" (p. 48).

However, Prain et al.'s (2013) research highlights a caution to personalized instruction, suggesting that in contexts where teachers are committed to providing students with personalized learning experiences, students are at risk of becoming confused about the degree of choice being offered to them and, in this uncertainty, appear unable to make the most appropriate decisions about their learning. Therefore, while personalized learning may have the potential to influence academic achievement, success must be built around teacher expertise, experience and mutual responsibility for learning between teachers and students (Dishon-Berkovits, 2014).

A study undertaken by Song (2012) with primary aged students in Cambodia sought to establish the factors causing some students to remain in school until Grade 6 (end of primary school) while up to 40% of pupils dropped out before the end of the primary years. It was found that students who undertook study from teachers with vast experience, and were exposed to clear guidance and explicit teacher-led instructional time, were more likely to experience academic success and remain in school until at least the end of the primary years. These findings echo Prain et al.'s (2013) research, claiming that teacher experience, teacher guidance and explicit instructional time are all correlated to student achievement. Of Song's (2012) three findings, it was established that teacher experience had the highest magnitude of effect on academic achievement. Song (2012) and Dishon-Berkovits' (2014) findings both emphasize the role of teacher expertise and experience in student academic achievement.

Participation

Participation refers to a student's active involvement in the learning process. Learning routines which promote student participation include pair/group work and collaborative learning. Kovacs, Johnson and Dixon's (2017) study required 89 students, enrolled in the 'Principles of Agricultural Macroeconomics' course at the University of Arkansas, to complete all in-class learning tasks in groups over the duration of one semester. A review of findings, related to the relationship between group work and academic achievement, indicated that group participation enhanced homework performance, but not exam performance (Kovacs et al., 2017). This may reflect the reality that homework can be completed in collaboration, but exams or tests cannot. Findings also indicate that positive collaboration and group engagement had minimal influence on individual task performance (Kovacs et al., 2017).

Stoian's (2016) project level research suggests that collaborative learning can positively influence academic achievement, when the teacher explicitly assigns and concludes learning outcomes. This means that in addition to assigning a learning task, the teacher must ensure that students are provided with time at the conclusion of the learning to reflect on, summarize and evaluate the effectiveness of their learning in light of the pre-determined learning outcomes. Similarly, Brophy (1986) claims that academic achievement is enhanced when teachers expect students to master curriculum content through direct instruction. Rosenshine's (2012) extensive research in cognitive science and the classroom practices of master teachers, concluded that when teachers begin a lesson with a short review of previous learning, explicitly present new material in small steps; with student practice after each step; and expect students to engage in regular review of their learning, academic achievement is conducive to improvement. Interestingly, Rosenshine's (2012) findings state that many teachers also explored student-centred, experiential learning tasks with their students, but chose to do so only *after* the initial content was mastered. This decision was made by teachers with the acknowledgement that student-centred exploration of concepts and content was only effective when students had already acquired an appropriate and sufficient base of knowledge (Rosenhine, 2012).

Independence

Independence refers to a student's personal autonomy in the learning process. When researching independence in reading comprehension, Baumann and Ballard's (1987) findings, when exploring models for increased independence in reading instruction with secondary students, point toward the effectiveness of a *two step model*. This is where students are explicitly taught content, before engaging in guided practice, with the goal being that students move toward mastery of content and subsequent independence in learning. This same idea is sometimes known to educators as *I do, you do, we do* where research on the effect size of various teaching strategies identifies explicit teaching as the most influential on academic achievement (see Marzano,

2009, as cited in Killian, 2018). These findings may suggest that academic achievement requires an emphasis on teacher-led learning routines, rather than student-centred, choice-driven routines.

Similarly, Kirschner et al. (2006) suggests that, despite its potential appeal in the 21st century educational context, minimally guided instruction fundamentally ignores the structure of human cognitive architecture, and is therefore far less effective than instruction which places strong emphasis on teacher-led guidance. As Kirschner et al.'s (2006) stance is founded on Cognitive Load Theory, which assumes learning takes place when a change has occurred from short term memory to long term memory; the findings warn against educators viewing the learning process as students constructing or discovering information for themselves. Rather the teacher is viewed as an instructor (guiding and leading), explicitly teaching learners how to cognitively manipulate information from short to long term memory, based on learning goals.

Roblyer (1996) and Perkins (1991) examined extensive evidence for minimally guided instructional strategies. The findings of both researchers agree with Kirschner et al.'s (2006) suggestions that strong guidance is essential for effective learning and transfer. These findings indicate that teacher-led learning routines are more likely to be predictors of academic achievement. Therefore, it may be suggested that students who engage in explicit, guided instruction, experience higher degrees of academic achievement.

Investigation

Investigation refers to a student's involvement in exploring and experimenting with learning concepts. Linder, Powers-Costello and Stegelin's (2011) research into the effectiveness of exploratory play in mathematics in primary school classrooms, resulted in the belief that students who willingly and enthusiastically engage with numbers in early years of schooling are better equipped for academic success in future academic experiences (eg. secondary education and beyond). Similarly, when exploring the use of Problem-Based Learning (PBL) Trinter, Moon and Brighton's (2015) study, suggests that when mathematical content is presented to students in ways that are both appropriately engaging and challenging, educators will see their students' understanding and potential. These findings suggest that investigative learning has the potential to influence student motivation and subsequent academic achievement.

Logar et al.'s (2018) research on the effectiveness of investigative learning routines, with Slovenian primary years students, acknowledges its potential to enhance student motivation, but warns that its relationship to academic achievement is dependent on the extent to which educators plan with rigorous learning objectives in mind. Perhaps concerning, findings explained that only half of educators planned in this way, compromising the effectiveness of investigative learning on academic achievement. It can be suggested that despite the potential for investigative learning to increase student motivation, this alone; in the absence of teacher instruction; may not be not enough to

support academic achievement (Logar et al., 2018). These findings echo Dishon-Berkovits (2014) and Adler et al.'s (2018) acknowledgement of the fundamental role of the teacher in intentionally leading the learning, with clear objectives and a strong basis of content knowledge.

Differentiation

Differentiation refers to educators teaching students within their zone of proximal development (Vygotsky, 1978; Tomlinson, 2010; Kapusnick & Hauslein, 2001; McAllister & Plourde, 2008). Instead of whole group instruction, differentiated instruction designs the content, process and product of learning (Tomlinson, 2010) based on the individual needs of students.

Studies, when analysing the influence of differentiated instruction on reading comprehension in primary school classrooms, indicate that "differentiated instruction resulted in higher reading fluency and comprehension" (Reis et al., 2011, p. 492). Other significant findings include the observation that students experienced increased engagement and enjoyment of reading (Reis et al., 2011).

Stoian's (2016) findings suggest that for differentiation to be a predictor of academic achievement, the teacher must lead the learning, but students must also have the opportunity to collaborate, as this increases student motivation for learning. Morgan's (2013) case study of a disengaged eighth grade student discussed how differentiation should be used to maximize student success, suggesting that its effectiveness relies on hard working, knowledgeable and well-prepared teachers, the appropriate use of technology; to suitably engage students; and, teacher knowledge of their students' personal interests and unique learning needs.

Learning routines and student motivation

There is a belief that student motivation and academic achievement is increased when learning routines allow students to feel a personal and emotional connection to their learning goals and environment (Gardner & Jones, 2016; Jones, 2009). Learning routines inspired by this belief tend to emphasize minimally guided learning routines as they allow students to interact with content they deem engaging and relevant. Similarly, Slavin's (1983) research with elementary and secondary students found that, among cooperative learning methods (where students study the same material together) "only methods that provide group rewards based on group members' individual learning consistently increase student achievement more than control methods" (p. 429). While Tseng and Walsh (2016) claim that the relationship between learning routines and student motivation relies heavily on the presence of intrinsic motivation. This finding suggests that students need to consider learning tasks relevant and engaging in order to experience academic achievement.

Linnenbrink and Pintrich's (2002) research on what they consider to be the four key components of student motivation (academic self-efficacy, attributions, intrinsic motivation,

and achievement goals) suggest that the concept of student motivation should be viewed as multifaceted. Their research claims that a student's motivation for learning reflects the manner in which they interact and contribute to the learning environment. As this can change depending on the environment, caution should be exercised when labelling students as 'motivated' or 'unmotivated' so as not to be overly presumptuous.

Research questions

The research undertaken sought to explore teacher-led and student-centred learning routines for the purpose of discussing their relationship to student motivation and/or academic achievement. The study was undertaken in a primary years South Australian context. 285 primary aged students (between the ages of 6-12 years) and 15 teachers contributed to the data set.

The following objectives were addressed:

- The links between learning routines, student motivation and academic achievement.
- Strategies employed by teachers to establish learning routines with the intent of increasing student motivation and academic achievement.

¹Hence, the study was guided by the following research questions:

- RQ1) What is the link between learning routines and academic achievement (reading, writing, spelling), in primary years?
- RQ2) How do teachers establish learning routines that may lead to student motivation or academic achievement, in primary years?

Conceptual framework

The conceptual framework (Figure 2) of this study outlines the potential relationship between learning routines, student motivation and student academic achievement. The framework reflects learning routines which promote *personalization, participation, independence, investigation and differentiation*.

¹ As this paper aims to discuss findings related to the relationship between learning routines, student motivation and academic achievement, only the questions 1 and 2 will be addressed. Question 3, while relevant to the context of the original study, explores methods used to sustain motivation and is not the focus of findings discussed in this paper.

RQ3) How do teachers establish learning routines that may sustain student motivation, in Primary Years?

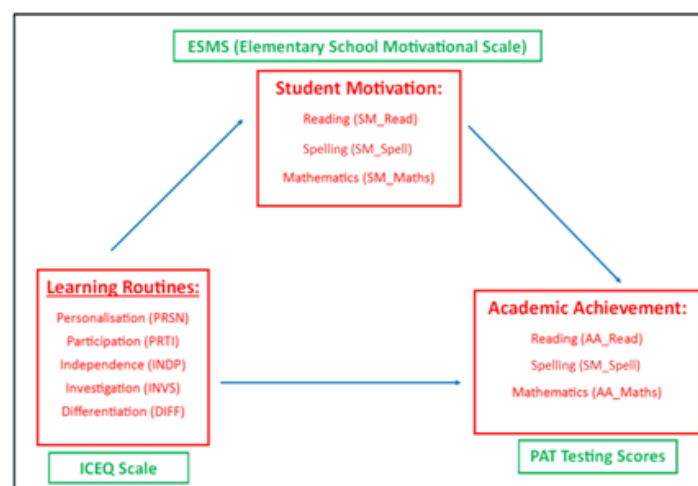


Figure 2. Conceptual framework.

Research methodology

Research design

The study employed a mixed methodology, particularly the embedded type. Mixed methodology is most effective when the research requires the use of quantitative and qualitative methods and that the use of both methods has complementary strengths rather than overlapping weaknesses (Creswell, 2006). More specifically, an Embedded Mixed Methods Design allows a secondary data set to inform a study based primarily on the other data type (Creswell & Plano Clark, 2006). This means that in the Embedded Design process, qualitative and quantitative data is not weighted equally. As two of the three questions posed in the original study required the collection of quantitative data, it was justified that the current study was largely quantitative, therefore more suitable to the Embedded Mixed Methods Design.

In the study undertaken, the disadvantages of the Embedded Mixed Methods design were minimised by ensuring that logical, purposeful and thoughtful planning allowed one data type to supplement the findings of the other (Creswell, 2006). As the study was primarily quantitative, qualitative data was obtained and used to further inform the findings of the study. As the data pertaining to student motivation and academic achievement is quantitative, only these findings are explored in this paper.

Survey instruments

The *Elementary School Motivational Scale* (ESMS) (Guay, Marsh & Dowson, 2005) was used to measure levels of motivation in students, making it suitable to address Question A. The scale, designed for primary years students, measures intrinsic and extrinsic motivation for learning in reading, spelling and mathematics. Each item in the ESMS was presented to students with a Likert-style response format; and in the data file, "Strongly Disagree" was coded as 1, "Disagree" as 2, "Uncertain" as 3, "Agree" as 4, and "Strongly Agree" as 5. ESMS items were analysed in the

domains of reading, spelling and mathematics.

The *Individualised Classroom Environment Questionnaire* (ICEQ) (Fraser, 1990) was used to measure the learning routines established by teachers in primary years classrooms, and was suitable to address Question B, due to majority of its development being within the Australian context. Items in the scale pertained to a variety of teacher-led and student-centred learning routines, aligned to the categories of *personalization, participation, independence, investigation and differentiation*, where teacher responses reflect what occurs in their classroom (ICEQ_Actual), as well as what they would like to see occur in their classroom (ICEQ_Prefered). Like the ESMS, each item was presented to teachers with a Likert-style response format; and in the data file, "Strongly Disagree" was coded as 1, "Disagree" as 2, "Uncertain" as 3, "Agree" as 4, and "Strongly Agree" as 5.

Academic achievement was measured using the school-wide *Progressive Achievement Test* (PAT) results.

Validation of survey instruments

To ensure drawing sound and meaningful interpretations of the analysis results of the collected data, it was necessary to establish the reliability of the measurement properties of the ESMS. The *Rasch Rating Scale Model* (RSM) was used to examine the measurement properties of the ESMS. Particularly, the Infit Mean Square (INFIT MNSQ) – i.e., the amount of "distortion" of the measurement system, or the size of the randomness of measurement (Linacre, 2002) – was examined. According to Linacre (2002), an INFIT MNSQ value of 1.0 indicate little distortion of the measurement system; values less than 1.0 indicate observation tend to being too predictable, and over 1.0 tend towards being unpredictable. In the study, a range between 0.60 to 1.4 (Jafari, et al., 2012) was used. This was considered appropriate as the ESMS is not a high stakes test requiring a much narrower range of INFIT MNSQ. Besides, Linacre (2002) has pointed out that INFIT MNSQ values between 0.5 and 1.5 are productive for measurement. All items in the ESMS were found to have INFIT MNSQ to fall within 0.6 and 1.4, thus, they were considered to function well and accordance with the assumptions of the Item-Response Theory (IRT) in establishing an item's measurement property.

The ICEQ (actual) and the ICEQ (preferred) were examined separately using the RSM. In addition, the ICEQ has been validated over several stages to establish its psychometric properties. Fraser's (1980) original validation metrics obtained an alpha coefficient ranging from 0.63 to 0.85 (personalisation = 0.78, participation = 0.67, independence = 0.83, investigation = 0.75 and differentiation = 0.78), suggesting satisfactory reliability. Ben's (2020) revalidation of the ICEQ supported earlier validation findings by Fraser (1980), observing that both the actual and preferred classroom ICEQ have "very high separation reliability", indicating "high discriminating power and small measurement error, demonstrating measurement precision and reliability" (Ben, 2020, p. 89). For in depth details of the re-examination of the utility of ICEQ Scales, see Ben's (2020) work.

Data collection

This study used school-based data. Data were collected through survey questionnaires measuring the following constructs: *Student motivation in reading, student motivation in spelling and student motivation in mathematics*, along with the use of teacher-led and/or student-centred learning routines promoting *personalization, participation, independence, investigation and differentiation*. PAT test data was used in conjunction with the ESMS and ICEQ scales to address the research questions. PAT reading, spelling and mathematics data was used in order to maintain consistency with the ESMS.

The participants of this study are 15 teachers and 285 primary aged students. Teachers are aged between 22-59 years with experience ranging between 2-32 years. Teachers participating in this study are all generalist 'classroom' teachers, responsible for Literacy, Numeracy, Humanities, Science and Technology subjects at their relevant year level, as is typical in the Australian primary school context. Student participants ranged between the year levels of Foundation (5-6 year olds) through to Grade 6 (11-12 year olds). The convenience sample method was employed as subjects were readily accessible to the researcher, met the practical criteria and were willing to participate in the study (Etikan, 2016). Data was collected in the first semester of 2018.

Data analysis

Analysis of ICEQ (Fraser, 1990) and ESMS (Guay, Marsh & Dowson, 2005) scales employed specialised statistical analysis computer software, including Statistical Package for the Social Sciences (SPSS) and ConQuest 2.0 (Wu, Adams, Wilson & Haldane, 2007) to inform descriptive and inferential analysis. For scoring consistency, the negatively-worded items were reverse coded. The ICEQ scales were validated using an *Item Response Theory* model (IRT) called the *Rasch Rating Scale* (RSM) to establish their validity and reliability (Ben, 2020). The RSM defines the "probability of a specified response in relation to the ability of the test taker, and the difficulty of the test item" (Ben, 2020) and allows person and test items to be represented on the same continuum. Benefits of the RSM is that the model enables for a "more detailed item-level examination of the structure and operation of tests and survey scales" (Ben, 2020). Instead of using reliability coefficients (eg. Cronbach's Alpha) to indicate reliability, the Rasch RSM uses fit indices including infit statistics (Infit Mean Square), and T Statistic.

Statistical weighting was employed to ensure that variables with small sample sizes were weighted to allow comparison with larger sample sizes. Simple correlation analysis was conducted to explore the relationship between individual variables and to establish a basis for regression analysis. Univariate (multiple) regression analysis was conducted to explore the relationships of the variables, using the conceptual framework as a priori.

Findings

After establishing the validity of the scales; and items within the scales; and ensuring that correlations existed between the variables, multiple regression analysis was used to determine the relationship between one dependent variable with multiple independent variables (Sullivan, 2018; Field, 2013). The following equation was used (Jöreskog & Sörbom, 2006):

$$Y = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n + e$$

Where Y is the dependent variable and X the independent variable, B_0 is the constant obtained from the regression calculations, B_1 , B_2 and B_n are the standardised regression coefficients (or the β value) for the independent variables (also obtained from regression calculations), and e is the residual (or error). Independent and dependent variables were drawn from the conceptual framework presented in Figure 2. Findings in response to the RQ1 (exploring the relationship between learning routines, student motivation and academic achievement) are outlined in Figure 3.

		Student Motivation (Reading)	Student Motivation (Writing)	Student Motivation (Maths)
Learning Routine: PRSN	Pearson Correlation Significance		-.01	
Learning Routine: PRTI	Pearson Correlation Significance		-.05	-.07
Learning Routine: INDP	Pearson Correlation Significance	-.08	-.047	
Learning Routine: INVS	Pearson Correlation Significance	-.06	-.059	
Learning Routine: DIFF	Pearson Correlation Significance	-.056		

*Only significant correlations were indicated; $N=285$

Figure 3. Correlation values of learning routines and student motivation.

A model of the findings from multiple regression analysis of learning routines, student motivation and academic achievement is outlined in Figure 4.

Student motivation and academic achievement

Regression analysis was used to establish the nature of relationship between student motivation in reading, spelling and mathematics, and academic achievement in these same domains. Findings examining academic achievement in reading as the dependent variable, and student motivation toward reading as the predictor, show that student motivation appears to have a statistically significant influence ($\beta_0 = 116.21$, $\beta_1 = 0.08$; $t = 2.43$, $p < 0.05$).

Therefore, a statistically significant finding exists between student motivation in reading and academic achievement in reading, but did not exist between student motivation in mathematics and academic achievement in mathematics;

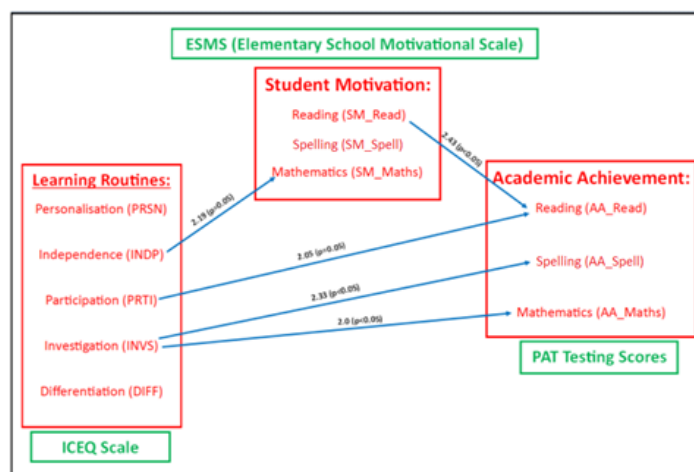


Figure 4. Model drawn from findings.

and student motivation in writing and academic achievement in writing. The possibility of multicollinearity was considered and tested in SPSS, and was not found (see Appendix 1 for factorial loadings).

Learning routines and academic achievement

Reading

Multiple regression analysis, considering academic achievement in reading as the dependent variable, and all the ICEQ items as the predictors, shows that participation appears to have a statistically significant influence ($\beta_0 = 32$, $\beta_1 = 0.09$; $t = 2.05$, $p < 0.05$) in the context of all the other learning routine variables. Therefore, findings indicate that learning routines which promote *personalization*, *differentiation*, *investigation* and *independence* were not statistically significant indicators of *academic achievement in reading*.

Spelling

Multiple regression analysis considering academic achievement in spelling as the dependent variable, and all the ICEQ items as the predictors, shows that investigation appears to have a statistically significant influence ($\beta_0 = 120.61$, $\beta_1 = 0.244$; $t = 2.0$, $p < 0.05$) in the context of all the other learning routine variables. Therefore, findings indicate that learning routines which promote *personalization*, *differentiation*, *participation* and *independence* are not statistically significant indicators of *academic achievement in spelling*.

Mathematics

As with *spelling*, regression analysis considering *academic achievement* in mathematics as the dependent variable, and all the ICEQ items as the predictors, shows that learning routines which promote *investigation* appear to have a statistically significant influence ($\beta_0 = 45.39$, $\beta_1 = 0.251$; $t = 2.33$, $p < 0.05$) in the context of all the other learning routine

variables. Therefore, findings indicate that learning routines which promote *personalization*, *differentiation*, *participation* and *independence* are not statistically significant indicators of *academic achievement in mathematics*.

Learning routines and student motivation

Multiple linear regression analysis was used to establish the relationship between learning routines and student motivation toward reading, spelling and mathematics. Results, when considering *student motivation in mathematics* as the dependent variable and all the ICEQ items as the predictors, indicate that *independence* appears to be statistically significant ($\beta_0 = 478.62$, $\beta_1 = 0.274$; $t=2.19$, $p<0.05$) in the context of all the other learning routine variables.

Therefore, a statistically significant finding existed between learning routines and student motivation in mathematics, but did not exist between learning routines and student motivation in reading or student motivation in spelling.

Discussion

The following discussion addresses the research questions put forward at the beginning of this paper, in relation to the findings of the study, and research examined in the literature review.

What is the link between learning routines, student motivation and academic achievement, in primary years?

Summary of findings:

- Student motivation can lead to academic achievement (*reading*).
- Learning routines, which promote participation (*reading*) and investigation (*mathematics and spelling*), can lead to academic achievement.
- Learning routines, which promote independence (*mathematics*) can lead to student motivation.

Firstly, findings of the current study suggest a link between student motivation and academic achievement, specifically in reading as, *student motivation in reading* was found to be a predictor of *academic achievement in reading*. As Dishon-Berkovits' (2014) research observes that student motivation, and subsequent academic achievement, is enhanced by teacher guided learning goals, one explanation for these findings might suggest that students in the specified context are experiencing academic achievement in reading as a result of teachers setting goals based on learning objectives rather than performance. An alternative explanation for the findings could be based on Tseng and Walsh's (2016) research, which suggests that students may be intrinsically motivated toward reading, seeing it relevant and interesting,

as this is an essential component of the relationship between *student motivation* and *academic achievement*.

Secondly, findings of the study also suggest a link between learning routines and academic achievement. More specifically, *learning routines* which promote *participation in reading*, and *investigation in mathematics and spelling*, were found to be predictors of *academic achievement*. As Stoian's (2016) research suggests that learning routines which promote *participation* can positively influence academic achievement when combined with direct instruction, one suggestion for the findings of this study could indicate that, in the context of reading, teachers may be employing teacher-led routines. This may mean that teachers are establishing learning goals, leading the learning and allowing students time to consolidate content knowledge. It may also suggest that teachers are adhering to some of Rosenshine's (2012) principles for effective teaching, understanding that content mastery and teacher-directed learning experiences precede student-driven exploration of concepts.

Logar et al.'s (2018) research suggests that learning routines which promote *investigation* enhance academic achievement when educators have a clear understanding of the outcomes they intend to achieve. With this in mind, findings of this study may suggest that – in the context of *mathematics and spelling* – teachers may be planning and leading the learning with clear objectives in mind. When surveyed about whether stating learning intentions at the beginning of lessons was common practice, teacher responses were overwhelmingly positive, thus offering additional confirmation for the aforementioned suggestion. According to the findings of Adler et al. (2018) and Dishon-Berkovits (2014), it may also be inferred that teachers have a strong basis of content knowledge when approaching concepts in these two domains. Finally, Moon and Brighton's (2015) study of PBL in the context of primary years mathematics, suggests that investigative learning promotes academic achievement when the students find the content to be sufficiently challenging. Therefore, findings of this study may infer that teachers are planning challenging tasks which provide opportunities to uncover students' understanding and potential.

Finally, findings of the current study suggest a relationship between learning routines and student motivation. More specifically learning routines which promote *independence in mathematics*, were found to be predictors of *student motivation*. As Gardner and Jones' (2016) research suggests that student motivation is enhanced when students feel a personal connection to their learning environment, the findings of this study indicate that this may be the case in the specified context. An alternative suggestion for this finding may lie in Slavin's (1983) research, which suggests that learning routines, which promote *independence*, may incite *student motivation* in the presence of extrinsic motivation such as group rewards or individual accountability.

How do teachers establish learning routines that may lead to student motivation or academic achievement, in primary years?

Of the findings, it is important to note that *student motivation* is a predictor of *academic achievement* in only one domain; this being *reading*. Findings suggest that *academic achievement* and *student motivation*, in all other domains, is in response to learning routines (see Figure 4). This is critical to acknowledge as it outlines the importance of the teacher's role in establishing learning routines that may lead to *student motivation* or *academic achievement*. It suggests that how teachers establish learning routines, in the classroom, may be a more significant predictor of student motivation and/or academic achievement than the extent of an individual's personal level of motivation. With this in mind, teachers should be reminded to:

- Actively lead the learning.
- Exercise caution with learning routines that lead to student motivation in the absence of academic achievement.

When teachers lead the learning with rigorous objectives, student motivation and academic achievement is a more likely outcome (Trinter et al., 2015). In the Australian Primary School context, it can be tempting for educators to think that creating learning routines, where students choose experiences based on perceived interest and relevance, will incite motivation and academic achievement. However, Kirschner et al., (2006) explains that this is simply not the case. Overwhelmingly, minimally guided learning routines lack the opportunity for students to manipulate information from their working memory to long term memory. This is because student-centred routines often overwhelm working memory, significantly compromising the opportunity for new information to be transferred to long term memory, and retrieved when necessary. Kirschner et al.'s (2006) finding echoes Prain et al.'s (2013) claim that teacher expertise, guidance and instruction are the most influential predictors of academic achievement.

Therefore, when analysing the findings of this study in light of existing research, it may be suggested that if teachers use learning routines which engage students in direct instruction (Rosenshine, 2012; Brophy, 1986); provide clear learning outcomes (Dishon-Berkovits, 2014); and the opportunity for learners to cognitively process knowledge from working memory to long term memory (Kirschner et al., 2006), student motivation and academic achievement can be expected to follow. This may be regardless of whether a student deems the task or content engaging and relevant. It is with the foundation of teacher-led learning routines that Australian primary educators can be confident to design hands-on, experiential learning experiences (Rosenshine, 2012).

When determining how to establish learning routines that lead to student motivation and/or academic achievement, it is important for teachers to exercise caution when using routines that lead solely to student motivation in the absence of academic achievement. This is in response to the

findings of this study, which suggest that *independence* is a statistically significant predictor of *student motivation* in *mathematics*, but not of *academic achievement*. As Baumann and Ballard's (1987) research claims that learning routines, which promote *independence*, are successful in the context of teacher-led and teacher-modelled practice, findings infer that teachers may need to re-evaluate what *independence* looks like in the classroom. Killian (2018) emphasizes that teacher-led practice requires that students engage first in explicit instruction, followed by guided practice, and ultimately move toward independence. However, as this study did not find *independence* to be a statistically significant predictor of *academic achievement*, it can be inferred that teachers may be confusing the concept of independent learning routines for students choosing how, when and what they learn (characteristics of what this study established to be student-centred learning routines), without clear objectives (Logar et al., 2018). Alternatively, when teachers design and lead learning routines (Adler et al., 2018) with clear expectations and objectives (Dishon-Berkovits, 2014; Logar et al., 2018), student motivation and academic achievement may be enhanced.

Conclusions and recommendations for action

When researching the relationship between learning routines, student motivation and academic achievement, findings of this study affirm the importance of the teacher. The findings reveal that what the teacher does in the classroom, by way of establishing learning routines, is a greater consistent predictor of student motivation and academic achievement, than a student's perception of how engaging or even how relevant they may deem the learning is to their lives. While the findings of this study do not mandate the abolition of student-centred learning routines in favour of exclusively teacher-led routines, the following recommendations are made:

Teachers to reconsider what student motivation is

It will be helpful for teachers to re-establish what it means to design learning experiences that are 'motivating' for students. Additionally, findings suggest that teachers should be cautious of learning routines that lead to student motivation in the absence of academic achievement. This means that while this study does not mandate the exclusive use of teacher-led learning routines in the absence of student-centred approaches, Australian primary school educators are urged to lead learning experiences with respect to cognitive architecture (Kirschner et al., 2006), ensuring that learning routines are based on clear learning goals (Dishon-Berkovits, 2014) and provide ample opportunity for the teacher modelling and guided instruction (Rosenshine, 2012). Essentially, when teachers are very clear on what, how and why they are engaging students in a learning task, students are more likely to be motivated toward this learning and academic achievement can be expected to follow.

Government to promote and support quality teaching in schools

Findings of this study reinforce the role of the teacher as the most influential factor of student academic achievement. The notion that students experience academic achievement simply when they find the learning task engaging or relevant is far too simplistic. Thus, teachers must be encouraged and supported to continually move toward proficiency in all Australian Professional Standards for Teachers (AITSL). The AITSL outline the importance of teachers knowing: students and how they learn (standard 1); content (standard 2); how to plan for effective teaching and learning (standard 3); creating and maintaining safe learning environments (standard 4); reporting and providing feedback on student performance (standard 5); the importance of engaging in professional learning (standard 6) and how to engage professionally with members of the school and wider community (standard 7). Government policy and funding should be directed toward ensuring teachers are supported and provided with adequate opportunities to develop proficiency in each of these standards.

It is absolutely essential that government policy makers and education ministers are aware of, and intune with, what current research says about the everyday challenges facing all educators in the classroom, regardless of context. Support and government funding needs to be offered on this basis, rather than political agenda.

Media to support teachers

The wider media plays a significant role in the public discussion of what constitutes quality teaching and learning. It is unhelpful for social commentators to entertain the notion that when *children have 'fun' at school, they are learning*. This, of course, does not negate the validity of teachers creating positive and safe learning environments for students (AITSL standard 4), but rather, highlights the importance of teachers to be seen as professionals, who use action-based research to inform decisions about which learning routines are used and why. This process would be more effective if teachers were supported and trusted in the public sphere, instead of being subjected to misinformed criticism.

Pre-service teacher education and training to develop a greater focus on teacher-led strategies

As the findings of this study reaffirm the importance of the teacher (and their establishment of learning routines) in relation to student motivation and academic achievement, it is important that the content of pre-service teacher training and education programs adequately reflect this. The heavy emphasis of student-centred learning, in the absence of teacher-led learning routines, in Australian Primary School Higher Education will be unhelpful. Instead, pre-service teachers need to understand the importance of content mastery (Rosenshine, 2012) and modelled practice (Stoian, 2016) preceding student-centred exploration of concepts. For example, teachers should establish and clearly state

the learning outcome, rather than students exploring and discovering it for themselves. Additionally, teachers should teach students content so that their base of knowledge for individual or collaborative exploration of concepts is sufficient enough to yield quality outcomes.

Limitations

As this study relied on the use of secondary data, the research questions were bound to the nature of this existing data. While the questions were designed with the available data in mind, the constraints of secondary data analysis meant that there was no opportunity for additional data to be collected if further questions arose throughout the study. It is also important to acknowledge that this study was limited by its context. The ICEQ (Fraser, 1990) data was limited to only 15 responses, as that is the number of primary years teachers in the specified context. In addition, the teacher participants were majority female, which means that the study must recognise a potential gender bias toward females.

The ESMS (Guay, Marsh & Dowson, 2005) data collection was limited to the students willing to participate in the survey, and present at school on the day of administration. Absentees were not followed up. In addition, as teachers administered the scale with their students, a perceived limitation is on the commitment of individual teachers to ensuring that students accurately understood each question. Data collection may have been rushed or misunderstood, thus compromising its accuracy.

A complex array of factors may influence a student's motivation and achievement. Some factors include parental influence (Sung & Padilla, 1998; Al-Dhamit & Kreishan, 2013; Fan, Williams & Wolters, 2012), level of parental education (Al-Dhamit & Kreishan, 2013), socio-economic status (Berger & Archer, 2015), and work ethic (Tang, 1990).

Due to the vast array of teacher-led and student-centred routines, a delimitation was placed on which would be the focus of this study. Figure 1 shows the differences between teacher-led and student-centred routines, as presented to teachers in the *Individualised Classroom Environment Questionnaire* (ICEQ) (Fraser, 1990). This delimitation was imposed to ensure that the study was specific enough to evaluate and inform current pedagogical decisions of the identified context. It was also necessary to impose this delimitation to ensure that the project was reasonable to complete within a specified timeframe. It is, however, important to recognise that taking into account other factors (such as student SES) may potentially change the data.

Recommendations for further study

As this study was conducted in only one context, the findings only pertain to this specific context. Therefore an opportunity exists to replicate the study across varying contexts to see if the results add weight to the findings discussed in this paper.

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Experiential study to integrate theory and lab for an introductory programming course in an Indian engineering classroom

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Active learning;
coding;
hands on practice;
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problem-solving;
programming.

Abstract

At present, programming is a crucial competence for employability that is a requirement for engineering graduates. In India, all engineering students are required to register for an introductory programming course at the Freshmen level. Over the years, this introductory programming course is taught in a traditional chalk and talk approach. Traditionally, theory and lab classes were conducted separately. This kind of traditional approach limited students' ability to think logically and develop problem-solving skills through programming. On that account, to encourage experiential learning which improves students' logical thinking and problem-solving skills, this action research study looked at the possibility of implementing an integrated theory lab approach to a freshman C Programming course. Based on the course credits, the students met eight hours each week as part of the integrated implementation.

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A pretest posttest experimental research approach was used to examine the effects of the integrated pedagogical strategy. The classes for the students in the integrated approach were conducted directly in the laboratory to ensure meaningful learning and to enable more hands-on coding practice in the classroom simultaneously while the concepts were taught. Active and peer learning activities were designed to help students learn meaningfully. Due to the short intervention time and small sample size, there was no statistically significant effect to this integrated approach. However, the classroom activities increased hands-on practice time and regular formative assessments showed that students' programming competency including logical thinking and problem-solving skills were improved through this integrated approach.

1. Introduction

The current engineering education in India continues to follow the traditional teacher-centric approach as the major mode of instruction delivery. This mode of delivery mainly includes lectures (chalk-and-talk), large classrooms, separate theory, and lab sessions. It is not different for programming courses in the curriculum; these courses are also taught traditionally where the students become passive learners and cannot translate the programming concepts from the classroom lectures into effective programs in the laboratory. This approach also has challenges to impart active learning that can improve problem-solving and logical thinking skills in students. In the Western education system, it has been a practice to have integrated courses specifically for programming to promote experiential and hands-on learning; this gives learners the ability to think logically and solve problems. Given that, it is essential for the instructors to consider various pedagogical strategies to transform the teaching learning process for meaningful learning. However, this is one of the less experimented and researched arenas in Indian engineering education. Hence, the purpose of this research study is to discuss implementation of the instructional design strategy – integration of theory and lab sessions (hands-on approach) for an introductory programming class to enhance problem-solving and logical thinking skills in freshmen engineering students.

Learning the fundamentals of computer and introduction to programming (using C / Python language) is one of the foundational courses during the first year of engineering education irrespective of the department. As programming is a hands-on course, delivering it in the traditional lecture mode will not benefit the learners in the way intended. Moreover, learning to code efficiently will also help students think critically in an organized manner to achieve the desired results. Furthermore, the change in the learning needs and career opportunities of the current generation learners has tremendous impact on the teaching and learning process of the higher education system. On this account, it is essential for educators to rethink and find pertinent scientific innovative approaches to enhance student learning. Thus, to ensure experiential learning and cater to students' learning needs, a learner-centered approach must be adopted. One such approach is designing and developing integrated lecture/theory and lab sessions that will facilitate active learning, thereby improving problem-solving and logical thinking skills among students.

The major aim of this action research study is to instill problem-solving and logical thinking skills among students while learning programming. A programming course was taught to first year engineering students who had very little or no programming experience before. It is important for students to understand that the introductory programming course is not just about learning concepts and syntax but when learnt appropriately it will help develop logical thinking and problem-solving skills. However, this is only possible when students practice or learn lines of code alongside while learning the concepts for better conceptualization and improve critical thinking. In addition to hands-on practice to code, classroom group activities like Think-Share-Pair, fishbowl, group discussions, story

board and peer evaluation were conducted to motivate and encourage students to experience meaningful learning. Hence, integration of class lectures and laboratories is one such approach to help students learn programming through problem-solving and logical thinking. This action research approach would provide faculty with insights on the implications and challenges of using hands-on learner centric methods to programming that can be modified and improved to implement integrated pedagogical strategy to foster student learning. Action research is said to have an immediate impact on society and education based on the practices that are planned, implemented and reflected during the research cycle (Masters, 1995).

Students in an introductory programming course are deeply focused on knowledge of a particular programming language rather than problem-solving skills. Moreover, the emphasis on mere knowledge leads to a lack in conceptualization and appropriate transfer of programming skills in the laboratory for meaningful learning. To facilitate students with conceptual understanding, this research followed an integrated theory and lab approach to improve student engagement in learning programming through logical thinking and problem solving. This investigation illustrates that integrating theory and lab sessions for an introductory programming class can enhance problem-solving and logical thinking skills in novice programmers.

Logical thinking and problem solving are among the major skills the current generation student needs to be equipped with. As programming/coding requires an individual to think logically to arrive at solutions, an introductory programming course is one of the avenues to instill and/or improve the said competencies in students. However, teaching programming in the traditional chalk and talk manner with separate lab and theory will not achieve the intended outcome. Furthermore, as writing lines of code is like solving a mathematical problem with all the necessary steps and procedures, this can only be achieved through hands-on practice (Ghattu, 2015). With ever changing learning needs of the students in this technology-oriented world, it is important for instructors to think of ways to engage students to foster meaningful learning. Hence an integrated lab and theory approach will facilitate learners to improve their logical thinking and problem-solving skills using programming.

An integrated lab and theory approach provides more hands-on practice time that allows students to learn coding at their own pace by trial-and-error methods. Albert Bandura's (2010) self-efficacy theory says that an individual's belief in their own ability determines how an individual can succeed in completing tasks and events in their lives. Furthermore, this approach motivates students to experiment, work out the solutions and improve their performance. Since this integrated approach was a new intervention in this institution, novice faculty were asked to observe and assist as it would help in their application of this strategy in the future. Naryanan (2015) suggests that continuous observation and practice lead to increased self-efficacy of faculty using instructional technology.

The integrated approach allows students to learn coding in an efficient way through hands-on practice and by improving their logical thinking and problem-solving skills. In the current day, it is crucial for engineering graduates to have exceptional problem-solving and logical thinking skills apart from their domain knowledge. Moreover, these are among the major competencies that are required for better career and higher education opportunities. These skills are acquired over a period with constant and consistent practice and efforts by the students. As these are priority learner needs, it is important that all the stakeholders, specifically the faculty, assist students in all aspects from day one to develop critical thinking, logical thinking, and problem-solving skills. Furthermore, more hands-on practice time will encourage students to program successfully and carrying it forward to subsequent programming courses (Canfield et al., 2012).

2. Literature review

According to Handur et al. (2016), learners lose focus and become passive in a lecture centric programming classroom. Even though there is less research on integrated classrooms, implementation of such instructional design strategy has advantages and challenges. This research emphasizes on how the integrated approach can enhance problem-solving and logical thinking skills in students. Canfield et al. (2012) suggest that a hands-on programming model “provides increased engagement and builds on incoming notions of programming in engineering that result in better learning”. According to Handur et al. (2016, p. 163): “Programming courses must facilitate conceptual understanding in students. Conceptual understanding can be defined as ability to observe, interpret and summarize a concept”.

The main challenge for students in an introductory programming class is that they need to learn different competences at the same time. These include the programming language, logical thinking and problem-solving skills. In the traditional approach, learners focus mainly on the syntax and semantics. Such an approach fails to translate to the appropriate programming skills in the lab. This in turn limits their ability to identify and analyse a given problem statement. According to Malik et al. (2017), learning programming in a traditional approach is a challenging task for beginners, as they have to develop and build their problem-solving skills along with trying to learn the syntax and semantics of the specific programming language being taught. Moreover, research has shown that for novice programmers, the programming language in itself determines their ability to learn the programming concepts and successfully translate it to write lines of code using appropriate syntax (Stefik et al., 2011).

Learning to program is the need of the hour as our lives are driven by technology. To code effectively one must be able to break a given problem into small sequential tasks to arrive at the solution, this requires exceptional logical thinking and problem-solving skills. ‘Learning by doing’ helps students develop these skills in an introductory programming class. The traditional process of teaching programming not only makes students passive learners but, it can also instil fear of

coding. When taught in this approach, the students mainly focus on learning the syntax and semantics of the specific programming language rather than the actual process of how-to code. Moreover, this takes away the purpose of the introductory programming course where students are intended to learn problem-solving through programming (Miller, 2019).

The availability and flexibility of the integrated lab class will allow faculty to explore various avenues and new strategies to improve student learning. Although there are some studies that determine this problem in various ways, this research is specifically designed to study how an integrated lab and theory classes approach can make students active learners, thereby improving their logical thinking and problem-solving skills. Increasing the time spent practicing the lines of code simultaneously while learning the concepts of programming makes students active learners and ensures meaningful learning. In addition to the integrated approach the in-class group activities enables students to work collaboratively to conceptualize the topics and encourage self-directed learning (Silvia, 2019). This in turn helps students think logically to solve problems through programming.

Another advantage of this learner-centric approach was ‘peer instruction’ during the lab practice sessions, where students assisted their peers to get to the solutions using coding; this is known as the ‘scaffolding’ technique developed by Jerome Bruner, where a more competent peer helps another student whenever necessary and continues to aid until it becomes unnecessary (Wood et al., 1976; Titterton et al., 2010). Students tend to learn better when programming classes are shifted to increased collaborative and hands-on practice hours in the lab. In an introductory programming class, active learning happens through hands-on practice and trial & error approaches when lecture hours are replaced with lab hours per week; in addition to active student involvement, this approach also facilitates in developing logical thinking and problem-solving skills necessary for programming. Moreover, increased guided practice time also allows the faculty to cater to individual student learning needs. According to Berland et al. (2013), practicing programming on alternative programming environments which allows beginners to quickly learn complex programming concepts and to execute programs with minimal errors, thereby encouraging learners to code efficiently. Titterton et al. (2010, p. 79) suggest: “Instructors also benefit from a deeper window into student progress and understanding”.

Due to the global digital revolution, problem-solving has become one of the essential 21st century skills for all learners. In this regard, it is necessary for faculty members to adapt pedagogical strategies to encourage and facilitate learners to develop and build on their problem-solving skills; “Problem solving skills refer to the capability of tackling issues and problems in different domains, such as personal, social and work” (Kožuh et al., 2018, p. 3). Problem-solving skills are an individual’s ability to reason and think critically which also improve logical thinking skills of the learners (Seyhan, 2015). Albrecht (1984) mentioned that, to think logically is to arrange things, ideas, and facts in a sequence

that make sense and that leads to solving the problem. Logical thinking is the basis to all problem-solving in a step-by-step procedure.

3. Implementation

The purpose of this study was to investigate if there was any change in student attitudes towards programming, and to enhance students' logical thinking & problem-solving skills. The questionnaire also included a part on student demographic information. In the spring semester, there were six sections across various engineering disciplines which had the introductory programming course as part of their first-year curriculum. Among those, two of the Computer Science Engineering department sections were chosen for this study: one experimental group and one control group. Based on the four-year degree curriculum, the computer science department students had advanced programming courses throughout the program, and these were chosen for this study. The two sections were taught by two different instructors with similar course syllabi, course structures, course objectives, course outcomes, course requirements, including the learner expectations. Students enrolled for this program were admitted based on a standardized test and are college freshmen who have similar learning experiences. In total, 120 students were admitted into the Bachelor of Technology (B.Tech) - Computer Science Engineering program who were divided into two sections of 60 students each; one section (A) was the experimental group and the other section (B) was the control group. The primary objective of this exploratory study was to compare between the experimental group and the control group in an introductory programming class. Based on the curriculum, the introductory programming was scheduled for five theory and three lab hours per week; all the sections were allotted those hours. However, for the experimental group, this schedule was converted to six lab and two theory sessions per week. This implies that each student in the experimental group had twice the practice time in a lab as compared to the control group. The lab practice time was used to understand, analyze and solve a given problem statement by breaking it down into smaller chunks and following appropriate strategies to reach a solution. The pre-test and post-test were administered to both control and experimental groups at the beginning and the end of the integrated instruction method, respectively.

In this integrated approach:

- (a) Each student had two lab sessions per week. That is each week there were two lab sessions for the class of 60.
- (b) As there were 60 students per lab session, there was one instructor and two assisting faculty to assess and help the students with the coding practices.
- (c) More time was allotted for students to practice coding. These programming sessions were followed by a brief lecture on the topics and then the students practiced and tried the concepts for better understanding.

- (d) In addition to the lab practice, activities like Think-Pair-Share, FishBowl, Group Discussions, Story Board and Minute Papers were designed to help students learn meaningfully.
- (e) Quick formative assessments using Kahoot and Edmodo were conducted to assess and reflect student learning.

In this integrated approach, students were able to learn and test their programming skills at the same time; and this created a competitive attitude that enhanced peer learning among the students. This allowed students to learn from their mistakes and from each other. Furthermore, the classroom activities helped students conceptualize the content and connect their learnings. Minute papers were used often to review student understanding of the concepts taught in the session and to reiterate them if necessary. All the group activities helped students focus, connect and involve themselves to promote critical thinking skills. The story board was a group activity which was designed to improve creativity and critical thinking skills; for this activity, the students were also introduced to peer evaluation through rubrics. In addition to the class activities, there was a simple programming language test that was conducted as part of the assessment.

There was one final exam as part of the summative assessment for this course. Two term exams, team work, quizzes, practice programs, coding, story boards and a test were part of the formative assessments to assess students' conceptualization, coding skills, problem solving skills and logical thinking skills. Feedback was provided to students for continuous improvement and progress. Below are some sample class assessments to understand student learning and help cater to their requirements.

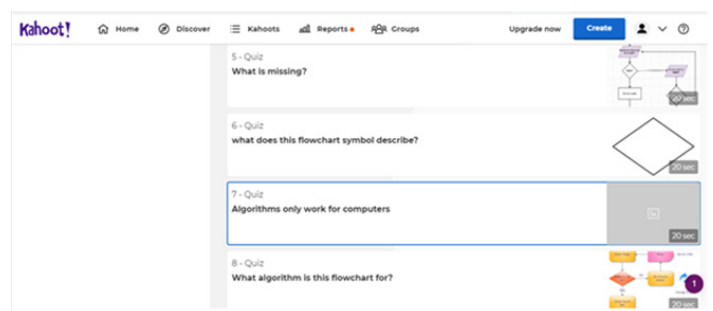


Figure 1: Snapshot of Kahoot assessment conducted during the session.

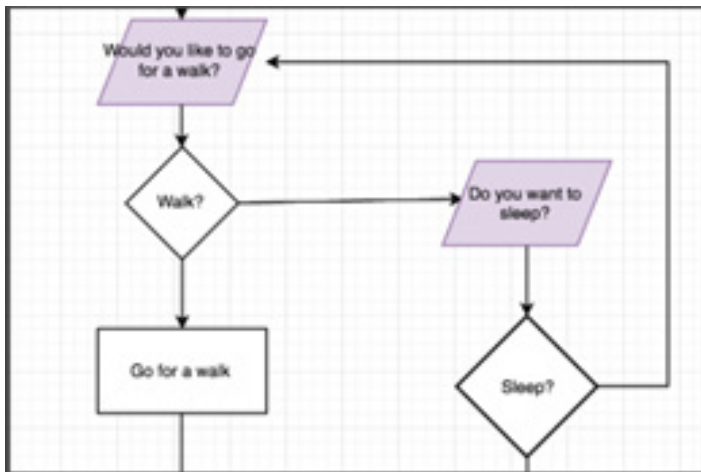


Figure 2: Snapshot of flowchart 1 in Kahoot assessment.

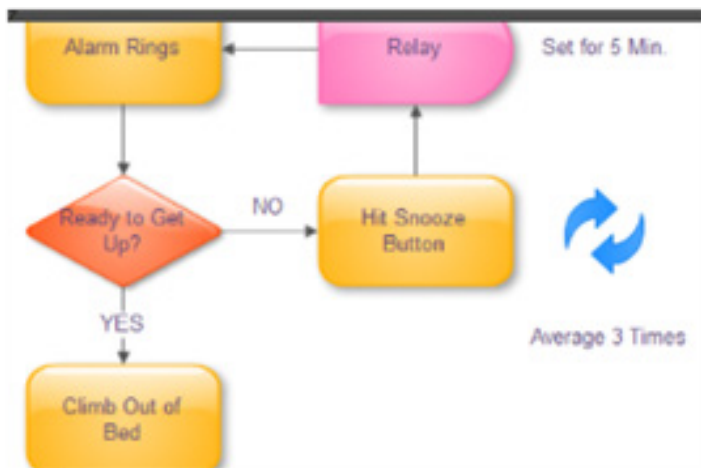


Figure 3: Snapshot of flowchart 2 in Kahoot assessment.

What is the value of n at the end of the program execution? #include <stdio.h> void display(); int n = 5; // global variable
int main() { ++n; // variable n is not declared in the main() function display(); return 0; } void display() { ++n; // variable n is not declared in the display() function printf("n = %d", n); }

Figure 4: Snapshot of predicting output in the practice session.

Story Board Activity: Peer Evaluation				
Teacher Name: Dr. Ghattu				
Student Name: _____				
CATEGORY	4	3	2	1
Clarity and Neatness	Storyboard is easy to read and all points are clearly written, labeled, and/or drawn.	Storyboard is easy to read and MOST points are clearly written, labeled, and/or drawn.	Storyboard is a little hard to read and only few drawings.	Storyboard is hard to read, it is all text and no drawings.
Cooperation/Teamwork	Worked cooperatively with the group members at all the time. Very helpful to others in the group.	Worked cooperatively with all the group members most of the time but had a few problems. A little helpful to others in the group.	Worked cooperatively with only some of the group members all the time, had few problems. Pretended to be helpful to others in the group.	No cooperation always had problems. Didn't help anyone in the group.
Creativity	Very creative, original and unique ideas.	Some creativity and originality in ideas.	Less creative and original ideas.	No creativity and originality in ideas. Tries to copy from others.

Figure 5: Peer evaluation rubrics.

4. Analysis and results

The pre-test and post-test survey method was conducted between the experimental group and control group to study and compare student problem-solving skills. As hands-on programming practice can help develop problem-solving and logical thinking skills, a ten-question aptitude survey was administered to compare problem-solving between the control group and the experimental group. The performance of students improved from pre-test to post-test in the experimental group as compared to the control group. There was improvement in the average test scores between the groups from pre-test to post-test as shown in Figure 6.

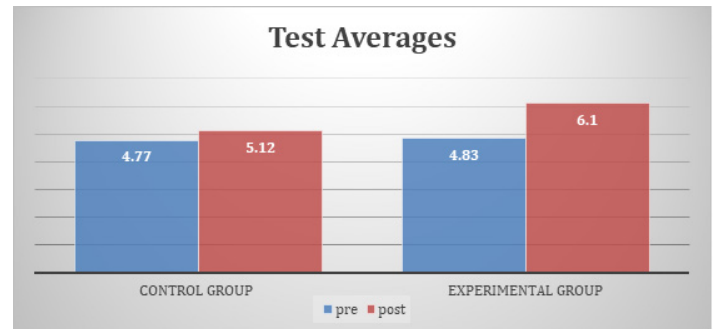


Figure 6: Average scores between experimental and control groups.

This observation shows that there was not much change in the average scores in the control group from pre to post. However, even though the average test scores have not improved exponentially within the experimental group and between both the groups, Figure 5 illustrates: (a) the score fell to -1 for one student in each group; (b) there was no change in scores for 38 students in the control group and five students in the experimental group; (c) 31 students in the experimental group and 20 students in the control group improved by one point; (d) 23 students in the experimental group and one student in the control group improved by two points from pretest to posttest.

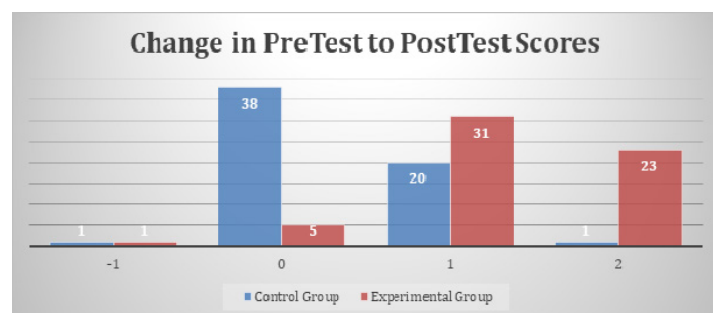


Figure 7: Change of scores related to number of students.

One-way Analysis of variance was performed to examine the test scores of the experimental and control group. Based on the statistical analysis, the test scores with the groups (MS = 1.05, SS = 123.92) and between the groups (MS = 3.68, SS = 3.68) with $p = .70$, indicated that there was no significant

difference in the test scores between the control and experimental groups. However, all the other interventions used for the experimental group in this study demonstrated that there was improvement in programming and problem-solving approaches of students in the experimental group. This indicates that the integrated instructional approach in an introductory programming class improved students' logical thinking and problem-solving skills. Due to the small sample size, this study does not show any significant improvement in the scores between the experimental group and control group. Since this intervention was mainly focused on learning programming through problem-solving, and assessments were part of the lab sessions, there was little to no evaluation on how students would articulate their concepts in a pen and paper testing. Even though there were quizzes and other assignments to assess students' programming skills, the pen and paper testing component would help improve their conceptual knowledge to better prepare them for their end-semester examinations.

5. Conclusion

Introductory programming courses are amongst the mandatory fundamental courses for engineering students during their freshmen year. The main objective of this course is to teach problem-solving through programming, but the traditional teaching approach fails to achieve the outcome. Hence, the integrated theory and lab approach was one of the pedagogical approaches developed to encourage and improve problem-solving and logical thinking skills in students through programming. The results show that this approach has improved student competencies. Students using the integrated approach were able to write lines of code with minimal to no errors. Along with the activities and quizzes, the addition of a written evaluation component to the intervention would help the students with deeper conceptualization. Programming is a skill that the learner (the Computer Science and Engineering (CSE) student) must possess and that can be performed in various programming languages. Coding is the fundamental step in the programming process which requires enormous amounts of logical thinking, flow and problem-solving to address a given scenario. Moreover, one of the best ways to strengthen logical thinking and problem-solving is through constant hands-on practice. This specific integrated approach along with active learning was chosen to demonstrate to the students that hands-on practice can improve their coding skills which are very much required for continuous education, employment and higher education. Wieman (2014) has shown that college students learn better through active learning methods than the traditional lecture approach.

Finally, an integrated lab approach may possibly improve programming, logical thinking and problem-solving skills among students. However, implementing the integrated lab and theory approach is time-consuming as it emphasizes on additional hands-on practice time. In addition to this, there were other challenges concerning infrastructure, manpower and syllabus completion as per university requirements. These challenges can be addressed in a further study to provide better solutions. Furthermore, this research can also

be extended to a bigger group of learners to better replicate the results. Also, a foundational course can be designed as a prerequisite to bridge the knowledge gap. Practicing programming on other coding platforms can be one of the ways to instil coding skills in students. In conclusion, the integrated instruction method improves students' problem solving, logical thinking skills and it ensures student learning. It also allows the instructors to cater to individual student needs based on their performance.

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An Extended Unified Theory of Acceptance and Use of Technology model for education contexts

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Abstract

The United Theory of Acceptance and Use of Technology (UTAUT) model has been widely used to study new technological systems and has proven to be a robust theoretical framework for predicting system intentional use. Many of the UTAUT studies have focused on educational technologies like learning management systems, mobile learning, instructional devices, online collaboration tools and educational services. This paper reviews previous work done on the UTAUT model and proposes an extended model to study educational technology acceptance by introducing additional constructs like usability, learnability and attitude.

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Introduction

In early 2020, education institutions around the world were faced with unprecedented circumstances, as schools and universities closed their doors to contain the spread of COVID-19 (UNESCO, 2020). Responses in higher education were diverse, ranging from approaches in which established courses were offered with minimal adaptation through online meeting platforms such as Zoom and Microsoft teams, to the complete redevelopment of course curricula, allowing these to be offered in fully online, self-directed format (Crawford et al., 2020). The degree of challenge incurred in shifting from face-to-face to virtual or online delivery modes will depend on many factors, including technological, e-learning system quality, cultural, self-efficacy and trust factors (Almaiah et al., 2020). One variable that has been cited consistently as a possible impediment to the efficacy of such initiatives is that of end-user acceptance. For instance, user acceptance studies on online meeting platforms like Zoom and Microsoft has been on the rise (Alfadda & Mahdi, 2021; Alshammari, 2021; Bui et al., 2020; Mpungose, 2021; Olugbade & Olurinola, 2021; Pal & Vanijja, 2020).

Technology acceptance models

Even prior to the rapid developments seen in response to the COVID-19 crisis, numerous studies had documented the variable uptake of learning technologies in universities based on end-users' acceptance levels (Al-Adwan et al., 2013; Fathema et al., 2015; Scherer et al., 2019). In connection with this mentioned research area, many theoretical models have been proposed and applied to examine technology acceptance and usage in education over the last few decades. These include the *Theory of Reasoned Action* (TRA), the *Technology Acceptance Model* (TAM), the *Theory of Planned Behaviour*, and the *Model of Personal Computer Utilization* (Ajzen 1991; Davis 1989; Davis et al., 1989; Fishbein & Ajzen, 1975; Thompson et al., 1991). These models offer different accounts of the factors that influence technology acceptance, which include specific attributes of the technology and contextual factors.

Within this group, one of the original theoretical user acceptance models was the TAM, proposed by Davis in 1986. TAM, which is based on the TRA, is designed to explain why a user accepts or rejects information technology (Ajzen & Fishbein, 1980; Davis, 1989; Davis et al., 1989). Within the model, Perceived usefulness (PU) is the extent to which an individual believes that using a particular system or technology will enhance his or her job performance. Perceived ease of use (PEOU) is the extent to which an individual believes that using a particular system or technology will require physical and mental effort. According to the TAM, one's actual use of a technology system is directly or indirectly influenced by the PU and PEOU of the system, as well as by one's behavioural intentions and attitudes. The TAM also proposes that external factors (e.g., system design) will affect intention and actual use through mediated (i.e., indirect) effects on PU and PEOU (Davis, 1989).

In 2003, Venkatesh et al. (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT) by consolidating eight previous TAM theories (Davis, 1989, Taylor & Todd, 1995) and models (Ajzen, 1991; Compeau et al., 1999; Fishbein & Ajzen, 1975; Moore & Benbasat, 1991; Thompson et al., 1991). The UTAUT has since been used extensively by researchers to explain technology acceptance and use in a variety of contexts. Researchers have also analysed the strength and robustness of the UTAUT for predicting user behaviours, and have confirmed its strong explanatory power (Khechine et al., 2016). The current paper reviews research on the UTAUT model and proposes an extended UTAUT model which may enhance its power to predict technology acceptance in education contexts. The next sections will examine the UTAUT model and its applicability across various types of educational technology. The proposed extended UTAUT model is then described.

Current issues on technology acceptance models

One of the observations from the examination of the technology acceptance models is the removal of attitude as a construct after the development of TAM2 (Venkatesh & Davis, 2000). Rondan-Cataluña et al. (2015) argued that when the attitude construct was removed from TAM2, the explained variance of the model dropped drastically. Interestingly, attitude was also absent as a construct in the later UTAUT. According to Yousafzai et al. (2007) in their meta-analysis of TAM, they pointed out that although attitude had been removed from later TAM models, research indicated it correlated strongly with usage behaviour, especially in environments where usage was mandatory. That raises a question on whether attitude should rightfully be restored to technology acceptance models.

Venkatesh et al. (2003) had suggested that later UTAUT research should focus on identifying constructs that could add to the prediction of behavioural intention (BI) and use behavior (UB) over and above what was already known and understood by the researchers. In a later review, Venkatesh et al. (2016) examined and synthesized the information system literature on UTAUT from September 2003 until December 2014. The researchers made a classification on the types of extensions that could be made to the UTAUT model to enhance its prediction in different contexts. These included:

- (i) the inclusion of new exogenous constructs (i.e., independent constructs, or those that are not dependent on other constructs in the model) and mechanisms;
- (ii) the inclusion of new endogenous constructs (i.e., constructs that are dependent on other constructs in the model) and mechanisms;
- (iii) the inclusion of new moderating constructs or mechanisms (i.e., factors that influence either the strength or valence of relationships between variables in the core model); and

- (iv) the inclusion of new outcome constructs (i.e., end-point endogenous variables) and mechanisms.

Unified Theory of Acceptance and Use of Technology model in educational contexts

UTAUT has been used in a wide variety of technology contexts and has been found a useful model in most of these contexts. For instance, Wedlock et al. (2019) concluded that the UTAUT model and its instrument could be used in the educational research settings to test the relationships between antecedent and posterior constructs of technology usage, user attitudes, integration intentions, and post-adoptive behaviour, when the researchers traced the evolution of education technologies. This argument was corroborated by a European validation study by Nistor et al. (2013) on UTAUT as an educational technology model with a large sample ($n=4589$). The large-scale validation concluded that the UTAUT questionnaire displayed adequate validity and reliability. A similar large-scale study ($n=1723$) was also conducted in Turkey using the UTAUT model in the educational technology context (Gogus et al., 2012). As such, the UTAUT model proves to be a suitable candidate for examining educational technologies.

The Unified Theory of Acceptance and Use of Technology model

In the UTAUT, four constructs play a significant role as direct determinants of user acceptance and UB: (1) performance expectancy (PE), (2) effort expectancy (EE), (3) social influence (SI); and (4) facilitating conditions (FC). In the UTAUT, attitude toward using technology, self-efficacy and anxiety are not direct determinants of behavioural intention (BI). A diagrammatic representation of the UTAUT model is shown in Figure 1.

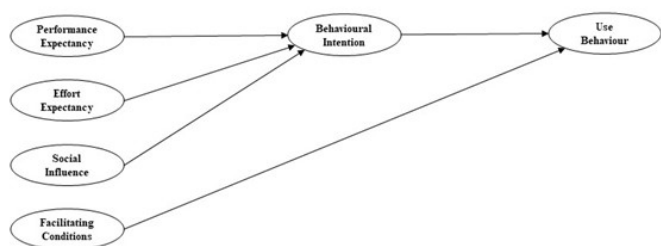


Figure 1: Unified Theory of Acceptance and Use of Technology. Note: Adapted from Venkatesh et al. (2003).

In the UTAUT, PE is the degree to which an individual believes that using a system will benefit him or her in terms of job performance. EE is the degree of ease with which users can adopt the system (Venkatesh et al., 2003). SI is the extent to which an individual perceives that 'important others' consider that he or she should use the system (Venkatesh et al., 2003). FC is the extent to which an individual believes that there is an existing organisational and technical infrastructure to support the use of the system (Venkatesh et al., 2003). BI is

the individual's intention to use the technology.

With respect to the importance of these factors for predicting BI and UB, PE, EE, and SI are all proposed to be predictors of BI, and via BI as a mediator, of UB. Conversely, FC is not theorized to operate via BI, but more directly on UB, unless other predictors in the model are not present. Specifically, Venkatesh et al. (2003) pointed out that if EE is not included as a predictor of BI, FC will act as a significant predictor of BI. However, in the presence of both PE and EE, FC will not be a significant predictor of BI.

Empirical research using the UTAUT

Since its development, the UTAUT has been used in numerous empirical studies to explore relationships between situational factors and technology use behaviour. For example, Bouzif (2017) examined students' continued intentions towards the use of a learning management system using the UTAUT model, while Al-Adwan et al. (2018) studied mobile learning adoption in higher education. In some of these studies, the UTAUT has been used in its original form (Bervell & Umar, 2017; Liao et al., 2004; Prasad et al., 2018). In others, it has been used as a part of the primary theoretical model or has been used alongside at least one other theoretical model (termed a UTAUT 'integration' study by Venkatesh et al., 2016). An example of a UTAUT integration study was conducted by Chen and Hwang (2019). They examined self-regulation in terms of metacognition and motivation using the UTAUT model, to determine influences upon 312 Taiwanese college students' behavioural intentions to continue online courses. In a different context, Yang et al. (2019) examined a model that integrated UTAUT and Connected Classroom Climate (CCC) in a study with 289 college students in China and found that EE, SI and CCC all significantly impacted cloud classroom acceptance. Other authors that have conducted studies that represent UTAUT integration models include Radovan and Kristl (2017) and Thongsri et al. (2018).

Many of the studies using the UTAUT, however, have incorporated part of or the complete UTAUT as a baseline model, but have modified the model to incorporate additional mechanisms (termed a UTAUT 'extension' study by Venkatesh et al., 2016). Four types of UTAUT extensions have been proposed in this literature: (1) the inclusion of new exogenous constructs (i.e., independent constructs, or those that are not dependent on other constructs in the model) and mechanisms; (2) the inclusion of new endogenous constructs (i.e., constructs that are dependent on other constructs in the model) and mechanisms; (3) the inclusion of new moderating constructs (i.e., factors that influence either the strength or valence of relationships between variables in the core model) and mechanisms; and (4) the inclusion of new outcome constructs (i.e., end-point endogenous variables) and mechanisms.

As an example of a UTAUT extension study, Al-Adwan et al. (2018) added the new factors of trust expectancy, self-management of learning and system functionality to study BI to use mobile learning. Table 1 summarises studies that have applied the UTAUT in education contexts, either in its original form or as part of an integration or extension study.

Table 1: UTAUT in educational contexts.

Technology / Theoretical Framework	Author(s)	Constructs	Additional Construct(s)
Web-based Learning	Liao et al. (2004)	PE; EE; SI; FC; Intention to Use the System; System Usage	-
	Yakubu & Dasuki (2018)	PE; EE; SI; FC; BI; Actual Use	-
Learning Management System	Bouznif (2017)	PE; EE; Superior Influences; Continued Usage Intention	Satisfaction
	Bervell & Umar (2017)	PE; EE; SI; FC; BI; UB	-
Technology / Theoretical Framework	Author(s)	Constructs	Additional Construct(s)
Blended Learning	Prasad et al. (2018)	PE; EE; SI; FC; BI; User Behaviour	-
e-Learning	Salloum & Shaalan (2018)	PE; EE; SI; FC; BI	-
Online Learning	Chen & Hwang (2019)	PE; EE; SI; BI	Metacognition; Motivation
Mobile learning	Wang et al. (2009)	PE; EE; SI; BI to use m-learning	Perceived Playfulness; Self-management of Learning
	Iqbal & Qureshi (2012)	SI; FC; Intention to adopt m-learning	Ease of Use; Perceived Usefulness; Perceived Playfulness
	Abu-Al-Aish & Love (2013)	PE; EE; BI to use m-learning	Influence of Lecturers; Quality of Service; Personal Innovativeness
	Mtebe & Raisamo (2014)	PE; EE; SI; FC; BI	-
	Al-Adwan et al. (2018).	PE; EE; SI; BI	Trust Expectancy; System Functionality; Self-management of Learning
	Ali & Arshad (2018)	PE; EE; SI; FC; BI	Learners' Autonomy; Content Quality Design
	Alasmari & Zhang (2019)	EE; SI; FC; BI to use mobile learning technology; UB of mobile learning technology	Learning Expectancy; M-Learning Technology Characteristics; Self-management of Learning
Desktop Video Conferencing technology	Lakhal et al. (2013)	PE; EE; FC; BI	General SI; Peer SI; Autonomy
Interactive Whiteboards	Wong et al. (2013)	PE; EE; SI; FC; BI	-
Technology / Theoretical Framework	Author(s)	Constructs	Additional Construct(s)
Software Engineering tools	Wrycza et al. (2017)	PE; EE; SI; FC; BI; UB	Professional Training Diffusion; Model Interchange
Video-based Instruction	Kissi et al. (2018)	PE; EE; SI; FC; BI	Task-Technology Fit; Perceived Control Over Time; Learning-Family Conflict
Wiki	Yueh et al. (2015)	PE; EE; SI; FC; BI; actual use	-
Computer-supported Collaborative Environment	Lin & Lin (2019)	PE; EE; SI; FC; BI; UB	Social Network Awareness
Open Educational Resources (OER)	Mtebe & Raisamo (2014)	PE; EE; SI; FC; BI to adopt and use OER; actual use of OER	-

Online Information Services	Oh & Yoon (2014)	PE; EE; SI; FC; BI; UB	Flow experience; Trust
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Based on the literature summarised in Table 1, the UTAUT has been applied extensively in empirical research on technology use behaviours. This is likely to reflect the high predictive power of the model compared with alternatives in the field. In their evaluations of various technology acceptance models, Samaradiwakara and Gunawardena (2014) compared existing theories and models and concluded that the UTAUT had the highest explanatory power amongst available models for explaining users' technology usage intentions. They concluded that this was because the determinants of BI and UB in the UTAUT incorporated eight earlier technology acceptance models. During the development of UTAUT, longitudinal data from entertainment, telecom services, banking, and public administration were used. The conceptualised UTAUT model was empirically tested using original data from the four organisations and then cross-validated using new data from another two organisations from the financial services and retail electronics industries. This careful approach to development ensured that the UTAUT integrated elements of different models that had appeared previously, enhancing its ability to predict user behaviours across a variety of contexts.

Empirical results on the predictions of the UTAUT model

PE as a predictor of BI

Venkatesh et al. (2003) posited that PE would have the strongest influence on BI, a proposition that has been borne out in many later empirical studies. Liao et al. (2004) adopted the UTAUT in its original form and found a significant positive influence of PE on the variable 'Intention to Use the System' in their study of student acceptance of web-based environments. Similarly, Prasad et al. (2018) found in their study on international students' reactions to blended learning that PE had a significant influence on BI. PE has also been found to remain an influencing factor on BI in 'UTAUT extension' studies (i.e., when additional constructs are included within the model). For instance, in addition to all original UTAUT constructs, Oh and Yoon (2014) extended the UTAUT to include 'flow experience' (i.e., the 'flow' is defined as an overall sense when a person acts with full consciousness) and trust mechanisms (i.e., trust is defined as 'a positive expectation and attitude towards others and the degree of confidence with which one can depend on others'), and found PE continued to have a significant positive influence on BI. In another study by Wrycza et al. (2017), the model was extended with professional training diffusion elements (i.e., the perceived flexibility and expressiveness of a training tool) and model interchange constructs (i.e., the capability of the tool to integrate seamlessly). PE continued to have a significant positive effect on BI, despite the inclusion of these additional constructs.

EE as a predictor of BI

In contrast to the consistent results obtained for PE, the empirical results on EE as a predictor have been largely inconsistent. This has been true irrespective of whether the model tested is the original UTAUT or an extended form of the model. For instance, EE had a negative influence on BI in the study by Liao et al. (2004) but had a significant impact on BI in the study by Mtebe & Raisamo (2014) and Prasad et al. (2018). Disparate results have also been obtained in extended UTAUT studies as disparate results were discovered with more findings on EE having no significant influence or impact on BI (Ali & Arshad, 2018; Lakhal et al., 2013; Kissi et al., 2018; Lin & Lin, 2019; Wrycza et al., 2017). The inconsistent results can be attributed to the nature of the technology UTAUT is used to explain or predict the users' intention. For instance, in UTAUT studies on learning management systems, EE is often found to have no significant effect on BI (Ali & Arshad, 2018; Bouznif, 2017; Liao et al., 2004; Salloum & Shaalan, 2018). However, when the UTAUT model is applied in mobile learning studies, EE is often found to have a significant effect on BI (Abu-Al-Aish & Love, 2013; Al-Adwan et al., 2018; Alasmari & Zhang, 2019; Almaiah et al., 2019; Mtebe & Raisamo, 2014; Wang et al., 2009).

SI as a predictor of BI

The empirical results of SI as a predictor of BI have also not been entirely consistent across studies that have used the UTAUT model. In those that tested the original UTAUT, SI has been found to have a significant positive influence on BI (Liao et al., 2004; Prasad et al., 2018; Yueh et al., 2015; Mtebe & Raisamo, 2014; Salloum & Shaalan, 2018). However, in other studies, such as that by Wong et al. (2013), SI did not have any significant influence on BI. Similar disparities have also appeared across studies of extended UTAUT models. For example, Wang et al. (2009) extended the UTAUT by adding the constructs of perceived playfulness and self-management of learning in a study of 330 Taiwanese participants from five organisations (i.e., Aerospace Industrial Development Corporation, IBM Taiwan, National Changhua University of Education, Chung Chou Institute of Technology and Yuanlin Community University) and found that SI had a positive effect on BI, while Iqbal and Qureshi (2012) did not in their study of an extended UTAUT model (which included ease of use, perceived playfulness and perceived usefulness) with 250 students from 10 universities in Pakistan.

FC as a predictor of UB

In many studies that appeared subsequent to the original UTAUT development studies, UB has often been omitted as a construct, and as a result, FC as a predictor of UB has also often been omitted. For instance, in the UTAUT study on interactive whiteboard acceptance by Wong et al. (2013), UB was omitted. For UTAUT studies that included UB as a construct, findings have again been inconsistent. Some studies have reported that FC has significant influence or impact on UB (Oh & Yoon, 2014; Prasad et al., 2018; Salloum & Shaalan, 2018) while various others have not (Alasmari

& Zhang, 2019; Mtebe & Raisamo, 2014; Yueh et al., 2015). Therefore, the role of FC in predicting UB is unclear.

Implications for the application of UTAUT across different forms of technology

The UTAUT has been found to have a high level of general applicability. In other words, elements of this model have been found to be able significantly to predict user intentions and behaviours across a vast array of user groups, situations, and forms of technology. Venkatesh et al. (2016) summarised UTAUT research contexts into (1) types of users (e.g. students, teachers, government employees and physicians); (2) technology (e.g. tablet PC, internet, web-based learning environment); (3) task (e.g. learning, research, social networking); (4) time of users' adoption decisions (e.g. adoption, use or adoption and use); (5) organisations (e.g. educational institutions, academic societies, government organisations); (6) geographical locations; and (7) relationships validated (e.g. UTAUT main effects and moderating variables effects).

The next sections summarise some of the research that has been conducted using the UTAUT across different forms of technology use within education. These applications have indicated different relationships between the constructs within UTAUT depending on the form of technology that is being studied. Various studies have incorporated extensions to the UTAUT depending again on the type of technology under study, with these kinds of study being particularly prevalent in the mobile learning area.

UTAUT and web-based Learning Management Systems

A web-based learning management system (LMS) is an online software application that presents and manages educational content and determines and evaluates educational objects (Forouzesh & Darvish, 2012). The UTAUT model has been utilised in various studies on the acceptance of web-based LMSs. This has included studying undergraduates' acceptance of LMSs across four countries (Bounzif, 2017; Liao et al., 2004; Salloum & Shaalan, 2018; Yakubu & Dasuki, 2018) and postgraduate students' behavioural intentions towards the use of blended learning programs in Australia (Prasad et al., 2018). In Malaysia, Bervell and Umar (2017) identified new relationships among the UTAUT constructs in a study on LMS acceptance by tutors. In a UTAUT extension study, Chen and Hwang (2019) integrated self-regulation theories and the UTAUT to examine how metacognition and motivation influenced students' behavioural intentions to continue online LMS-based courses in a Taiwanese college. All of these studies indicated that elements of the UTAUT were able to significantly predict users' intentions and behaviours in the LMS setting.

Numerous studies that have explored the use of the UTAUT model to study user acceptance in web-based LMS settings have, however, suggested that EE has no significant influence on BI (Ali & Arshad, 2018; Bouznif, 2017; Liao et al., 2004; Salloum & Shaalan, 2018) and that similarly, SI has no significant influence on BI (Bervell & Umar, 2017; Bouznif,

2017; Prasad et al., 2018; Yakubu & Dasuki, 2018). These observations are consistent with those reported outside the LMS setting in other UTAUT studies (Ali & Arshad, 2018; Lakhal et al., 2013; Lin & Lin, 2019; Wrycza et al., 2017). One possible explanation for this is that the main participants in the studies on web-based LMS have been university students, who do not use the LMS voluntarily. When the use of the system is non-voluntary, it is intuitively reasonable that the effect of EE and SI would be minimal. Like in the case of SI, there would be no effect on BI as the students are required to use the system, regardless of whether their peers or instructors expect them to. Thus, the results of UTAUT studies in the LMS context are tenable.

UTAUT and mobile learning

Mobile learning refers to learning mediated with handheld devices and is made available anytime, anywhere (Barzegar, 2016). As compared to UTAUT studies in other educational technologies, a higher proportion of studies in mobile learning have extended the model to include other variables and constructs. For instance, in the studies conducted by Wang et al. (2009) and Iqbal and Qureshi (2012), the construct of perceived playfulness was incorporated in the UTAUT model when studying mobile learning adoption. Self-management is another variable that has been of considerable interest to researchers in the mobile learning area. For example, studies by Al-Adwan et al. (2018) at four Jordanian universities, Alasmari and Zhang (2019) at a Saudi Arabian higher education institution, and Wang et al. (2009) at five organisations (i.e. Aerospace Industrial Development Corporation, IBM Taiwan, National Changhua University of Education, Chung Chou Institute of Technology and Yuanlin Community University) all introduced self-management as an additional construct in their UTAUT studies on this form of technology use.

Other, more situation-specific extensions to the UTAUT have also been studied with respect to users' acceptance of mobile learning systems. For instance, Iqbal and Qureshi (2012) included ease of use while Abu-Al-Aish and Love (2013) included additional constructs of influence of lecturers, quality of service, and personal innovativeness to examine the factors influencing the acceptance of mobile learning in the study of 250 university students. Ali and Arshad (2018) added learners' autonomy and content quality as additional constructs to the original UTAUT when studying 386 students' acceptance of mobile learning. Besides examining self-management, Al-Adwan et al. (2018) also added trust expectancy and system functionality, whereas Alasmari and Zhang (2019) extended the UTAUT model by adding Learning Expectancy and M-Learning Technology Characteristics in a study of 1203 users' acceptance levels.

Among the studies that have applied the UTAUT model to explore the acceptance of mobile learning, the findings have mostly been aligned with Venkatesh et al.'s (2003) predictions. Specifically PE, EE and SI have been found to be significant determinants of mobile learning acceptance, across numerous contexts (Abu-Al-Aish & Love, 2013; Al-Adwan et al., 2018; Alasmari & Zhang, 2019; Chao, 2019; Wang et al., 2009). However, some important departures

have been evident. Specifically, several studies have suggested that FC directly influences BI, which departs from the theorisation in the original UTAUT model (Ali & Arshad, 2018; Almaiah et al., 2019; Bervell & Umar, 2017; Lakhal et al., 2013; Radovan & Kristl, 2017). For mobile learning acceptance studies, however, the relationship between BI and UB has rarely been examined.

UTAUT and instructional devices

UTAUT has also consistently been extended to study educational technology tools. Lakhal et al. (2013) added autonomy to the UTAUT model. Wrycza et al. (2017) introduced two constructs, professional training diffusion (i.e. the perceived flexibility and expressiveness of a training tool) and model interchange (i.e., the capability of the tool to integrate seamlessly) to the original UTAUT model, to examine the acceptance of software engineering tools within Information Systems Development courses. Kissi et al. (2018) extended the UTAUT model by introducing constructs such as Learning-Family Conflict (i.e. household chores or outdoors activities that impede and interfere on students attention to study at home), Perceived Control Over Time and Task-Fit Technology to investigate urban-rural high school students' acceptance of video-based instruction in the flipped learning approach. Findings in these contexts have been similar to those found in applications of the UTAUT model to explore users' responses to web-based LMSs. In other words, the findings typically showed that: (1) EE has no significant influence on BI (Kissi et al., 2018; Lakhal et al., 2013; Wrycza et al., 2017) and that (2) SI had no significant influence on BI (Kissi et al., 2018; Lakhal et al., 2013; Wong et al., 2013; Wrycza et al., 2017).

UTAUT and online collaboration tools

While the studies on web-based LMSs and mobile learning are many, there are only a few studies on using the UTAUT model to study online collaboration tools. Two studies have, however, used the UTAUT model to study online collaboration in Taiwanese universities. Yueh et al. (2015) adopted UTAUT to study Wiki use with 103 Taiwanese students, while Lin and Lin (2019) studied how computer-supported collaborative learning environments with social networking awareness would impact on the acceptance levels of 186 undergraduates at a Taiwanese university. Given the focus of both studies on online collaboration tools, SI was found to be the primary determinant of BI in both cases, while PE and EE did not influence BI significantly.

UTAUT and online educational services

Online educational services refer to any education-related information and services provided over the Internet. Mtebe and Raisamo (2014) adopted the UTAUT to examine barriers to instructors adopting and using open educational resources. Oh and Yoon (2014) added two additional constructs, flow experience and trust (i.e., the 'flow' is defined as an overall sense; trust is defined as 'a positive expectation and attitude towards others and the degree of confidence with which

one can depend on others') to the original UTAUT in their study on predicting the use of online information services. In both of these studies, EE was found to have a positive influence on BI. However, results for other relationships between elements of the model have been more variable. For instance, Mtebe and Raisamo (2014) found that FC, PE and SI did not have a significant effect on BI.

From the literature, some general observations can be drawn from the UTAUT research findings on various forms of educational technology. The original UTAUT model posits that PE is the strongest determinant of BI. However, in the UTAUT studies on online collaboration tools, PE was found to have no significant influence on BI. In other words, the belief that online collaboration tools may not necessarily improve user performance did not deter them from using the technology. Among the UTAUT studies on web-based LMS, instructional devices and online collaboration tools, EE was not found to influence BI in several studies. That is, in these studies, even when educational technologies were not perceived to be easy to use, prospective users still intended to use them for the affordances that they might bring. SI also did not consistently influence BI across all studies. It is likely that the nature of the technologies studied in these cases (mobile learning and online collaboration tools) are highly adaptable in social contexts. Based on the diverse findings reported here, it appears that while the UTAUT has been found to be a strong and versatile predictive model across contexts, it is the power of the constructs in the model to predict users' intentions that can vary depending on the specific form of technology under study.

The proposed extended UTAUT model

As noted previously, various researchers have proposed extensions to the original UTAUT model, incorporating additional constructs within specific settings. This has been particularly apparent in research that has applied the UTAUT to study mobile learning applications. Here, we propose an alternative extended UTAUT to determine the factors influencing users' adoption of technology, particularly within education contexts (Figure 2). Additional exogenous mechanism constructs, usability and learnability, are proposed for incorporation within the model, to study its effects on PE, FC and SI. EE has not been included in the extended model, as many UTAUT studies have shown that its influence has not been as consistent that of the other original constructs (Ali & Arshad, 2018; Alshehri et al., 2019; Bouznif, 2017; Chao, 2019; Kissi et al., 2018; Lakhal et al., 2013; Lin & Lin, 2019; Salloum & Shaalan, 2018; Thongsri et al., 2018; Wrycza et al., 2017). In the absence of EE, usability and learnability were added to examine the degree of ease of use and how quickly users become familiar with system features and functions. Attitude, included an earlier TAM model, has also been re-included as a predictor of the extended UTAUT model.

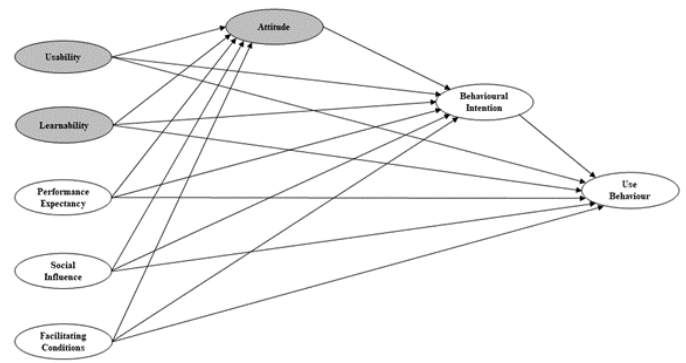


Figure 2: Extended UTAUT Model. Note: Adapted from Venkatesh et al. (2003).

Usability is referred to as the degree of ease of use, to achieve system objectives with effectiveness, efficiency and satisfaction (Bevan et al., 2015; Jokela et al., 2003; Shackel, 2009). This definition relates directly to user and business requirements as effectiveness refers to success in achieving goals; efficiency refers to not wasting time, and satisfaction refers to a willingness to use the system. This new construct has been proposed because various studies outside the UTAUT literature have reported that factors of this kind have a significant influence on users' acceptance of educational technologies (Holden & Rada, 2011; Juarez Collazo et al., 2014; Lah et al., 2020; Lin, 2013; Tsakonas & Papatheodorou, 2008).

Learnability is defined as the quality of system interfaces that allow users to become familiar quickly with them and able to make use of all the features and capabilities (Jeng, 2005; Nielsen, 1994). Although Zbick et al. (2015) had included usability and learnability in a TAM model to study mobile learning adoption, the two constructs have yet to be used in a UTAUT study. Learnability has been incorporated in light of findings outside the UTAUT literature that have reported the ease with which systems can be learned can significantly influence their acceptance of different types of technology (Burney et al., 2017; Chiou et al., 2009; Jeng, 2005; Zbick et al., 2015).

From previous studies, PE is the strongest predictor of BI in the original UTAUT model (Venkatesh et al., 2003). While attitude has been omitted in the initial UTAUT development, follow-up studies have shown that there was a significant influence of PE on attitude (Botero et al., 2018; El-Gayar et al., 2011; Jairak et al., 2009; Shuhaiber, 2015; Šumak et al., 2010; Yakubu & Dasuki, 2018). Nassuora (2012) found in the study on students' acceptance of mobile learning that FC had a positive influence on attitude towards behaviour. Past studies had also found that SI is positively related to attitude (Botero et al., 2018; Nassuora, 2012; Shuhaiber, 2015; Šumak et al., 2010).

Attitude, which was adapted from the TRA, was included in the earlier version of TAM (Ajzen & Fishbein, 1980; Davis, 1986; Davis et al., 1989). The theory explains that the individual's attitude towards a given situation combines with subjective norms shapes the behavioural intention,

which in turn influences the individual's actual behaviour. It links the perception, norms, and attitudes to the intentions of a person in making a decision and predicts the behaviour, which may result as intention. Attitude towards technology is included in the earlier TAM but was not included in the development of UTAUT. In the UTAUT studies on tablet PC adoption by El-Gayar and Moran (2006), Moran et al. (2010) and El-Gayar et al. (2011), attitude toward using technology appeared to influence BI. In the three studies, PE and EE also significantly influenced attitude toward technology. In another context, in the UTAUT studies on mobile learning adoption, attitude was also found to influence BI (Jairak et al., 2009; Nassuora, 2012; Thomas et al., 2013). Among the mobile learning adoption studies, FC was found to be influencing users' attitudes towards using technology. Other UTAUT studies on educational technology tools like virtual lecturing system, mobile-assisted language learning system and social learning platform also found that attitude significantly influenced BI (Botero et al., 2018; Khechine & Augier, 2019; Shuhaiber, 2015).

Since its introduction, the UTAUT has been highly regarded as a robust model with a high level of predictive power in technology acceptance studies. Venkatesh et al. (2003), however, acknowledged that across different contexts, extensions to the original UTAUT could be considered. The extended UTAUT added usability, learnability and attitude to the UTAUT model, and examined their relationships in predicting acceptance of a form of technology that has thus far been under-researched in the UTAUT literature.

The introduction of usability, learnability and attitude would enrich and expand explanations of the factors that influence users' intentions and usage in such settings. The new relationships amongst traditional elements of the UTAUT model also suggest a promising line for future studies to explore. The introduction of the additional constructs in the extended model could enhance the efficacy with which user's intentions to engage with technology could be predicted. It underscores the need for higher education to take steps during system design and implementation to improve usability and learnability, as well as users' attitudes towards the use of relevant technology in efforts to enhance their intentions and actual usage behaviours.

Conclusion

The UTAUT is a reliable and robust model to study and explain technology acceptance and use across various educational contexts. Venkatesh et al. (2003) had proposed that UTAUT be further developed and validated with appropriate scales and then revalidating the model or extending it with new measures. They also encouraged future researchers to examine alternative measures of intention and behaviour in revalidating or extending the research to other contexts. The extended UTAUT model is versatile and robust and can be applied across various contexts. Although the initial conceptualisation of the extended model was meant for UTAUT studies in the educational contexts, the additional constructs proposed here might also be relevant in business and government contexts.

The extended UTAUT model proposed in this paper incorporates three new constructs: usability, learnability and attitude, which are proposed potentially to enhance the predictive power of the UTAUT. With the proposed model, not only it addresses both the affective and cognitive aspects of technology acceptance (Taherdoost, 2018), it further examines possible relationships between the various constructs not theorised in the original UTAUT model.

Venkatesh et al. (2016) recommended that extensions that could be made to the UTAUT model to enhance its prediction in different contexts. One of such extensions involves the addition of new moderating constructs or mechanisms (i.e., factors that influence either the strength or valence of relationships between variables in the core model). The limitation of this proposed model is that it does not consider moderating variables to explain technology acceptance as it focuses solely on the direct effects of the various constructs on both BI and UB.

Future research is clearly needed to validate the utility of the extended model, perhaps comparing this with the original to determine which of the two have the highest explanatory power across different contexts. One of the challenges that remain is to develop and validate an instrument that can be used to assess these various constructs. The availability of such a standardised instrument would be useful not only to individual researchers and teams but would also enable better knowledge building across studies within the field. The authors intend to validate the extended UTAUT model with a developed instrument in the near future.

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'Never let a good crisis go to waste'. An interview with Professor Peter Fleming on dark academia, the pandemic and neoliberalism

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Abstract

Peter Fleming is a Professor at the University of Technology Sydney (UTS) Business School. He previously held positions at Cambridge University, Queen Mary University of London, and Cass Business School. Peter Fleming's research focuses on the future of work and the ethical implications it surfaces. He is also the author of numerous books which more recently include *The mythology of work*, *The death of homo economics*, *The worst is yet to come*, *Sugar daddy capitalism*, and *Dark academia. How universities die*. This interview focuses on Fleming's fairly pessimistic perspectives on the future of universities that are espoused in his most recent book, *Dark academia*. In a devastating critique, he argues that universities were already in crisis prior to the pandemic, but that has been exacerbated by it in the context of neoliberalism and shrinking government budgets, especially in key higher education-exporting countries such as the U.S., the UK and Australia. Apart from our focus on the state of higher education in this interview, we also, amongst other things, discuss Fleming's nuanced critique of work (that forms the bulk of his oeuvre), his love-hate relationship with writing and other biographical snippets, as well his exciting future projects.



Figure 1: Peter Fleming.

Jürgen Rudolph (JR): In your most recent book *Dark academia. How universities die* (Fleming, 2021a), you set out to analyse the hidden psychological injuries endured by students and academics in contemporary universities. There is a passage in *Dark academia* where you provide a historical overview of four shifts that the university has undergone. A first shift was Wilhelm von Humboldt's 19th century ideal of higher education as a holistic combination of research and teaching in an environment of academic freedom in order to transform students into autonomous individuals and global citizens. A second historical shift that occurred starting from around the 1960s was the so-called academic revolution that led to the massification of university admission. The academic revolution eventually led to a counter-revolution and the birth of the neoliberal university from the mid-1980s onwards, exhibiting increasing top-down managerialism and the metrification of academic work. The fourth shift to an edu-factory (and even further removed from Humboldt's ideal) is an acceleration of the neo-corporatised university due to the current pandemic.

While Humboldt's vision of higher education was imperfect due to its elitism and its domination by white male privilege, do you think it is possible to revert to his vision and at the same time get rid of its inherent class, race and gender biases?

Or is the end nigh? To cite you: "Beleaguered by managerial-bloat, business bullshit and a Covid-compromised economic environment, the idea of the modern university may soon come to an end" (Fleming, 2021a, p. 19). Or to cite one of your book titles: *The worst is yet to come*? This is a very convoluted question. Sorry about that.

Peter Fleming (PF): That's okay. It's a good question. And thanks again for the invitation to chat about these things and the book. I guess the answer to that question is kind of the reason why I wrote the book and trying to figure out, to use the phrase I use in the book, whether hope is permissible, reflecting that Kantian question of hope. I don't think going back to the Humboldtian university is the answer, for many reasons. It was a highly problematic institution, operating under conditions that were very much stratified by class and gender, and you could even go on and talk about links to colonialism and so forth. Nostalgia is problematic – I think even going back to the 1960s experiments in higher education harbours dangers and nostalgia is really not helpful in any shape or form in this context. Previous university systems were carriers of class constrictions, and in some ways paved the way for the neoliberalisation of mass education. We have to take the best parts of what we have and move forward in creative ways, and not look back.

So how do we do that if the university or the higher education system is today pretty much unsalvageable? Again, that's the reason I wrote the book: to figure out where I stand on that. And I'm not too sure where I do stand, especially following the pandemic which has thrown into sharp relief some ugly truths at the heart of higher education. We're in a very difficult situation at the moment. I've talked to lots of friends and colleagues about this and it does provoke some quite extreme views, including just abandoning the university in its present form, because commercialisation, marketisation and financialisation processes have really gone down to its roots and we nearly need a breakaway movement, if that is at all possible. But we're all attached to our careers, and there's mortgages to pay and all of that sort of stuff that is going to make this very difficult. From my own perspective, I do feel that there is still something that we need to be fighting for. Otherwise, I wouldn't have written the book. While I realise that I'm a pretty pessimistic person, this book is deeply pessimistic even by my standards. One reason for this is that emerging Leftist analyses, when it comes to critical university studies, were proffering what I believe was a form of cruel optimism and weren't properly facing up to the fact that academics had been completely vanquished, and have been for some time. The profession has really hit rock bottom.

This optimism in critical commentaries about the university really irked me. The idea of reinstituting *The slow professor* (Berg & Seeber, 2018) and that liberalist kind of hope, but also on the left, *The good university* (Connell, 2019) and so forth, I think, is not really confronting this bleak reality, especially for the adjuncts and precariat. Academics have basically lost the battle against neoliberalisation. The task is to figure out what can be done from that position of profound socio-political failure. That's our starting point if we want to grapple with the problem in any profound way. By the way, I don't think what I'm saying here is particularly

new, to be honest. Jeez, when I started working on this book, I was just blown over by how much there is on this topic, and it was pretty hard to say something new, to be honest. I'm not sure if I succeeded - novelty is overrated anyways. But I think there is hope for *study* if nothing else... Can that happen in the university in its present form? Exploring and answering that question is where I think Stefano [Harney] and Fred [Moten]'s work (2013; 2021) comes in really handy. Anyways, I think the first task is to face up to reality which I have tried to do in my new book, which is why it's so bleak.

JR: In my humble opinion, it's an important and excellent book. I sent you my review which also says the same (Rudolph, 2021). I agree, it's a bleak book, but thankfully, you're very humorous. And you have something, I think, which can be referred to as dark humour, since you're writing about *Dark academia* and dark capitalism and all that. I think the dark humour is very suitable and it makes the book bearable, at least in my view, and partially extremely entertaining.

Talking about *Dark academia*, I think you are very mindful of the student debt mountain that is very prevalent in some countries like the UK or the US. But when you talk about *Dark academia*, you're also specifically addressing some of the aspects of the neoliberal university such as despair, depression, chronic stress, anxiety, self-harm, and in extreme cases, suicides amongst students and academics. You observe that universities that made themselves overly dependent on the lucrative international student market found themselves in a world of trouble when the coronavirus and concomitant travel restrictions emerged in 2020. But if we understand your argument correctly, universities were already gravely ill pre-pandemic. And as you were just saying, the privatised, corporatised, marketised, financialised neoliberal universities, in your analysis, are in mortal danger, largely due to "bad management and hostile government budgets" (Fleming, 2021a, p. 157), to cite from your book. Even pre-pandemic, this is an alarming analysis, and the global pandemic has made things worse. Could you please give us an idea about your thoughts on the pandemic, how it has affected higher education and how higher education will evolve as a result of the coronavirus and the responses to it? You just said you're very pessimistic. There's the question whether there's even a future for this kind of university, but maybe you could elaborate more on that?

PF: One point of the book was to say that a lot of attention is being placed on the pandemic and the financial implications it will have – not necessarily the rich universities, the Ivy League's or the Russell Group in the UK – but the thousands of institutions in the mid-range and bottom range if you want to use that kind of terminology. However, the tensions, cracks and frictions were there way before the pandemic, and we are seeing an escalation, an amplification of those pre-existing problems in the university that come about from mass commercialisation among other things.

The cliché of never letting a good crisis go to waste is certainly part of senior management ideology at the moment, even though they don't admit it.

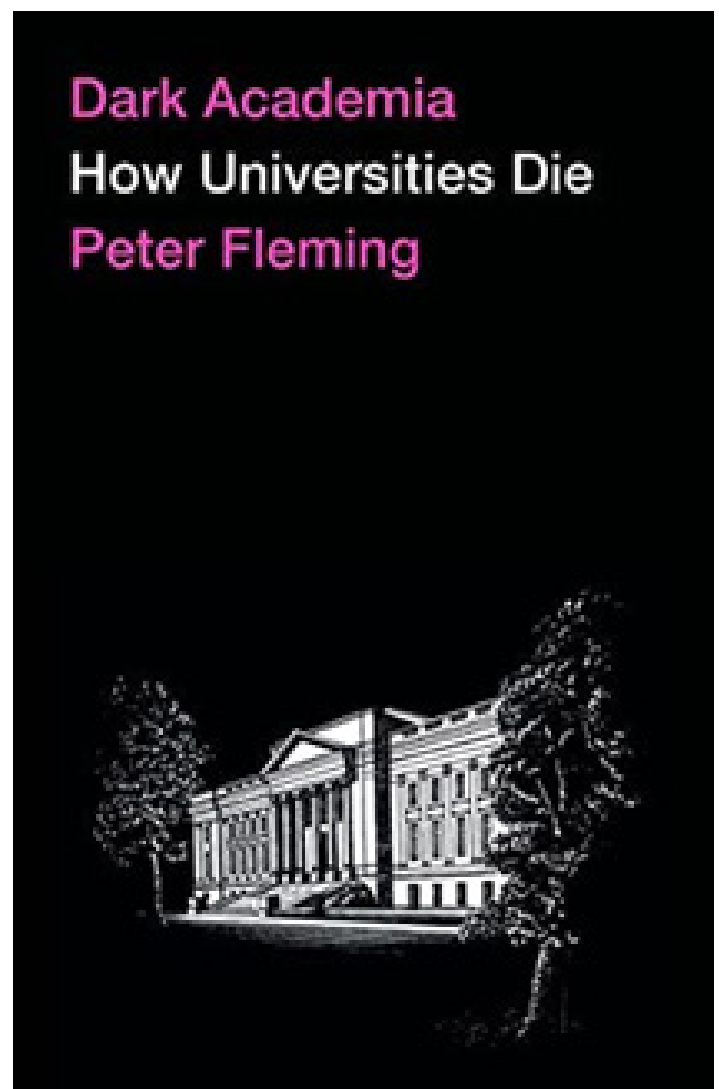


Figure 2: *Dark academia* book cover.

So definitely the cliché of never letting a good crisis go to waste is certainly part of senior management ideology at the moment, even though they don't admit it. I predict that the contradictions of the neoliberal university are just going to be exacerbated over the next few years. By contradictions, I mean having autocratic hierarchical systems in a profession that fundamentally requires the opposite in order to function, including collegiality and so forth. That value clash goes to the heart of the sadness that is now deeply entrenched in our profession. But to answer your question, I think that the pandemic has certainly been a shock to the system no doubt.

By the way, the term 'neoliberal' has limitations at the moment. I don't think it really describes the university in a very accurate way. If I was going to use any terminology, it would be Mark Fisher's (2009) 'market-Stalinism' as a descriptor of how universities function today. Lots of bureaucratic collectivism combined with ruthless market discipline. In terms of the market, the medium future is going to be difficult. You'll see a lot of universities, I predict, go under. Governments in the UK, Australia, and the U.S. (who despise higher education and academics) really hope to see what economists call a market shakeout or a market correction, where the numbers of institutions drastically drop

and I guess, economists are currently modelling this. And from an ordinary academic point of view, this has become difficult to resist or refute. Managerialism has utilised the language or ideology of finance very effectively, and the workforce has internalised this. So the economic rationality – which is biased, political and partisan – for job cuts, bigger workloads and runaway administration is no longer only held by senior executives. It has basically been socialised throughout the institution. Now we have a workforce that says, 'Yes, fire me, because there are no students' – a classic case of capitalist realism at work in the ideological domain. This is going to kind of pave the way for a very troubling time in the profession. I don't particularly feel very positive about what's to come.

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JR: In *Dark academia* you show that in some of the key higher education-exporting countries (like in the U.S. and the UK), many of the teaching staff are part of the gig economy or the precariat, leading to the Uberfication and exploitation of an underclass of adjuncts. You are also quoting Ginsberg's *The fall of the faculty* (2011) that focused on the expansion of non-academic personnel, vis-a-vis academics. Then you also said that the chronically overworked academics don't just have too much 'real work', but also 'sludge work', encompassing activities such as filling in forms and following procedures that are caused by over-bureaucratisation. Could you please share with us your take on this and perhaps give some examples?

PF: One of the rationales for the book was – and this is a segue into answering your question – to counter this very prevalent view of these privileged elite institutions and so-called Ivory Tower universities that are still very much part of everyday parlance of what we might call civilians, non-academics. Obviously, it's nothing like this, universities are at the vanguard of a marketising society. They're no longer places of protection or places of unqualified study. I think that's one of the reasons why I wanted to check that image and raising awareness about the growing precariat in higher education is part of that. Adjuncts also fulfil an ideological function in contemporary universities, creating a bifurcation between secure and insecure staff in addition to the division between students and teaching staff. Both fractures have been a classic neoliberal strategy for dividing and conquering the institution.

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For casual staff, it's a grim picture at the moment. Their predicament is the product of universities functioning like large businesses. Managers want to economise and

create efficiencies, and in terms of labour costs, adjuncts serve that purpose. It's been quite a major transformation of higher education and I think for the worst. We need to have new laws around making staff permanent if they've been a casual for a certain period of time, as they do in Scandinavia, for instance. Uberisation of higher education has been something that's been really creeping along in the background for some time. Not enough has been said about this in arguments regarding the 'fall of the faculty', which focuses mainly on tenured staff. The professoriat's viewpoint tends to omit this dark undercurrent in higher education, and it's an important part of the story.

When it comes to the second part of your question regarding the burgeoning role of non-academic staff in universities, that's been incredible. I have a theory to explain this. In terms of power, which is something I've been studying for years, this happens in other industries as well: as soon as you get a diametrically opposed power relationship between managers and the managed, you're going to get a growth of administration because that division needs to be managed, policed, economised and all that. Management bloat is the outcome. But also, bureaucracies have a tendency just to proliferate on their own accord anyways. That's something that industrial sociologists have known for many years. You hire a manager. Then another manager to supervise that manager. And so on. But it's not only middle management where you see this. The growth of senior managers is another extraordinary characteristic of universities. They have become very top-heavy, all drawing gargantuan pay packets. Anyways, this middle and senior management explosion was born out of huge cash flows – a windfall we might say – when education became a major export industry. This was especially so in countries like the United States and the UK. So it will be interesting to see what happens after the pandemic and the financial fallout. Adjuncts will be fired first. Then academics. Then middle managers. Perhaps only this cadre of well paid senior executives at the top will be the only ones left! They will have to deliver all the Zoom lectures and tutorials!

Bureaucracies have a tendency just to proliferate on their own accord anyways. You hire a manager. Then another manager to supervise that manager. And so on. But it's not only middle management where you see this. The growth of senior managers is another extraordinary characteristic of universities. They have become very top-heavy, all drawing gargantuan pay packets.

On your final question about sludge work, this concerns paperwork created by this swarm of middle managers. They have to do something after all, and usually that consists of creating forms and other hoop-jumping exercises. You get this sludge work in most large organisations, where the administration falls back on itself, the means become the ends. I thought it was just an interesting way to distinguish between admin work and real work, not only in terms of writing an article, but real work in terms of teaching and

managing undergrad programmes, and other value-adding stuff. This real work in universities has increased for sure, but alongside it has been this growth of sludge work. The term comes from a couple of US economists looking at public administration, and they kept referring to bureaucratic sludge and I thought that's a cool term, because we get stuck in it. You can't escape it, even if it is superfluous to proper, value-adding work. Having said that, administration is an important part of any large organisation, you can't do without it. But I think when it gets out of hand, there's a tipping point and it becomes its own goal – to reproduce itself and grow if possible. That would be fine if it left us alone, but the opposite occurs of course.

Examples of sludge work in universities are mandatory health and safety tutorials. Forms to get travel approval. Forms to move furniture in an office. Forms to certify exams. Forms to access a new form regarding teaching. Emails upon emails. Have you noticed that only about 5% of the emails we receive say, 'here is a gift for you, Peter. [laughter] You don't have to do anything. This is for you.' All the rest, 95%, it is 'do this now for me, I want this, get me this before the close of business yesterday!' But the boxes have to be ticked. Returning to power and hierarchy, though, Weber had it right. He said, the golden rule of bureaucracy is that the apex of the organisation is never bureaucratised, that's the only place where it stops. It always flows downwards like a waterfall, getting heavier and thicker the lower it gets. In one of my books I call this the 'organizational shit chain', but that's another story. I'm making light of it because I think there are worse problems at the university than sludge work.

JR: [Laughs.] I also think that email has turned out to be a terrible invention. And more so our mobile phones, because now we really carry the work everywhere. And it's impossible to escape it. So it seemed like a good thing at the time, but it turned out to be an instrument of control. In *Dark academia*, you describe the "metric-mania" – the short-termist metric-fixation – and its adverse effects on higher ed. A veritable tyranny of metrics – student evaluation scores; journal quality rankings, discipline-level tables, and journal impact factors; research grants; Google citation ratings, H- and i10-indices – is used for appraisals and promotions. As you write, the "measure has become the target and the tail is wagging the dog" (Fleming, 2021a, p. 49). This metrification is subject to Goodhart's law of perverse incentives. Could you please elaborate?

PF: Yes, sure. This foray is a product of managerialism, the purpose of basic managerialism or Taylorism is to quantify, to give superiors a feeling of control. But that's a very simplistic way of seeing the organisation, given all of the sociality that is missed out from this quantified picture of an institution. Nevertheless, it's really taken off, rankings and so forth. That quantification is a symptom of that managerialisation but it's also a symptom – this is another part of the story I wanted to tell in the book – of the emergence of the neoliberal academic. There is a lot of academic complicity in the neoliberal university, scholars who adore all the quants because it allows them to compete in the academic marketplace. That is very depressing given what this metric-fixation does to the community, but it has not only been a top-down process.

I think that particular part of the puzzle has been missing in a lot of critical university studies, where the complicity and compromise of academics have helped bring about this dark situation – including myself, so I place myself in that camp as well. If we are unhappy with the neoliberal university, then we need to own up to careerism in the academy. What's happened with the quantification of academic work is that you're going to inevitably get perverse incentives for sure, all of the citations and trying to get better rankings and all of that sort of stuff. But you also have an evacuation of the academic ethos. In the book, I discuss academics who have very little interest in what they're writing about. If it gets them into a top journal, this is all that matters. I found that really surprising and disheartening. But I shouldn't be surprised since most universities have stoked this deep instrumental careerism, but I find it a little bit frightening.

But those perverse incentives are really tricky. I don't think it's just the career psychopaths who single-mindedly follow them and become anti-social, aggressive people as a result. The idea has been integrated into ordinary academic life too, where we begin to think the numbers are everything. And, they're not. Pegging career progression to those numbers was initially done in the name of transparency, but it's become something punitive. This punitive element is an important undercurrent of dark academia that we're all trying to grapple with. It's difficult to escape because we all want to be promoted, and it would be unusual to find someone who didn't want to be the best in their career or best in their profession. But it's clearly been hijacked by this narrative of metrics – with our own complicity. We really need to rethink this element of what it means to be an academic if we want to move forward.

I try not to be romantic about academia as a way of life. But it certainly isn't about producing widgets and ticking boxes. I see it as a way of living, it's an ethos.

I try not to be romantic about academia as a way of life. But it certainly isn't about producing widgets and ticking boxes. I see it as a way of living, it's an ethos. That's a very old-fashioned way of thinking about ideas and what it means to be an academic worker, especially now with the arrival of the so-called academic entrepreneur – an awful creature I must say. But that evacuation of an ethos from teaching and study is just really sad. It leads into a place where institutions are in danger of becoming factories and workers just can't wait until five o'clock to clock off. And only then do I start to do stuff that is really important for me and that animates me, rather than doing it as part of being an academic. I think we still need to hold on to that ethos, even if it's unrealistic under present conditions.

JR: In the meantime, for academics, it is often publish or perish. Highly-ranked journals are fetishised and endowed "with near quasi-religious powers" (Fleming, 2021a, p. 31) – to again cite from *Dark academia* – and the multinational journal publishers have thus been placed in a position where they can extort universities to access their own outputs with outlandish subscription fees. Ironically, universities pay their

academics salaries, but nonetheless must then purchase their output from multinational journal and book publishers for their libraries, thus paying twice. Another irony, especially in the case of public universities, is that taxpayers do not have access to the academic output that they funded as it is hidden behind firewalls and prohibitively expensive. In *The death of homo economicus* (Fleming, 2017), you narrate the tragic story of Aaron Swartz. What are your views on Open Access publishing, author processing charges and other such fees, as well as Creative Commons licenses?

PF: I think open access is the way forward, it's returning control to the discipline, to the profession, without the middleman tactics of these large parasitical corporations. I think it's changing a little bit now on this front. Most institutions ask academics to place our stuff in a depository that is free to the public. But it was about time. These large multinational publishing companies have sponged off universities and public money for years. It's unbelievable. They probably can't believe their luck either because their profit margins are just incredible. It's almost like the perfect business model. Be gifted academic products from an institution free of charge. No labour costs. Very few overheads given all the work is done by academics. And then briefly repackage those products and sell them back to those same institutions with a huge markup. They are swimming in cash. But now universities are finally waking up to the fact that it's a pretty bad deal. But I still remember when this corporate takeover started to happen. Around 20 years ago, most journals were run by either universities or academics, where editorial duties were passed between a network of universities, and the universities paid for the printing and so forth. Over a handful of multinationals came along and sucked them all up, and I guess they just offered these journals a deal they could not refuse. So this corporate centralisation process was quite extreme and swift. By the way, I doubt very much whether these large firms give a shit about academics, and they really couldn't care less about universities beyond the profit margins. As soon as that grip is loosened, the better for everyone involved, definitely. They're like parasitic real estate agents, like ruthless property developers [chuckles].

These large multinational publishing companies have sponged off universities and public money for years... They probably can't believe their luck either because their profit margins are just incredible. It's almost like the perfect business model. Be gifted academic products from an institution free of charge. No labour costs. Very few overheads given all the work is done by academics. And then briefly repackage those products and sell them back to those same institutions with a huge markup.

JR: Good comparison. So switching the focus to the student for a moment: you write in *The death of homo economicus* that Faiz Siddiqui sued Oxford University for one million Pounds, as he did not receive the top grade "due to the poor

teaching quality" (Fleming, 2017, p. 84). What is the role of students in the neoliberal university? Have they become customers/consumers? The opposing thought would be how can they become producers – to cite another idea which goes back to Walter Benjamin (1934) and has recently been elaborated by Mike Neary (2020)?

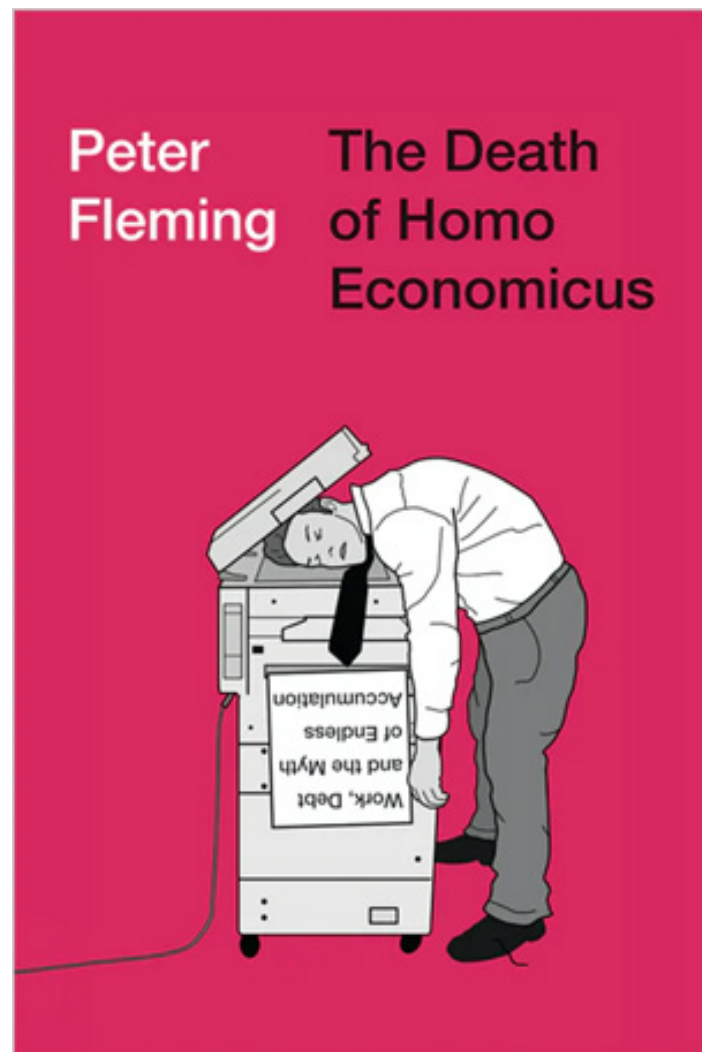


Figure 3: *The death of homo economicus* book cover.

PF: One thing I noticed when researching for the book is that students, in a lot of critiques of the university, don't really get taken too seriously. Students are seen as part of the problem. They're consumers now and they're demanding, sending academics email requests day and night. No doubt the nature of the pedagogical relationship has irredeemably shifted towards commercialism. But there's this almost derogatory narrative regarding students in critical university studies, and this really didn't sit well with me. I think students play a really important role in the emancipation movement if you want to call it that. Despite years of commercialisation, I see this feeling of revolt growing amongst the student bodies I've been involved in. Many students dislike what's occurred to their institutions as much as anyone else and are very uneasy about the managerialism and being treated like a call centre customer, so I think we're allies. We need to work together, and transformational change of higher education cannot occur without students being highly involved. We

must also remember that postgraduate students are also workers in most institutions and members of the casualised workforce, they may want to become academics as well.

JR: I have a philosophical question about the role of higher education. There is a tension between what has been described as reproductionism versus pedagogism. Schugurensky (2014), in a book on Paulo Freire, has described pedagogism as the naïve optimism that places excessive confidence in education as the main remedy for all social problems. The opposite of pedagogism is reproductionism, i.e. the paralysing pessimism – and earlier you described yourself as a pessimist – that results from arguing that schools are nothing else than tools of the capitalist state to reinforce social inequalities. In your book *Sugar daddy capitalism. The dark side of the new economy* (2019, p. 75), you refer to Ivan Illich's *Deschooling society* (1970). Would you say Illich is more on the reproductionist side? What are your thoughts, importantly? Does education (within current educational systems) have the potential to build a better, more democratic society?

PF: Jeez, that's a big question there. And we've got lots of nuances there but Illich is definitely on the reproductionist side and nativism, a really interesting precursor to that postmodern critique of science, he was actually a priest or maybe an ex-priest, I don't remember.

JR: Yes he was.

PF: There's always this interesting religious element to his arguments, very radical at that time. I read him like Foucault in many ways as a weird critic of science and its disempowering effects when it begins to inform social institutions. Professional scientific discourse undermines self-help and self-organising and makes us dependent on these power-knowledge relationships that are painful to follow. I think that's right, to a certain extent at least. But I think Illich took the abolition of schooling per se too far. It is not something I would endorse.

JR: Me neither.

PF: I can understand it to a certain extent. But I don't know, if Illich had to sit down and homeschool his kids during a pandemic, he might have arrived at a different viewpoint. Jeez, it's something else (everybody laughs). After half a day of homeschooling, I'm all for those zones of containment we call modern education. 'Take them off me! Take them off my hands' (everybody laughs)! 'Give me some peace!' But I think that pedagogy and education are clearly a very important part of any emancipatory project. I do think there is an important truth to it. For example, Michael Sandel's (2020) *Tyranny of merit*: I don't know if you've come across this book? He argues that one of the problems with the neoliberalisation of education in universities, and espoused by many US presidents and administrations, is that it proclaims university education is the be-all-and-end-all. 'Get it regardless of the cost, regardless of the consequences in terms of student loans'. Sandel is very critical of this argument, arguing that it misleadingly places the blame for spiralling inequality on education. 'You are poor because you don't have a degree.' That's a convenient way out for the ultra-rich as class power

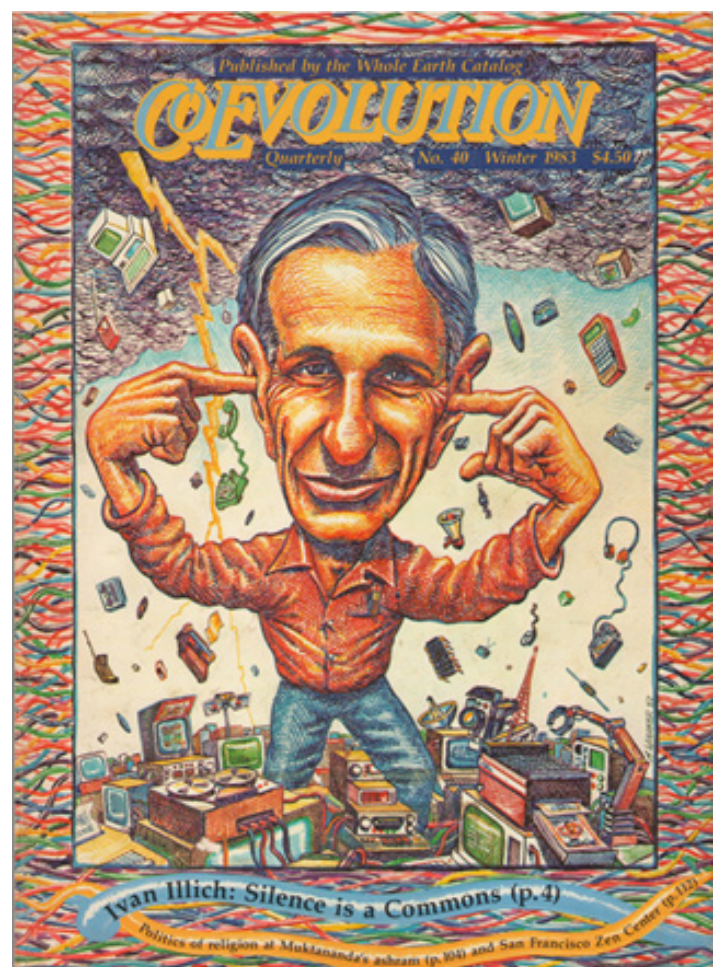


Figure 4: Cover of CoEvolution Quarterly, winter 1983.

is totally omitted from the picture. And it also places a huge burden on middle class and working-class folk. 'It's your fault you're struggling because you didn't go to university'. I agree with Sandel that this narrative is deeply problematic and harmful. It turns education – or at least the ideology of education – into a weapon of class oppression, whilst disingenuously spouting the virtues of merit.

Ultimately, I guess, I still hold on to the importance of study, going back to Stefano [Harney] and Fred [Moten], which really changed the whole way I've thought about this problem. *The undercommons* is a great book (Harney & Moten, 2013). That study is essential, and whether it happens in an institutional context or not is beside the point, but it has to happen in a supportive context.

JR: We asked a similar question to another friend of Stephen before: Martin Parker. He was saying that he doesn't believe in binaries (Parker et al., 2021). 'It's a bit of both' which I thought was a good answer, too. It does have reproductionist elements, obviously, but it's still a good thing: Education.

PF: I guess we are biased though as educators.

JR: We certainly are. My next question is related to an earlier one about Humboldt that we have already talked about. There have obviously been other visions of the university. Apart from yearning for Derrida's utopian vision of a university

“sans condition” with a no-strings-attached funding structure, what can the critical pedagogue in the employ of a university do about the crisis of higher education? You appear to regard Stefano Harney & Fred Moten’s (2013) call for decolonisation from the inside out as more realistic than Derrida’s utopia (though you do not regard them as binaries). Their aim is to arrive at a new conception of scholarship and pedagogy in the undercommons. In Harney and Moten’s analysis, the university becomes a place of refuge and a source of resources for critical projects in which academics problematise the university as well as themselves. How would you conceptualise and describe the undercommons, what is your take? You’ve already said earlier that it does not even need to be in the university.

PF: I think the undercommons is a really important concept. We really saw this in full flight with the Covid-19 pandemic, when everyone had to push our classes online: just the sheer amount of improvisation and knowledge sharing among academics that occurred, drawing on the depths of our professional knowledge, our professional and personal lives to make it work. It seemed to me that we did this not because of authority but despite it – despite the managerialism that surrounds us every moment within the university. I find this really interesting. At this crucial point during the crisis, management hierarchies were superfluous. They’d actually become an impediment to getting things done on the ground. This is a good example of the undercommons at work and the reason why universities still have a heartbeat despite all of the very dark business suits trying to run the show. The commons is where the lifeblood of the institution still comes from. It’s a shame that it flitted away once the situation stabilised during the pandemic, as we had the university in our hands there for six months. That now seems to have disappeared. The senior executives of the neoliberal university certainly didn’t let a good crisis go to waste. But the point is, perhaps more importantly, that we did. Anyways, the key idea about the undercommons is self-management. It begs the question of whether we really need these tall and mushrooming hierarchies. Probably not is my guess. All of this is linked to the state as well, government policy related to funding streams, accreditation agencies, ‘research excellent exercises’ and so forth. Every critique of the neoliberal university needs a robust theory of the capitalist state as well.

JR: Earlier, you were actually making a cross-reference to Scandinavian universities that they seem to do things a little bit better than other countries within all the gloom and doom? Are there actually any encouraging examples of countries that manage higher education relatively well, or universities that do things better than others?

PF: It’s a bit of a cliché to say, ‘oh Scandinavia’, because it’s been pretty heavily hit by the ideology of neoclassical economics too, but perhaps not to the same extent as the UK, the U.S. and countries that have followed this path. Finland has a pretty interesting model, as do parts of Canada, particularly Quebec, although things are changing rapidly there too. Germany is quite an interesting case in the way in which they run their institutions. And you have some countries where senior executives are elected from peers. But most of the Western world has really screwed up their

university systems, to be honest. Perhaps it’s better to look to non-western countries for inspiration in terms of your question.

JR: I’ve been out of Germany for way too long. My impression is also that it’s not quite as bad as in the UK and some other countries. But there is maybe the same trend and maybe Germany is just a couple of years behind that trend. That’s my concern.

PF: You’re probably right.

JR: Our next question is a bit of a biographical question, I hope you don’t mind and it’s not too intrusive a question. In *The death of homo economicus*, you briefly refer to your working-class background and narrate a surreal encounter at the unemployment office in Dunedin (New Zealand) in 1991 (Fleming, 2017, p. 146). Could you please tell us a little more about your early biography, what was your schooling, childhood and youth like and what made you study the subjects that you offered at University? How did your own educational experience influence your own views on teaching and learning?

PF: I think it probably did. That encounter at the unemployment office, I had forgotten I’d written about that, it was really awful. New Zealand had lurched from this kind of social democracy, which had its own problems – but social-democratic problems – to this right-wing ‘experiment’. That was the terminology used by U.S. neoclassical economists who watched with glee from a distance. ‘Let’s fully marketise and commercialise everyday life from top to bottom in the span of like four or five years’. Roger Douglas was the Minister of Finance in New Zealand, and he was a big proponent of neoliberalism in full bloom.

My father was a school teacher and the headmaster, but his father was a coal miner. I was the first in my family to graduate from university. My father was also an activist for the Labour Party in the 1970s. It was all very weird. He was quite a left-wing guy, but the Labour Party of course were the main vehicle for the neoliberalisation of New Zealand in the 1980s, as was the case in other countries as well. The Labour Party were involved in some horrible class betrayal basically. But my father died very young, so I don’t think he got to see most of it. My mother was a housewife, so we ended up on welfare and, and then I’d become a bit of a musician.

JR: Oh really?

PF: Yeah. I found myself unemployed, like thousands and thousands of other 20-year olds and went into the unemployment office. And the guy was basically a drill sergeant with a tie. He hated unemployed people and so I guess was suited to the position. I told him that I didn’t really want to work at McDonalds. And he goes right there to cut off my dole. ‘You’re on your own’.

I got organised and went to university. And then just managed to do scholarships through to my PhD, and was exposed to structural Marxism from my third-year undergrad. And that’s really when I got turned on intellectually. This

unlocked the world for me and made sense. I had some great teachers from the U.S. who were based in Dunedin at University of Otago, and they were talking about world systems theory, Althusser and theories of the state — along with the mainstream stuff of course

JR: You studied largely economics?

PF: It was a different setup back then in New Zealand, it was like social sciences. So you'd have a bit of business, you'd have a bit of economics, you'd have a bit of everything. There was no business school then – they're a recent invention outside of the US.

JR: May I ask what kind of music you made?

PF: It was Ska actually, and Reggae.

JR: Something like Madness or The Specials?

PF: With a little bit of hip hop, yeah.

JR: Fantastic. The next question is about your international experience. You have taught at Cambridge University, Queen Mary University of London, Cass Business School, and currently at UTS [University of Sydney Technology]. How has this teaching in different countries, and giving presentations in many different countries, shaped your view of the world and that of higher education?

PF: I guess it's opened my eyes to the spirit of a model – the model that is the topic in the book, and that model has replicated itself in all of the countries in which I've lived and worked in and, and also quickly, as these models have spread quickly. When I first started at Cambridge, nearly 20 years ago, I was told, 'do not worry about publishing for the next few years, you've just finished your PhD, you must be tired, take a rest and read'. [Everybody laughs.]

JR: How nice!

PF: That may have been indicative of Cambridge rather than other institutions. But even at Cambridge now, you wouldn't hear that happen, right? So the pressures have changed a lot over the last 15 years or so. And as I said, it has happened really quickly. I wasn't in the previous system, but I could see echoes or vestiges of the previous system when I started out as an academic. All of those metrics and the things that we're talking about weren't as strident as they are today. Coming into this today as a junior lecturer, it must be just so difficult. I don't think I could do it. To be honest, I think I'd fail to hit my targets!

JR: I very much doubt that. There is much focus on student employability these days. This can be related to your books on work – *The mythology of work* (2015) and *Resisting work* (2014). If one were forced to summarise the bulk of your vast academic output in a few words, would it be fair to say that it has focused on the crisis of work?

PF: I think you're right: the crisis of work has been a defining feature of Western capitalism for some time. And weirdly, that crisis has been normalised or institutionalised. A new

normal. That has been a real interest in most of my research, especially how work is no longer about manual or cognitive outputs, but has morphed into the ceremonial ritual detached from anything meaningful or useful to society. Also, with the help of technology, it has become something that follows us around like an evil twin. Existential almost. Linking these things – which most of us can relate to on a personal level – to changes in the political economy has been my goal.

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JR: You appear to be a very hard worker yourself, your academic and journalistic (for The Guardian and the BBC) output is extremely prolific. Is this a 'contradiction', is this self-exploitation or is writing a joyous – or necessary – activity for you?

PF: I think it is fear of death basically. [Everybody laughs.] Because that's the only thing that gets us going in the end. Time is running out. The clock is ticking. And then it's infinite black with no return. So try to leave some positive traces. I guess I'm also a consummate auto-exploiter [laughter]. I don't find it particularly enjoyable, to be honest, writing books, I don't like the person I become. And, I don't like being that focused on something for a long period, it does some weird things to you. I find it very unnatural. But something that obviously you have to do, I feel, to get a story across.

JR: I was reading in *The mythology of work* that you were saying that book-writing is "an unpleasant and laborious affair" and that you refer to your "study space at home as the 'torture chamber'" (Fleming, 2015, p. 190). [Laughter] So that would also be confirmed by you just now.

PF: I always think that writing is a good excuse to read. Reading I really enjoy. If all I had to do to be an academic was reading! 'You don't have to write, just read', it'd be lovely, as reading is something I really enjoy.

JR: But at the same time, you seem to be an incredibly fast writer. In *The worst is yet to come* (2018, p. 114), you say that you wrote most of the book over a three-week period. Any advice on how to hone one's writing skills?

PF: I think that everyone's got their own style and unfortunately, I'm a binge writer. Hence my complaints

earlier about enjoyment. I don't think that's a particularly productive way of writing, where you just shut off everything and you get it done in an intense period of time. Probably a more healthy way of approaching writing would be putting in your two hours every morning. I've tried that, but I find it didn't work for me. I like to see an end in the foreseeable future. There's no trick or special technique, it's just getting it done. But to work that quick for me, you have to make sure you're prepared. And to do a lot of reading beforehand and just know your stuff. And I take loads of notes, with a pen and paper, never on a computer. That's the part that takes a long time. Once the argument is formulated, then you can get it down pretty quickly. And it tends to write itself after a certain period. But I don't know many people that enjoy writing. There may be some. It is therapeutic to a certain extent I guess. But it is a difficult, very unnatural thing for humans to do.

JR: But the fact that you're also writing for The Guardian, for instance, I think shows that you try to reach out to a larger audience, and I would say that can also be seen in at least some of your books which are not typically academic perhaps. And I mean that as a compliment obviously.

PF: Thank you! Now that's definitely some conscious thing. I'm not particularly against very jargon-orientated books. In fact, I read a lot of books like that and enjoy them. But as for my writing, I do want to have a bit of a wider audience. Even then, I guess *Dark academia* is still not exactly a breeze to read [laughter]. I don't write for The Guardian anymore but I did for a while, and you get a wider audience or a wider group of people to communicate with which is nice, but ultimately unfulfilling as a medium.

JR: The next question is a really big picture question. At the end of *The death of homo economicus* (2017, p. 268), you write: "The growing winter of a wasted world, a vapid monoculture of nothingness, is encircling us as we speak... For the future to begin again and history to be made, one has to be correctly poised. Be ready. And therein lies the most important question: will we ever be *worthy* of that history, still yet to come, but certainly demanding a response from us very soon". You wrote this four years ago. May we ask what are your current thoughts on this?

PF: I'm reading a lot of Sartre at the moment – after his famous turn to Marx, although he was really an anarchist struggling with Marx. And he writes in 'Problem of method' (Sartre, 1957), it's about having the right way to look at the world that matters. If you don't have a good method, then you're not going to see anything. I guess it goes back to the old idea of being able to see even the smallest changes as an echo of something coming down the line, like [Walter] Benjamin was talking about. This idea has an intellectual history that I find really interesting, but maybe a little bit apocalyptic in that sense [laughs]. I'm not too sure if I'd subscribe to the apocalypse quite as I did when I was writing that book. Is that how it ends? I don't remember?

JR: It is.

PF: I think the apocalypse will be very disappointing. [laughter] It won't be as colourful as that.

JR: So we're almost at the end of my barrage of questions. And thank you so much for humouring us.

PF: No worries. Thanks for those questions! It's really interesting to discuss those issues.

JR: Could you please tell us about your future projects? You were saying you don't particularly enjoy writing books, but of course from our own selfish interests, we hope that you will continue writing.

PF: I'm working on a couple of things. I'm working on a couple of articles on Jean-Paul Sartre, the Critique of dialectical reason (Sartre, 1960), which is a difficult book to get to grips with, but I'm finding it very fascinating. And I'm writing on, in particular, his theory of organisations and resistance. I think it is really interesting what he has to say. And also, I've got a book proposal that's under scrutiny at Bloomsbury. It is with a good friend of mine in New Zealand, and that's going to be fun to write if they like the proposal. But it's going to be a bit different. It's going to be a kind of 'Rules for radicals', not quite self-help, but in that genre. And it'll be written with a co-author, which I haven't done for years. It'll be either great or awful. You know what it's like when you're writing with other people? And I've just finished another piece on the university. That's for an online open access journal *Emancipations* (Fleming, 2021b). So I don't know if you've come across this journal, that's going to be an inaugural issue. James Chamberlain and Albenaz Azmanova are the editors of that. So that's promising to be a really interesting journal. I've really enjoyed writing that piece. And so they're the main things that I'm working on at the moment.

JR: Is there anything else that you would like to talk about below?

PF: No, I think that's cool. Thanks for that. It's a bit of a blast from the past with the other books, which is nice and it's cool. Thank you very much for inviting me to chat with you both and let me know if there's anything else I can do.

JR: Thank you so much.

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Educational Technology Review: Bringing people and ideas together with 'Padlet'

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Introduction

"You are beautiful"

With embedded messages like these, combined with its simplicity and versatility, Padlet (Padlet.com) is a joy to use. Padlet is a simple to create, simple to use and easy to collaboratively maintain platform. It allows the sharing of information and/or conducting conversations easily using posts, reactions and comments. The purpose of this review is to highlight the utility of Padlet for students and teachers. According to Mehta et al., (2021) Padlet "is an interactive platform used for collaborative learning". Being web-based, it is useful for creating online virtual 'walls', or pin boards for sharing relevant content in the form of posts. Some of our teachers in our undergraduate and postgraduate provision in our university have been using Padlet recently and share the insights below:

- "I love Padlet, and I use it all the time. I use it for introductions, recording group's ideas during class, for students to answer questions to stimuli, for assessment and for brainstorming and collating ideas when collaborating with my colleagues" (Dr Kelly Shoecraft).
- "Padlets are great for enabling students to become a resource for each other. They share personal perspectives on big questions ... make links between content and their life ... The variety of options keeps them engaged... in a safe and constructive environment" (Dr Ursula Kellett).

Engagement and group work

It used to be challenging to get students to engage with discussion boards or to ask questions in lectures, but students seem to engage more readily with Padlet. As an easily accessible platform, Padlet is useful in classes and for

self-directed learning situations to help students interact synchronously or asynchronously with content, and feel connected to, their peers (Sætra, 2021; Shoecraft, 2020). The option of anonymity of posting means students are more likely to engage (McDowell et al., 2019). Padlet is most powerful when sharing thoughts, creations, discoveries or experiences relating to the concept taught to help students socially construct new learning (Dianati et al., 2020; Kaya, 2015; Mehta et al., 2021). Teachers' presence in Padlet conversations also enhances engagement and critical thinking (Sætra, 2021; Shoecraft, 2020) This includes starting the conversation with anonymous posts to set the tone. Padlet has been successfully used in our university with small and large cohorts (>700) with positive feedback from students and teachers.

- "I liked reading others' thoughts and opinions about the topics and being able to contribute my own ideas also" (Student).
- "I loved the interactive aspects ... as we could collaborate and come up with examples together as students" (Student).

Padlet is well suited for supporting group work (Yap, 2018). Small group activity results can be recorded and reported via a shelf Padlet with one column per group, as a wall Padlet with one file post per group or each group can have their own Padlet. The authors have successfully shared group creations between 70+ groups using Padlet.

Teaching with Padlet

Padlet is a great tool for teaching. As a teacher you need to first identify your teaching purpose, then choose a Padlet from the list below to best support your needs. Many ideas for use and tutorials are available on the web. Padlet posts can include text, links, images, gifs, drawing, files or videos which display inline. Students can react to posts with likes,

votes, ratings or gradings. The background image can be an impactful introduction to the topic.

Wall

The wall padlet is the online equivalent of sticking post-it notes on a board, ordered first to last or last to first (see Figure 1).

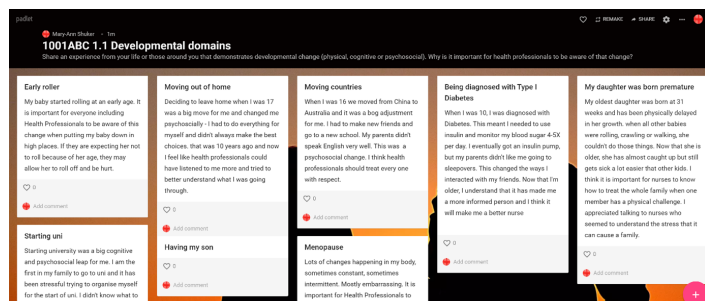


Figure 1: An example of a Wall Padlet.

Grid

The Grid Padlet is similar to the wall but each row is aligned with the longest post in the row (see Figure 2). You can rearrange the posts to any order, useful after brainstorming or developing storyboards.

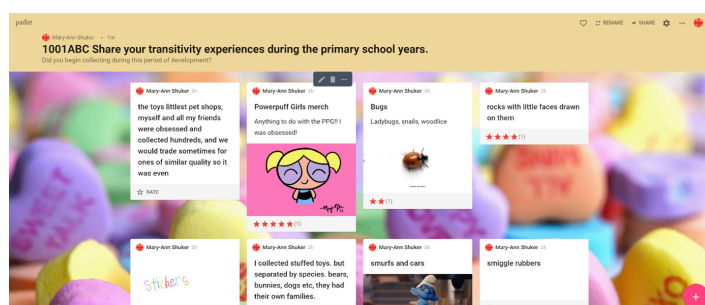


Figure 2: An example of a Grid padlet.

Stream

A single stream of posts blog-style (see Figure 3).

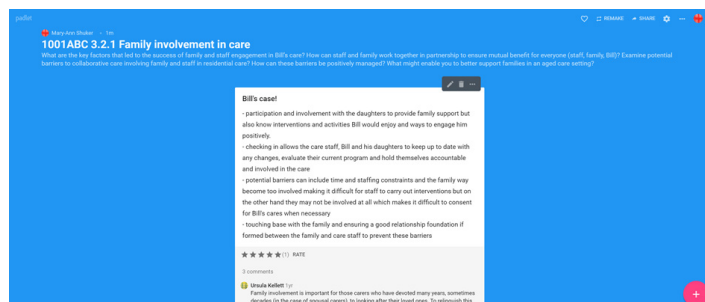


Figure 3: An example of a Stream padlet.

Shelf

Column style, you can use one column per student group or one column per question posed (see Figure 4). Students can detach a column and arrow through the posts.

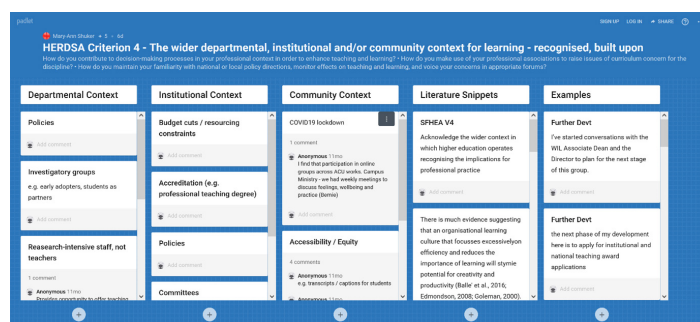


Figure 4: An example of a Shelf padlet.

Map

Useful for introductions or mapping the geographical occurrence of a teaching concept (see Figure 5). Localized maps are displayed.

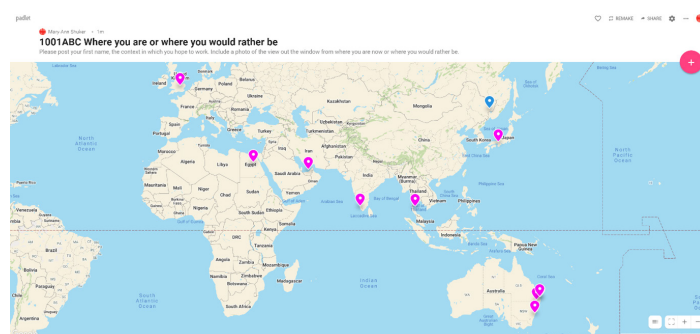


Figure 5: An example of a Map padlet.

Canvas

Canvas is useful for brainstorming then sorting ideas, or for drawing mind maps, or any activity that needs to show relationships between posts (see Figure 6). It is also useful if you want control over the placement of content.

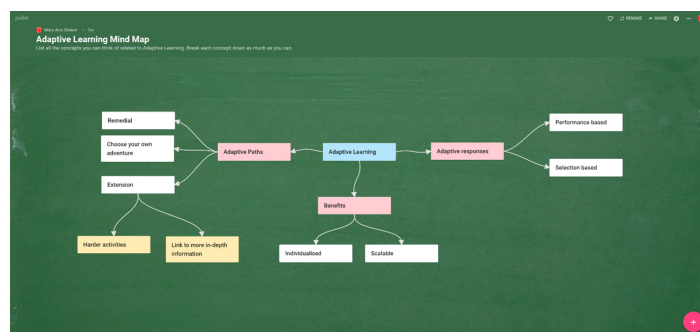


Figure 6: An example of a Canvas padlet.

Timeline

The Timeline Padlet can be used for representing a chronological timeline or any sequence of events (see Figure 7).

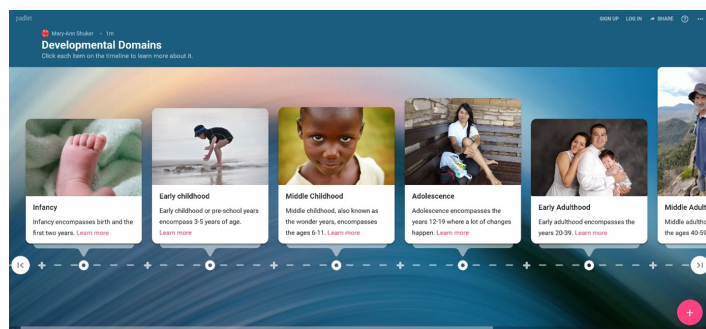


Figure 7: An example of a Timeline padlet.

Administration

Multiple collaborators can administer a Padlet. Visitor permissions include read, write or edit. Privacy settings include *Secret* (default); *Private* (direct invitation only); *Password-protected*; or *Organisation wide* for an enterprise licence. Deni and Zainal (2018) found passwords can be a barrier to accessibility so use them carefully.

You are able to share your Padlet as a link, QR code, LTI link or embed in your site, email or Google Classroom (see Figure 8). You can ask students to scan QR Codes across campus (or your course site), and post photos or information related to questions posed, e.g. "Your recommendation from the food hall?", "Share a study tip used successfully". Alternatively, a QR code can be used in a hybrid class so face-to-face and online students can participate synchronously.

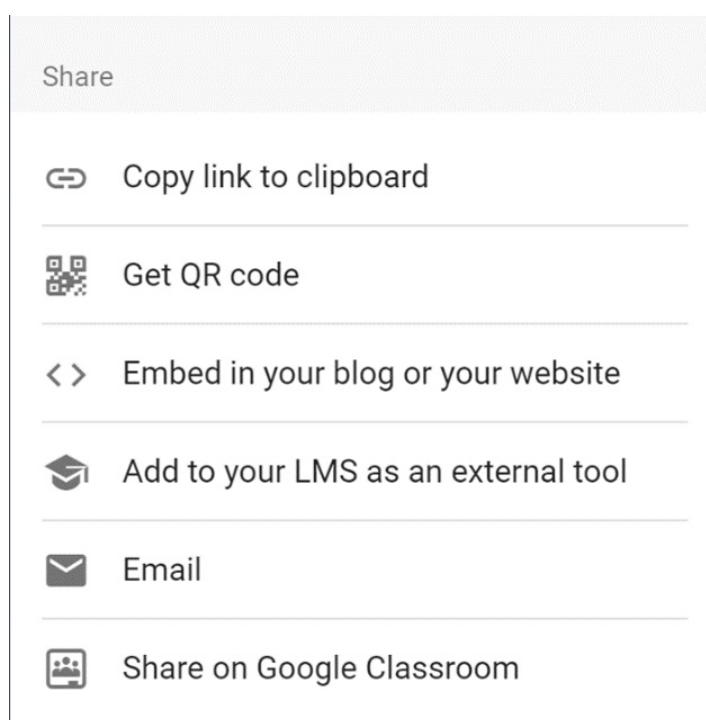


Figure 8: Padlet sharing options.

Padlet offers anonymity, attribution, moderation and/or a profanity filter. To post anonymously, you need to log out of Padlet in the browser you use to access a Padlet. Moderated posts display "Awaiting Approval" initially. Collaborators with Edit or Administer permission can *Approve* and *Delete* posts (see Figure 9).

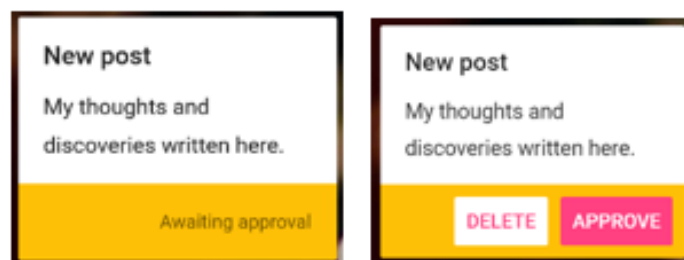


Figure 9: Student and staff view of pre-moderated posts.

Students and staff can export an image, PDF, csv or spreadsheet or print the Padlet (see Figure 10). The export also includes the first page of attached documents. The teacher can keep Padlet posts for reuse, clear the Padlets or Remake (copy) a Padlet. When you remake a Padlet, visitors must be given permission to write.

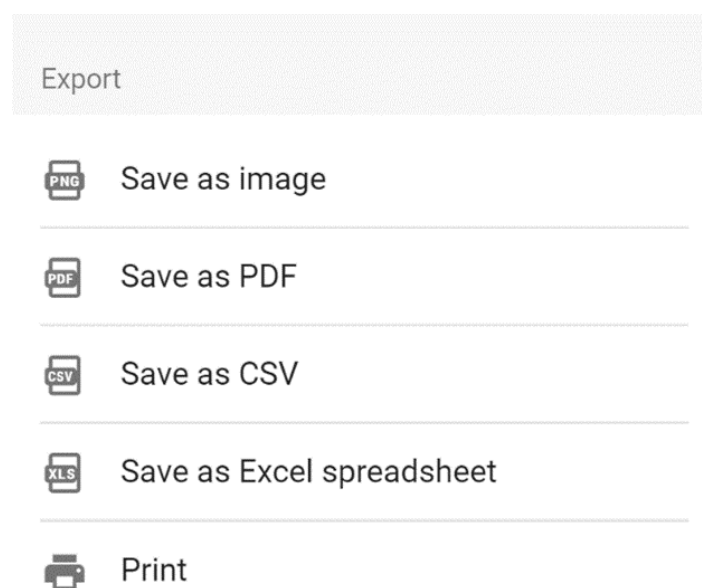


Figure 10: Export, save and print options.

Learning analytics include counts of posts, comments, reactions, and contributors (see Figure 11).

Posts	47
Comments	21
Reactions	40
Contributors	60

Figure 11: Padlet analytics.

Limitations

- Padlet is working towards compliance with accessibility standards (WCAG 2.1 level AA). Until then, students need reminding to add image descriptions in the text of their post.
- Padlet was initially free, then in 2018 it was priced at AUS\$1500/institution, now it is AUS\$2500/500 users. Take this into consideration when planning your enterprise budget.
- There is no visual indication of new posts unless moderated. You can receive notifications for each new post, but in a large cohort this may not be desirable. You can use the like reaction as a workaround – no like means not read yet.
- Animated gifs add interest but may trigger students who suffer from sensory hypersensitivity – set rules for engagement or *Export* a flat version if required.
- Dianati et al. (2020) reported students sometimes feel overwhelmed by the quantity of posts and disengage. A way around this is to ask students to like existing posts that say what they want to say rather than repost. Alternatively make multiple padlets rather than one heavily posted padlet.

Summary

Padlet provides the opportunity to bring people and ideas together face to face or remotely, synchronously or asynchronously. Its ease of use in a complex teaching environment makes it a highly useful tool for student and teacher engagement.

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Teaching cryptocurrencies as cryptocultures

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Abstract

In this paper, I discuss an approach to teaching cryptocurrencies as cryptocultures. Cryptocurrencies are traditionally approached as technical or financial phenomena, but I argue that for students outside those specialist areas, a cultural approach will orient them better. I encourage teachers to first focus on situating students in a *place*, a shared public commons inhabited by the community of a cryptocurrency. I offer a way to model this place using a hash, bash, cash model of decentralised organisation. I build on this sense of place by then revealing to students the cultural *context* of a cryptocurrency. The context is comprised of the social imaginaries and the overarching goal animating a cryptocurrency culture. I show how this cryptocultural approach can be used to analyse different cryptocultures through an examination of the competing environmental imaginaries of Bitcoin and Ethereum.

Keywords: Bitcoin; cryptocultures; cryptocurrency; Ethereum.

Introduction

Teaching cryptocurrencies is *hard*. It is a discipline extending across technical, financial, and social scientific fields. It is also relatively new and developing at a rapid pace. I started teaching cryptocurrencies in 2016 to large classes and usually toward the tail-end of introductory modules within a business school context. Within two years, demand was high enough that I was teaching an undergraduate survey module and postgraduate seminar on cryptocurrencies. While I wish this was related to my teaching style, the reality is the topic is extremely popular among the younger demographic. This places the lecturer in an interesting position because not only is the topic multi-disciplinary, but the students know it very well themselves. On the plus side, it means students are energised about the topic in a manner not always common to the rather nuts-and-bolts nature of my subject area, the unfashionably titled Management Information Systems.

In what follows, I have attempted to distil the lessons from several years teaching a complex but popular topic liable to become a standard in many University degrees. My advice is perhaps unexpected: teach cryptocurrencies not as technical or financial phenomena unless you are specifically teaching the *practicalities* of them to computer science or finance students. To everyone else, teach cryptocurrencies as cultural phenomena because this is what they are in reality. Cryptocurrencies are cryptocultures. If you want to understand cryptocurrencies holistically, then you must look at the cultural characteristics they exhibit and then how those characteristics inform economic and technological decisions. We have come in our societies to prioritise *homo economicus*, the rational-technical decision maker, but this character is nowhere to be found in cryptocurrency, except in an idealised cultural form among some communities.

I don't discount – of course – the very central roles the financial and the technical play in cryptocurrencies, but I do protest how they overshadow the cultural dimensions. And I protest because a strictly technical or strictly financial explanation leaves the student stranded and confused. In contrast, a cultural understanding grounds them in an understanding where each cryptocurrency represents a specific culture to learn about, the same way they might visit Paris and learn a little bit about the French, not what holds the Eiffel Tower up. It's possible some specialist students want to know the latter, but more likely most will want to gain the former type of knowledge.

Literature review

In my teaching, I first introduce the concept of the commons (Ostrom, 2015) and how each cryptocurrency has a territory. At first, I explain this in the literal sense of the network and the blockchain (Kavanagh & Ennis, 2020), but in time I present cryptocurrencies as located within some bounded shared public space that each member has any kind of investment in – moral, social, political, psychological, financial – and then we are situated in a *place*.

I then introduce Taylor's (2002) understanding of modern social imaginaries. The concept of social imaginaries is quite helpful because it hardens the more nebulous one of culture. Taylor explains:

Our social imaginary at any given time is complex. It incorporates a sense of the normal expectations that we have of one another, the kind of common understanding which enables us to carry out the collective practices that make up our social life. This incorporates some sense of how we all fit together in carrying out the common practice (2002, p. 106).

Our social imaginary names the background set of assumptions, responsibilities, and understanding that inform our actions in the social world. We don't consciously think of them all the time, but we can reflect on them and they are always in the process of evolution and transformation. We tend not to notice them until they breakdown as Heidegger (1962) and later Star & Ruhleder (1996) demonstrate. I typically present the imaginary as an *ideal* of the cryptocurrency's society. It is how the community imagines or wishes to see itself and that they strive toward, but it is not necessarily always adhered to. For example, we might aspire to justice and equality, but fail to meet it in practice, without that failure negating the central role justice has in our social imaginaries. The same happens in cryptocurrencies around ideals such as decentralisation or censorship resistance (Swartz, 2018; Schneider, 2019). This gets us the *context*.

With the commons as our place and the social imaginary as our context we can always come back to what the shared space and beliefs a cryptocurrency has are. Once set in the minds of the students I drop the -currency and replace it with -culture.

Cryptocultures: An overview

I define a cryptoculture as the *shared commons* and social imaginary associated with a cryptocurrency. I illustrate the shared commons using my hash, bash, cash model of decentralised organisation.

Hash refers to the blockchain. Blockchains are complicated, but in its simplest form refers to a distributed secure record-keeping system. In the famous case of Bitcoin, the blockchain tracks a unit of account, bitcoins, on a ledger. It is extremely difficult and expensive to undermine the veracity of the Bitcoin blockchain and this renders it a shared source of truth for the Bitcoin community (Wamba et al., 2020). In the case of Ethereum, Bitcoin's closest competitor, the blockchain tracks the state of a shared world computer (Chen, 2018).

Bash refers to the social community. Most cryptocurrencies have a vibrant core community built around social media platforms (Reddit, Twitter, Telegram, Discord) or discussion forums. In these public forums different parts of the community socialise. This can encompass everything from

celebrating victories to engaging in drama and gossip.

Cash refers to the micro-economy surrounding a cryptocurrency. Most cryptocurrencies are either themselves primarily a currency like in Bitcoin or have a functional currency, like in Ethereum. The micro-economy is constituted by the currency or token, but also the financial activities associated with them such as trading and entrepreneurship.

To illustrate the shared *social imaginary*, I outline the imaginaries animating the community plus their goal. This usually requires overcoming the hurdle that not all cryptocurrency is the same monolithic culture, especially Bitcoin's. It is true you must first introduce Bitcoin because it's the original, but then you must ensure Bitcoin assumptions are not unconsciously carried over into other projects.

Here are two examples of shared social imaginaries found in cryptoculture: Bitcoin and Ethereum. These are the two foundational imaginaries to grasp in a pedagogical context.

Bitcoin is infused with two imaginaries originally and they both complement one another and generate an underlying tension. These are a digital privacy activist streak known as cypherpunk and a libertarian one known as crypto-anarchism (Swartz, 2018). The cypherpunks envision Bitcoin as an infrastructural project designed to implement a censorship-resistant and pseudonymous digital cash. The crypto-anarchists see Bitcoin as non-state money that cannot be manipulated by central banks because the supply is limited by the code. They are united in their opposition to central authorities and the concentration of power in the state and its various wings (Karlstrøm, 2014). Their goal is to replace state money with non-state money (Dodd, 2018). It is quite important to this imaginary that Bitcoin's code is not changed or interfered with too much because the "neutrality" of the codebase is the alternative to the corrupted human institutions they want to replace.

Once the new student comes to understand these imaginaries – cypherpunk, crypto-anarchism – and their shared goal of non-state money, then the counter-intuitive decisions – to outsiders – of the Bitcoin community become much easier to understand, as we'll see in a moment.

Ethereum is infused with a different set of imaginaries. The dominant imaginaries of the Ethereum community are a hacker-engineer mindset and a public goods philosophy (Brekke, 2021; Brody & Couture, 2021). The hacker-engineers envision Ethereum as a shared world computer that is both unstoppable and permissionless (open to anyone to use). The public goods imaginary has emerged recently to add into this vision a commitment to building Ethereum in a fair manner that does not allow oligarchic forces to dominate the 'commons' (the Ethereum blockchain and ecosystem) (Buterin et al., 2019).

The goal is to replace the centralised networks of the current Internet, usually called web2, with the decentralised 'network autonomy' of web3 (Brekke, 2021, p. 651). The same point holds here about understanding the decision-making process of Ethereans. Whenever Ethereans take action, it is almost always motivated by a sense of hacker-

engineer commitment to network autonomy and public goods fairness.

Armed with these two sample cryptocultures – with their shared commons and social imaginaries – let's put a cryptocultural approach to the test by examining one of the most common points of confusion for students (and others): why does Bitcoin cause so much environmental damage and why won't they address the problem?

Bitcoin, mining, and the environment

Many students new to cryptocurrency are sympathetic to Bitcoin at first. They are often already somewhat interested in cryptocurrency and then over the course of the opening lectures find its political critique of the inherited financial system intriguing. However, at some point, or perhaps already primed in this way, they are forced to address the environmental impact of Bitcoin mining. In 2021, you will be hard-pressed to find a young student who will hand-waive *this* particular issue away. With a cryptocultural analysis, I think it is possible to show why Bitcoin culture is conservative on the matter and then also to show how Ethereum is more liberal on it, since these have been our examples so far.

First, I will explain why Bitcoin's carbon footprint is as large as Sri Lanka's/Jordan's (Stoll et al., 2019). Then I will explain why Bitcoin *culture* will not address this. I will turn to *why* Ethereum *culture* is able to address it.

The Bitcoin shared commons comprises a software codebase that enacts a shared digital ledger (hash), a social community that discusses these on discussion forums, Twitter, and Reddit (bash) and a micro-economy involving the trading of bitcoins (cash).

The Bitcoin social imaginaries are, we recall, partly cypherpunk and partly crypto-anarchist. Both see the ultimate goal of Bitcoin as non-state or apolitical money. To the cypherpunks, this means Bitcoin is a neutral piece of open source software that anyone can inspect and that a network of volunteers maintains, but does not radically alter (De Filippi & Loveluck, 2016).

For them, Bitcoin's selling point is the "trustless" nature of the software codebase. You don't have to trust people (much), but just trust the code and how it structures Bitcoin's processes.

Now, what Bitcoin encodes is a decentralised ledger system and this is the part that interests the crypto-anarchists. I'll return to them soon, but we need a quick detour into Bitcoin mining to make sense of the environmental situation.

Digital gold

Built into the Bitcoin software is a mechanism for reaching consensus in the absence of a central authority (Böhme et al., 2015). Since Bitcoin is decentralised it is up to the community to collaborate to update who owns what bitcoins. Instead of a central authority – the bank, a payment processor –

maintaining a digital currency by directly updating accounts, in Bitcoin the ledger is updated by a network of "miners" distributed all across the world (Xu et al., 2020).

Each time transactions happen these miners collect them and bundle them into a block, representing the emerging state of ownership, but no single miner can unilaterally add to the historical chain (the blockchain) (Vidan & Lehdonvirta, 2019). Instead, each miner races to find an inherited puzzle solution using computational resources, pointing their hardware at the problem. Eventually one miner finds the solution and wins. They add the next block and get a reward of bitcoins. Then everyone starts building the next block. This way no one entity, except using extreme tactics, determines the history, but instead the distributed network of miners decides (Easley et al., 2019).

Crucially, this system involves a race to find a puzzle solution and this race sees miners expend computational resources. The puzzle involves hashing data until you get the right output (Maurer et al., 2013). In the beginning, mining was undertaken by everyone using their home computers, using their Central Processing Unit (CPU). However, the more computational power you have the better your chances of winning the puzzle. Nakamoto overlooked this, a rare oversight, but as soon as Bitcoin became valuable, users began an computational arms race (Swartz, 2018). It started with video game cards, Graphics Processing Units (GPU), and eventually specialist hardware known as Application Specific Integrated Circuits (ASICs).

As it stands, Bitcoin mining has become an industrial affair and vast warehouses point thousands of ASIC machines at the construction of blocks and the race to find the puzzle solution (Xu et al., 2020). Estimates as to how much energy this process involves vary, but recent studies suggest energy usage equivalent to the nation states of Sri Lanka or Jordan (Stoll et al., 2019).

Crypto-anarchists see the computational expenditure behind mining as an important answer to the question 'where do bitcoins get their value?' Like how physical gold is difficult to extract from the Earth, Bitcoin mining operations must work hard to earn bitcoins because the competition from other miners is so fierce.

Add into the mix that there is an in-built hard cap of 21 million bitcoins that will ever exist and the idea that we might alter this codebase suddenly becomes *taboo* (Corradi & Höfner, 2018). It is worth noting that Nakamoto left Bitcoin in December 2010 and has had no involvement since, and this means there is no way to determine what his/her/their vision was and whether this hard line on unchanging code reflects his/her/their view.

The curious aspect is that Bitcoin mining is not the only option for maintaining a blockchain and Bitcoin could conceivably transition to another with lesser environmental impact. Let's look at how this is happening in its closest competitor, Ethereum, and then later we'll return to why Bitcoin *culture* won't follow this path. What I am driving at here is that it is Bitcoin's specific cultural imaginaries that preclude the

transition and not technical or economic barriers.

Ethereum, staking, and the environment

The Ethereum shared commons comprised a software codebase that enacts a shared world computer (hash), a social community that discusses this code and ledger on forums, Discord, and Telegram (bash) and a micro-economy centred around that ledger involving the trading of Ether and tokens built on the Ethereum blockchain (cash).

The Ethereum community is engaged in a prefigurative politics (Reinecke, 2018) where the hacker-engineers slowly introduce analogues of declining state or social functions, but in a decentralised manner. For example, many groups within Ethereum organise as digital cooperatives called Decentralised Autonomous Organisations (DAOs) (Wright & Law, 2021). These surrogate organisations act as a 'third place' or surrogate for the declining presence of shared social spaces (Oldenburg, 1999).

Hacker-engineers are infused with a public goods orientation where it is crucial to build the future they want to see in the here and now (Brekke, 2021). This means avoiding the re-creation of the problems of the inherited financial system, but also, notably, the unfairness they feel exists in Bitcoin's hyper-individualistic crypto-anarchist streak.

Ethereum is not designed as non-state or apolitical money. It has a currency, called Ether, but this currency is functional and used to power small applications on Ethereum's distributed world computer (Bartoletti, 2020). Thus, while economic concerns are important, they don't dominate everything and can be overridden if it serves the public good. Such as, for example, in response to the climate crisis.

The competing environmental imaginaries of Bitcoin and Ethereum

Ethereum has long stated its intent to switch from mining to a different consensus mechanism known as staking (Saleh, 2021). In staking, there are no mining machines drawing energy to fuel the race to find a puzzle solution. Instead, users agree to produce blocks (updating the ledger), but also put a substantial stake of a cryptocurrency that they will lose if they misbehave (Roşu & Saleh, 2021).

Staking is uncontroversial in the Ethereum cryptoculture because, unlike Bitcoin, the digital gold mining motif was never essential to Ethereum's self-image. Bitcoin's *raison d'être* is to be an unchangeable and unbendable digital gold that will not bend to any whims. This is not some incidental feature of Bitcoin, but an intrinsic part of what makes Bitcoin what it is. Ethereum can change its consensus mechanism and no cultural taboo is broken.

This is why, the cultural reason, Bitcoin users reject outright demands to change from mining to staking, despite the environmental impact. It is to ask Bitcoin to stop *being* Bitcoin. In other words, if you examine Bitcoin in a void – focusing on financial and technical concerns – then the

problem seems easily solvable and often my students find it hard to comprehend, at first, why the answer to 'stop using so much energy to mine bitcoins' is 'we will never stop mining bitcoins.'

In Ethereum, this cultural barrier is absent and this is why its users are comfortable and supportive of efforts to transition to staking. The question has nothing to do with technical limitations and financial motivations.

Conclusion

In this paper, I have introduced a means to teach cryptocurrencies to students at undergraduate and postgraduate level in a University context. Against type, I have argued it is best to teach the topic from a cultural rather than financial or technical perspective. I suggest first to situate the student in *place*, in a shared public commons along the lines of my hash, bash, cash model of decentralised organisation. Hash refers to the blockchain, bash refers to the social media relating to that blockchain, and cash refers to the micro-economy built upon it.

I then provide students with the *context*, the shared social imaginary (or, as we have seen, more typically, the many imaginaries). The imaginaries are the ideals of the community plus the goal of the community, such as Bitcoin's desire to be an apolitical form of money. Or Ethereum's decentralised analogues to state functions.

Armed with a sense of place and a context, the student can then examine each cryptoculture on its own terms and in light of its unique properties. This enables the student to analyse the decision-making of each respective community in line with some guiding assumptions about what that community values. Of course, as time progresses, the student will come to see the deviations, the nuances, the complications, but as a pedagogical launchpad it is, I believe, the fastest path I have found from feeling overwhelmed by cryptocurrency to feeling well-equipped to understand it.

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'Covid batch': A case study on unethical assessment practices in selected higher educational institutions in Assam and West Bengal, India

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Abstract

The evolution of Covid-19 in India has generated biomedical crises and various crises in teaching and learning processes. The lack of consistency in taking classes, the unsystematic methods of assessing the students, the mockery of the students as 'Covid batch', and the career insecurities of the students have transformed the knowledge scape of the students. During the virtual interaction sessions with the participants, the authors felt that the students' approach towards virtual learning had been infected with insecurities, insincerities, and the fear of bleak futures. These challenges invite us to critically re-investigate and re-address the unethical evaluation practices within a broader framework of the factors that contribute to the unequal systems of knowledge production within the higher educational institutions in India. Based on these arguments, the article discusses the various factors that provoke the students to indulge in such unethical practices during Covid-19; the consequences they encounter; and the possible methods to overcome such challenges. The discussions in this article are based on a case study conducted with six postgraduate students from different higher educational institutions in West Bengal and Assam.

Keywords: Assam; assessment; Covid-19; ethics; India; knowledge scape; open-book examinations; West Bengal.

Introduction and background

The thematic arguments in this article have emerged from the teaching and learning experiences of the authors. While interacting with their respective students, the authors realised that they are suffering from various psychological crises. The authors also learned how the educational institutions are systematically contributing to the sufferings. During the interactions, the students shared how the academically regressive approach of the educational institutions makes the students feel unmotivated and insecure. This experience provoked the authors to conduct further research on this issue, which shaped this brief article.

The eruption of the pandemic of Covid-19 in India has led to the closure of physical modes of learning, the introduction of online teaching, and the organisation of online examinations. Such transformations have generated new forms of social, economic, and infrastructural challenges on the one hand and have aggravated the already existing pedagogical and curricular difficulties on the other. This article discusses unethical assessment practices that several higher educational institutions have adopted in Assam (a state located in Northeastern India) and West Bengal (a state located in Eastern India) in India and how the unethical practices have academically victimised the students in the process.

The higher educational institutions in India have converted the written examinations that used to take place physically within the classrooms into online open-book examinations (OBEs). This shift from physical spaces into virtual spaces has led to problems like lack of student monitoring, lack of enthusiasm amongst the students, lack of socio-cultural acceptance, and many more. For instance, in several higher educational institutions in India, the students have been awarded degrees without online examinations having been ethically conducted. While conducting a case study with students from selected higher educational institutions in Assam and West Bengal, it came to light that many institutions are conducting online examinations in an open book pattern. But in the name of the open-book pattern, the students are given a fixed set of questions, which the teachers usually discuss in the classrooms. Then the students are encouraged to respond to them by referring to books and research articles. Many participants have expressed a lack of enthusiasm for online examinations because they are socio-culturally disgraced and segregated as the 'Covid batch'. Their intellectual capability and the relevance of their academic degrees are questioned. Before critically engaging with these issues and sharing the participants' perspectives, the authors would like to clarify that this article does not intend to argue that OBEs are ineffective assessment methodologies but makes an effort to unpack how the very

meaning, purpose, and the procedures of the OBEs have been distorted in the higher education institutions in India. Doubtlessly, OBEs uphold a student-centered approach to learning (Scouller & Prosser, 1994; Scouller, 1998; Gibbs & Simpson, 2004) by allowing the students to create a diverse and inclusive learning environment and enabling the students to respond to the questions creatively and critically (Brightwell et al., 2004). During the preparation, the students get the scope of consulting various sources like “textbooks, classroom notes, [and] online blogs” (Ashri & Sahoo, 2021, p. 75) and, therefore, can avoid ‘rote learning’ (Theophilides & Dionysiou, 1996; Theophilides & Koutselini, 2000). But, due to the sudden shift from physical examinations into online examinations during Covid-19, many students and teachers have failed to adapt to the new system. They did not receive any training regarding the online evaluation procedures. Also, the transition was so unexpected and rapid that a majority of the higher education institutions in the country were not prepared to accommodate this new system of teaching, learning and assessing, and train their students, faculties, and administrators.

Moreover, the rush to meet the academic responsibilities like completing syllabuses, evaluating assignments, conducting examinations and publishing results on time has been another primary concern. To cope with infrastructural crises and the rush of fulfilling academic deadlines, the students and the teachers have resorted to various unethical practices and academic dishonesty (Moralista & Oducado, 2020), like sharing question papers with the students before the examinations, informing the students about referring to particular textbooks, encouraging the students to discuss questions and answers with each other online, etc. Despite the effectiveness of OBEs, the practice of academic dishonesty in online modes of teaching, learning, and assessing is not new and has been in place even before the global evolution of Covid-19, due to varied forms of structural, infrastructural, technological, economic, geographical, topographical, and technical challenges (Ioannidou, 1997; Broyles et al., 2005; Eilertsen & Valdermo, 2000; Heijne-Penninga, 2010). During the pandemic, academic dishonesty has aggravated further, and such malpractices have drained the evaluability of the OBEs in many higher educational institutions in India. It is drastically impacting the students’ approach towards seeking degrees and building careers, as discussed in the following sections of this article.

Literature review

The arguments in this article are centrally based on a case study that the authors conducted, and the conclusions have been drawn based on the reflections made by the participants. To diversify the arguments, the authors have analysed the phenomenon of the ‘Covid batch’ within the perspective of the inequalities of the education system in India. With reference to the inequalities in the education system, some of the articles that have been consulted are those by Jha and Kishore (2020), Mody (2020), Bhatia (2021), and Nawani (2020). These articles discuss the different factors that trigger inequalities in the education system. The authors have also consulted articles by Scouller and Prosser (1994), Scouller (1998), Gibbs and Simpson (2004),

Brightwell et al. (2004), Ashri and Sahoo (2021), Theophilides and Dionysiou (1996), Theophilides and Koutselini (2000), Moralista and Oducado (2020), Ioannidou (1997), Broyles et al. (2005), Eilertsen and Valdermo (2000), and Heijne-Penninga (2010) to justify why the practice of OBEs in the higher education institutions in India during Covid-19 has been criticised in this article.

Research methods

To conduct this research, the authors have used participant interviews and snowball sampling. The participants for the case study were invited in two ways – directly by the authors and through the participants. As the authors academically belong to the field of literary studies, their case studies exclusively focus on postgraduate students (both first and second year) from the discipline of English literature. Also, the authors have invited solely postgraduate students as participants because, usually in India, after completing the postgraduate course in English literature, the students aim for different academic and research positions in various institutions in the country. As a result, they remain cautious about their technical understanding, theoretical learning, and their grades. So the sense of frustration, insecurity, and normalisation of unethical practices that the assessment system in higher educational institutions of India has generated during Covid-19 will be reflected in-depth and genuinely in the reflections of the postgraduate participants. The gender and age group of the participants have not been taken into consideration because the authors felt that these are not relevant criteria for the case study in focus.

The authors’ implementation of snowball sampling was a deliberate step. Besides inviting the participants directly, the authors also requested the participants to invite their colleagues into the case study. In this way, the participants did not feel like mere sources of data collection but could actively and collectively participate in this study as co-researchers. The question that was asked to the participants is: to what extent is the open-book assessment in the higher educational institutions ethical in nature? The question allowed the participants to express their agreements and disagreements without any prejudices.

‘Covid batch’: Stories of insecurities, insincerities and bleak futures

There were six participants – three from universities in West Bengal and three from universities in Assam. Based on the participants’ responses to the question mentioned above, the reactions have been classified into the following themes:

- a. *Lack of awareness:* With respect to the ethicality of the open-book exam system, it was found that two participants did not know how the open-book system examinations should be conducted. They believed that the open-book assessment system means that the tutors will provide questions beforehand, and the books from which they can find the answers will also be recommended. The participants felt that their only responsibility is to find out the responses from the recommended books and paraphrase them. A final year postgraduate student from the University of Calcutta in West Bengal confidently justifies:

"I think there is nothing unethical about how the university conducts the open-book examinations. Before the examination, our professors thoroughly oriented us about the open-book exam pattern we have been taught. We are acting as per the guidelines that our faculties have provided."

A first-year postgraduate student from Gauhati University in Assam echoed the same and proceeded with a deeper justification in the following way: "What is unethical about open-book assessments? Open-book means to consult a book and write [answer] the questions. And in an era of irregular and online modes of education, what can be expected more from us?"

- b. *Lack of motivation:* Besides lack of functional awareness of the open-book assessments, there is also a lack of motivation among the students with respect to the online modes of teaching, learning, and assessing. Two students feel that in whatever ways students are assessed online, transparency can never be gained. Moreover, they are consistently segregated and demoralised as the 'Covid batch' of students in society, and therefore they believe that irrespective of their grades, their hard work will remain unacknowledged. As a first-year postgraduate student from Tezpur University in Assam observes:

"Truth be told, the online examination is a hoax in the name of the examination. The whole process of this online assessment method seems like imparting informal education, which provokes me to think where lies the difference between formal and informal education? Also, being a student, whatever marks we are securing, our hard work will never be socio-culturally recognised. We also don't know if at job interviews our marks will be given any importance. Therefore, online patterns of examination have no value at all."

A final year postgraduate student from the University of Burdwan in West Bengal says:

"Online exams are a complete mockery of learning. Without library work, without physical interaction of any literary engagement, and no commitment to the exam preparation, the complete state of learning is lying in wretchedness. So, I am quite doubtful if our online assessments will ever be recognised in any research... institutions in the future."

- c. *Lack of realisation:* During the conversation, two students displayed a complete lack of realisation about the unethical ways exams are conducted. A final year student from West Bengal State University confidently defended his unethical practices of writing online exams and said:

"What is wrong in looking into the books and internet while writing examinations online? Didn't this happen even when we appeared for the exams in the physical model? More or less, everybody does so. All of a sudden, why is there so much fuss around cheating in the exams now? I believe that exams are nothing more than institutional formalities, and what matters is our knowledge. If we have that, then the ethicality and unethicality of assessment patterns do not matter".

The other final year student from Gauhati University in Assam light-heartedly shared that

"it was fun to give the examinations online because I did not have to go through the pain of studying. When classes were offline, I still was interested in attending them, but now I lost all urge to study with online classes. Even before appearing for the exams, I know that I would answer all the questions. This scenario has released the tension of examination from me."

Analysis and discussion

The reflections by the student participants reveal that the issues of lack of motivation, lack of realisation, and the lack of awareness are not momentary and exclusive to the present Covid-19 period. But it has been firmly embedded within the infrastructural frameworks of the higher education system in India over several decades. Even before the pandemic, the Indian education system suffered from these infrastructural and technical deficiencies. These deficiencies invite us to position this discourse within the framework of epistemological and ontological practices of inequalities in the Indian education system (Mody, 2020; Kishore and Jha, 2020; Nawani, 2020; Bhatia, 2021). The inequalities are driven by various cultural, technical, and infrastructural crises like poor pedagogical practices, poor student assessment patterns, irregularity in conducting classes, lack of functional transparency, etc., which many educational institutions in

India have not addressed. This is why, today, the patchwork alternatives of teaching and learning in India are failing to tackle these sudden academic crises and continue to authenticate and normalise the unethical and regressive practices of knowledge production.

Recommendations

Multiple forms of institutional policies have been written and re-written to date to address the various forms of infrastructural and pedagogical challenges in the higher educational institutions in India. Still, not much development has happened so far. Some of the possible ways in which the issues mentioned above can be addressed are:

- a. *Flexible and long-term infrastructural solutions*: it is necessary to generate flexible and long-term infrastructural solutions through developing effective policies of blended teaching and learning so that the existing challenges of the digital divide, economic divide, geographical divide, and socio-cultural divide that have been impacting the processes of teaching and learning during the pandemic can be reduced as much as possible.
- b. *Bridging the functional gap*: it is essential to bridge the gap between transformative policies and their applications through identifying the challenges within specific social, cultural, political, economic, and geographical contexts and building the policies accordingly.
- c. *Student-centric pedagogies*: The teacher-centric pedagogical patterns need to be shifted into student-centric ones by allowing the students to collaborate with their teachers as co-tutors and co-researchers within the classrooms and beyond.
- d. *Peer learning and self-learning*: Peer learning and self-learning should be encouraged amongst the students by inviting them to learn from the natural environment and connect their context-based practical experiences with the text-based theoretical knowledges.
- e. *Creative assessment techniques*: Creative assessment techniques should be promoted in the forms of paintings, sculptures, musical performances, short theatrical enactments, photo essays, scrapbooks, etc., so that the students do not feel academically burdened and can unpack their knowledge in their self-designed ways.

These possibilities need to be urgently realised and implemented by the higher educational institutions in India, and several other possibilities also need to be explored. It is high time for the education system in India to navigate ways through which long-term solutions can be put into practice and the current academic crises can be tackled effectively.

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Communicating through music: a tool for students' inspirational development

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Abstract

Showing and discussing examples of how people achieve goals can become a great source of inspiration (Piirto, 2011). Young people, especially students of different socio-cultural backgrounds, should be initiated and engaged in authentic projects and ideas. This article gives concrete reasons to K-12 and higher education stakeholders of why and how such projects should become part of curricula. This case study presents the creation of a multicultural disc in three languages (Greek, Corsican, and French) as an attempt to add to the inspirational development of students to aid teachers to achieve overall educational aims.

Keywords: Cross-cultural education; curriculum development; higher education; inspirational development; K-12 education; musical creation.

Introduction

In this paper, I analyze the journey of a musical project creation, with the purpose to show that using real examples of creative projects and producing similar ones in collaboration with students can inspire them. I examine the case of a multilingual music compact disc (CD) creation, using the autobiographical method as it was a project that I was directly involved in, taking into account the five core attitudes creative people possess: (1) the presence of motivation; (2) naiveté, or openness to experience; (3) risk-taking; (4) ambiguity tolerance; (5) and group trust (Piirto, 2011). The purpose of this article is to point out why teachers and other stakeholders of education should aim for students' inspirational development, using a concrete example of such inspirational initiation.

Inspiring people, especially young students, and providing them with positive examples and ideas to creatively imitate, work and improve on, cannot but help the advancement of our society. The role of teachers and the education system, in general, is crucial for students to build their cultural capital and broaden their capabilities and qualifications (Wrench et al., 2013). This is why this paper suggests that teachers should include examples of positive thinking and inspirational

activities in their courses. The educational system can use such examples, proposing them as introductory courses, seminars, activities, and discussions in curricula. Such courses could actually lead to the implementation of a creative, collaborative project that would eventually help the students' inspirational development, creativity and will to collaborate with their classmates, among others.

Perceptions of cultural deficits can be transformed into potential academic strengths by arousing the critical curiosity of students and inspiring self- and social transformation (Camangian, 2015). Discussing and working on inspirational ideas and actions can encourage young people to become creative and learn to collaborate. This process will stimulate the adults of tomorrow in a positive way.

A creative musical trip as an example

It had always been my wish and purpose in life to share hope, inspiration, creativity, and love, believing this to be my destination in this world. This internal need led me, almost 20 years ago, to the idea of creating a musical project. This CD contained songs in three languages (Greek, French, and Corsican) and was recorded in Corsica, France, while I was pursuing my Master and Ph.D. degrees (2002-2006).

This idea started as a need to share my inner thoughts and preoccupations in my efforts to motivate and encourage people around me. After all, music is a communicative tool (Cross, 2009) that we can use to inspire others. As a matter of fact, music is the ultimate model of communication (Kefalaki, 2021), as it is a common language that we can use to share thoughts and feelings, communicate and exchange, irrespective of our language, our culture, or our inner beliefs. Even though creating this multilingual CD was not an easy task to accomplish for a Greek student in a foreign university (I was the only Greek student at the time), my determination would transform this seemingly impossible mission into a concrete and feasible project. In this paper, I describe a multilingual music CD creation with the aim to encourage education stakeholders (teachers, deans, and administrators) to use such projects as tools/examples for students' inspirational development.

Literature review

We need a new model for education in the 21st century, as the world is changing and we need to adapt. This need becomes even more obvious due to our experience of the Covid-19 pandemic (Kefalaki et al., 2021; Bonk et al., 2020). Learning and innovation skills (four C's: communication, collaboration, critical thinking and creativity) are considered life-changing factors that can help cultures mature (Bellanca & Brandt, 2010). Critical thinking, problem-solving, and the rest of the 21st century skills (creativity and innovation, flexibility and adaptability, leadership and cross-cultural skills) are some of the tools students need to keep learning as content and circumstances change (Bellanca & Brandt, 2010). To increase creative thinkers, we need both inspirational and instructional supports/tools that can assess and support people's creativity (Rahimi & Shute, 2021).

Additionally, it is important that teachers are not afraid to become creative themselves, modeling their students. Teachers who claim not to be creative have not tried to become creative, and teachers who are reluctant and shy about their own creativity are not able to support their students' creativity (Piiro, 2011). Teachers that would like to teach their students to be creative should transform themselves into creators, revealing their own talents and creativity (Piiro, 2011). Teachers can embed the core attitude of self-discipline needed for students' creative processes. Treating work as practice and emphasizing the process of creation are some ways to do so (Piiro, 2011). Showing and discussing examples of how people achieve goals is a way that teachers can embed the core attitude of self-discipline and share projects to inspire their students and demonstrate to them the importance of collaboration and social acceptance.

The DIALLS project (Dialogue and Argumentation for cultural Literacy Learning in Schools: Maine & Vrikki (2021)) is a pan-European project focusing on the development of children and young people's cultural literacy prioritizing intercultural dialogue and mutual understanding. This project indicates the importance of interdisciplinarity for an educational future where issues of living together, social responsibility and sustainable development transcend traditional categories of learning. Music making projects can have similar impacts (Hurtado-Soler et al., 2020).

Speaking about the impact of music making projects, Kokotsaki & Hallam's (2007) research examined 78 music students' participation in music creation, which fell within three categories: musical acts, social acts and active music making. Music making as a musical act allowed students to deepen their musical knowledge and understanding. As a social act, students felt that they were active contributors to a group outcome, developed a strong sense of belonging, gained popularity and made friends with likeminded people, enhancing their social skills, and building up a strong sense of self-esteem and satisfaction. Last, active music making influenced the self of the students in terms of personal skill development, empowering their personal identity and encouraging the development of self-achievement, self-confidence and intrinsic motivation.

Lockwood and Shaughnessy (2012) propose that upward comparisons, particularly those made with individuals who have experienced a similar transition, help to reduce uncertainty during adjustments to novel environments and demonstrate that future success is possible. Upward social comparisons are motivating, especially while living in a rapidly changing and increasingly interconnected global environment. We need inspiration and positive things to creatively imitate. The analysis of Sio et al. (2015) revealed that presenting a single and uncommon example may encourage individuals to conduct a deeper search in a specific and remote domain, facilitating the generation of high-quality and novel ideas.

Awad (2021) puts forward programmes involving practical learning experiments to provide students with solid conceptual knowledge. More precisely, the researcher is referring to the STEM (Science, Technology, Engineering and Mathematics) perspective in education which Struyf et al. (2019) consider important for students as it better prepares them for the labour market. Although the creation of a STEM learning environment that fosters students' conceptual understanding is a challenge, a rich curriculum and a student-centered learning environment is key to motivate students. Teachers who provide real examples and applications, and engage students in discussion and co-creation, would accelerate the achievement of learning goals, increase creativity and innovative spirit among students. This is how inspirational development of students can be achieved. As Janning (2012, p. 27) puts it, "*becoming inspired is a way of life*".

Inspiring people and most importantly, students, is for me what education is all about. If we understand and live the principles of an 'inspiration economy', our collective ability to create a stable and sustainable world would be much more realizable (Buheji & Thomas, 2016). One of the underpinnings of such an economy is that "an inspired soul gives life to all its surroundings for a long... time and with deep intensity" (Buheji & Thomas, 2016, p. 12).

Morality plays a key role in our inspirational examples to students. Cai and Xiao (2020) refer to Comenius and explain that moral education is an essential educational content for primary and secondary school teachers to shape students' minds. Comenius was inspired by ancient Greek philosophers Plato and Aristotle's moral cultivation and proposed that moral education should achieve good virtues of wisdom, moderation, perseverance, and integrity, improving the frequency and quality of moral practice activities. Cai and Xiao (2020) explain that moral education exposes students to good morality examples early on. Comenius recommended that moral learning should be applied to life practice and that since children imitate things around them unconsciously, excellent role models should be placed around them (teachers, parents, classmates). This is why primary and secondary school teachers should carry out moral education.

The journey of a music CD creation

I am now providing the example of a music CD creation, the creation of a multicultural disc in three languages (Greek, Corsican, and French) named *Anghjulini*, 'Little angels'. I have a dream... I believe that we are on this earth for a simple reason: share love, empathy, good practices and in this way become the best version of ourselves. We came into this world for a higher purpose. We came into this world as secret agents of positive change. We came into this world to give, share, inspire, believe, love, exchange, collaborate. We all have talents to share with the purpose to improve this world: share knowledge, share good practices and paradigms, share love and empathy, in order to inspire people to do the same. The Anghjulini project is an effort to show that collaboration, understanding, empathy, positive energy and love is what we need for this world to become a better place. I still, almost two decades later, do not know if I somehow managed to share some of these high internal values, but at least I certainly tried to do so and I continue trying.

I truly consider Corsica a part of me, a second identity, and a second home. Inhabitants always considered me a part of their own community. I was to them their Greek Ambassador (see Appendices 1 and 2). Nevertheless, this was not enough for a Greek student to undertake the project of a multilingual music CD creation. The initial idea was to include well-known songs that I would translate into different languages (Greek, French, and English). I felt that in this way I could show my respect and admiration for Corsican music and people, and help the island's artists share their talent with people from all around the world. However, though there are many groups and singers (Bithell, 2001), I experienced that they are not very open to collaboration and co-creation.

I first tried to contact a well known Corsican group (I Muvrini), without success. But as I truly believe that everything happens for a reason, I didn't stop trying. Then I contacted a well-known Corsican solo singer that I once listened to and whose voice I loved, Feli Travaglini. Feli gave me permission to use one of his songs, *Quand'è tu balli* ('When you dance'). The Greek version became *όταν χορεύεις*¹. The song speaks of the importance of dance in our life: *When you dance all the world rise up to dance with you*. The Greek part differs from the Corsican version: *Live aside moments of sorrow. Time goes by too quickly. Come and dance with me to fill our life with joy*.

Another song is *Fortunatu*, a traditional Corsican tune. This song became *Τυχερός* in Greek. It is important to note that for the Greek version, I did not merely translate the Corsican version; instead, I switched the gender and imagined the answer of a woman to a man (in the Corsican version, the man claimed to be fortunate to have met the woman). *'I am in love with your beautiful hair, your eyes make me crazy... when I see you I arise and life is full of colors again... Let me put your name to adorn every star in the sky, there is no other beauty in the world like yours, lucky him who is in your life'*. The rest of the CD includes eight of my creations (lyrics,

music and interpretation), with most of them having a Greek, Corsican and French version. The YouTube links to a video and all songs from the CD are shared below (before the Acknowledgements).

Discussion with the wind/ Incontru incù u ventu/ Discussion avec le vent/ Συζήτηση με τον άνεμο

<https://youtu.be/0rqtL5YEjto>

This is a song I created at the age of 13. It is my discussion with the wind that seems to guide me through a difficult situation at the time. The wind says: *Let your mind stay open, let the tear of time guide you, even if it is wrong that leads our life, learn that it is in sorrow that happiness is born*.

Sunlight/ Spirionu /Rayon de soleil/ Ηλιαχτίδα

<https://youtu.be/B4gOcmQ-Kpw>

This is a song speaking of the importance of our language and our country. Retaining our differences and sharing them with others is what creates our identity. Additionally advancing, innovating, and accepting differences is what makes us human and enforces our personal and social identities. *And once again I take my guitar and sing using this language that I like expressing myself*.

Star of my life/Stella di a mio vida/Etoile de ma vie/ Αστέρι της ζωής μου

https://youtu.be/8lphsd_6c3o

This song refers to the importance of love. Love is everywhere. We came in this world to love, first ourselves and then everything in life. We are here for a higher purpose and love is what we are here to share.

Patria/ Homeland/Pays/ Πατρίδα

<https://youtu.be/Ch9pdfcaSkE>

This song speaks of my homeland, of the homeland that each one of us has in their heart. *Homeland you are engraved in my soul. Every sense about you gives me the power to go on*.

Paradise/Paradis/Paradis/ Παράδεισος

<https://youtu.be/rMNBmA9PSRQ>

This song speaks of the different faces of love: *Love can be a paradise and a hell, a sunbeam delusion, a smile, and a tear at the same time*.

¹ This is the ninth song of the disc *Anghjulini*, created in 2005 in Corsica, France. Voice, Lyrics, Music: Margarita Kefalaki/ with the collaboration of Christophe Mac-Daniel, Francois Pesce, Mahir El-Euchi.

Hold me/Abracia mi/Tiens moi/Krata me

https://youtu.be/JK_afdtQNNg

Speaking to my soul (for me to understand) and/or to someone I appreciate and love: *Hold me not to feel fear, hold me to feel you near, hold me as it is with you that my life is covered with colours and becomes a beautiful painting.* The fact that we use two languages in this song signifies that we all, irrespective of our language, our colours, or our beliefs, have the same needs to love and to be loved.

Angels/Anghjuli/Anges/Άγγελοι

https://youtu.be/-NeW9_eMUd4

This is the song that gave the title to this multicultural disc. Even if you live through difficult moments, remember to smile. It is the Angels of your heart that will always be there to enlighten your way and colour your life. Remember that you are not alone, there are many like you, who try to make this world a better place.

My sister/Surella mia/Ma soeur/Αδελφέ μου (My brother)

<https://www.youtube.com/watch?v=1HBbXr2C09M>

This song has a dual significance. It also contains a video clip that was created with the help of academics and students of the Technological Institute of Corsica (Licence Professionnelle Techniques et Activités de l'Image et du Son). The song Surella mia, translates to 'My sister' for the Corsican version and 'My brother' for the Greek version. It speaks of the pure, unconditional love of a brother to his sister and vice versa. In this case, the brother (Corsican and French lyrics) is the island of Corsica and the sister is Greece (Greek lyrics). Like for the other songs on this disc, I have chosen not to literally translate the Corsican-French parts. Each language reveals its own different, special message. This game of lyrics (using a different language for each part) signifies the importance of keeping our differences as a treasure and at the same time our readiness to advance, innovate, share, exchange, communicate inspire, and get inspired. This disc is meant to become a true example of intercultural communication and can be used as such for educational reasons.

After the creation of this disc, the project was released to the media. In addition to Corsica's *France Bleu RCFM* radio station, local radio stations played some of the disc's songs. Then, the local television station *France 3 Corse* invited me to speak about this music project. Many newspaper articles (see Appendices 2 and 3 for samples) were also written about the project. It was a dream come true and although the effort for its promotion stopped as soon I left Corsica (after the presentation of my thesis), the impact was certainly great for many different people.

These kinds of projects (musical or others) could be used as case studies to inspire students and help them learn via real examples, and to be involved in projects they choose to undertake. This can be a call to action for students not

to stop dreaming and fight for what they wish for. Teachers could promote inspirational actions and ideas as a part of their students' inspirational development. What is also important is that each educational institution understands their students' perceptions of the quality of teaching. Bradley et al. (2015) tried to do so by examining teaching excellence as perceived by students. Their analysis sought to discover what students perceived as being inspirational or transformative in relation to their student experience. Each student explained in 200 words or less how their experience had been transformed by inspirational teaching and by exemplary learning support. Such efforts will not only serve the understanding of what students consider important, but will also inspire teachers to adapt the way they promote information and knowledge.

Conclusion

In this paper, a music CD creation in three languages (Greek, French and Corsican) was provided as an inspirational tool for teachers to use in the classroom. This paper aims to provide teachers from K-12 to universities and their educational institutions with reasons of why they should include actual examples of inspirational activities into their courses and curricula. Ministries of education can provide the necessary means and facilities to promote opportunities of inspirational development to the future generation.

I have presented the disc's songs and the video clip as examples of a collaborative, co-creational effort at the University of Corsica between Corsican and Greek students. I believe this was a unique and positive experience for all involved, especially for the students. Similar activities can be promoted at various educational levels in order to develop students' inspirational development, creativity and understanding of team power.

Additional links to songs

Lucky/Fortunatu/Chanceux/Τυχερός

<https://youtu.be/fmmlcZFgxIA>

When you dance/Quant'è tu balli/Otan Xorevis

<https://youtu.be/DzYoOyYbQB8>

Acknowledgements

I would like to thank all my friends/artists/creators/ordinary people from Corsica that contributed in the creation of this disc, especially François Pesse and Christophe Mac Daniel; musicians and co-creators of this CD; Colomba Sansonetti, person-in-charge of the 'Licence Professionnelle Techniques et Activités de l'Image et du Son' of the Technological Institute of Corsica who welcomed and supported the idea of creating the video clip of 'Surella mia'; Mahir El-Euchi who created the disc cover; my very dear friend from Corsica Marianne de Peretti who opened her house and welcomed me and the students from the university of Corsica (this is where we also filmed some scenes of 'Surella mia', my friend and colleague from Corsica that took part and my colleague from Russia at the university of Corsica who let her daughter and another child take part in this video clip.

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Appendices

Appendix 1: Une étudiante pour représenter la Corse (A student to represent Corsica). *Corse Matin* (2004, November 12).

N° 20682 CORSE MATIN 12/11/2004
Colloque international sur la danse

Une étudiante pour représenter la Corse



D'origine grecque, Margarita Kefalaki s'est lancée dans une thèse portant sur les relations pouvant s'établir entre la Corse et la Grèce, via la danse.

La Corse était représentée lors de la dix-huitième édition du colloque international de recherche sur la danse, organisée par l'UNESCO du 3 au 7 novembre derniers, à Argos, en Grèce. Margarita Kefalaki, étudiante d'origine grecque à l'Université de Corse, y a en effet présenté une communication portant sur la danse traditionnelle dans l'île.

Actuellement lancée dans la réalisation d'une thèse portant sur les relations qui peuvent s'établir entre la Grèce et la Corse, via la danse, la jeune femme a pu effectuer ce voyage grâce au soutien financier de la collectivité territoriale.

« Tout l'intérêt pour moi était de croiser les données que j'ai recueillies depuis trois ans en Corse avec celles présentées par les nombreux chercheurs internationaux qui avaient fait le déplacement, explique-t-elle. J'ai constaté que beaucoup d'entre eux connaissent mal, voire pas du tout, la Corse. Je crois qu'il serait intéressant qu'une véritable délégation soit un jour constituée pour participer à cet événement et mieux faire connaître la culture de l'île. »

L'an prochain, l'UNESCO a choisi d'organiser ce colloque international à Chypre. Peut-être l'idée de Margarita Kefalaki aura-t-elle fait son chemin d'ici là...

Appendix 2: 'Anghjulini' nouveau CD Greco-Corse ('Anghjulini', a new Greek-Corsican CD). *Corse Matin* (2006, October 17).

CORSE-MATIN Lundi 17 octobre 2006, p.13

CULTURE

« Anghjulini » nouveau CD Gréco-Corse



Margarita Kefalaki étudiante (Photo Mario Grazi)

Le CD bilingue en langue grecque et en langue corse, intitulé « Anghjulini » a été réalisé cette année par l'association Echanges interculturelles Gréco-Corso, en collaboration avec la CTC et l'INSEP.

Cette association a été créée en 2002 par Mlle Margarita Kefalaki, étudiante en Master Communication à l'université de Corte, aujourd'hui doctorante en 3^e année de communication et préparant une thèse sur le thème de l'identité corse en Méditerranée.

Sept compositions

Ce CD est composé de 10 titres dont deux chansons corses, « Furtunatu » et « quand'è tu balli », d'une composition en langue corse « Surella mia », et de 7 autres compositions originales.

L'auteur compositeur a reçu l'aide de Bernard Pazzoni, Petru Mari et Paulu Santu Parigi pour la traduction en langue corse.

Les arrangements musicaux ont été réalisés par Christophe Mc Daniel, ancien musicien du groupe Canta di u Populu Corsu, et François Pesce du groupe I Ghjami Aghjalesi.

Cette création artistique a pour but de faire communiquer les différentes cultures, comme outil d'épanouissement et de paix au niveau international.

Importance de la langue maternelle

« Favoriser l'union des peuples Euro Méditerranéens, en respectant leurs propres expressions culturelles et artistiques, et indiquer l'importance de leur langue maternelle comme partie essentielle est primordiale explique » Margarita.

« La musique, le chant et la danse constituent et constitueront toujours notre langage universel. Ainsi ce disque veut faire connaître et apprécier la diversité de langages, comme facteur important d'identification d'un peuple. »

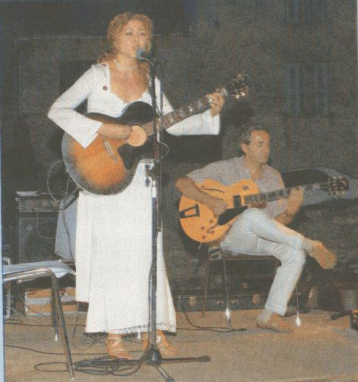
Le CD est en vente dès aujourd'hui au magasin Musica Vostra et à l'association que vous pouvez contacter par mail : rita-kef@hotmail.com.

Appendix 3: Margarita, trait d'union des cultures. *Corse* *Matin* (2003, January 17).

vendredi 17 Janvier 2003
L'Espresso N° 2002

Corse hebdo Semaine du 17 au 23 Janvier 2003 N° 184
C'est passe chez nous

Margarita, trait d'union des cultures



Force est de constater que ceux qui œuvrent pour la valorisation de notre identité ne sont pas toujours les plus enracinés. Margarita Kefalaki, jeune grecque de vingt-quatre ans en est la plus parfaite illustration.

Arrivée en Corse en mars 2002 grâce au Réseau international des volontaires européens, elle a pris une part active, en compagnie de deux autres étudiants marocains, à la réalisation d'un projet considérable piloté par l'Office de l'environnement : la mise en valeur des vieilles bergeries de montagne. Six mois durant, Margarita a en effet travaillé sur les entres du Venacoli, rendant la fine aux pouvoirs publics, un document constituant les bases d'un éventuel projet de restauration du patrimoine bâti, et de relance d'une activité au caractère identitaire très fort.

Après ce premier contact fructueux avec l'environnement insulaire, Margarita a souhaité prolonger une expérience qu'elle trouvait encore plus enrichissante. Son inscription à l'Université de Corse, en DESS communication appliquée à la valorisation des ressources régionales, a donné le coup d'envoi d'un nouveau projet qui lui tient à cœur. Dans le domaine purement culturel cette fois.

Car Margarita est une artiste née dont la passion, réajustée sur la communauté cortésienne. Dans le cadre des activités du Centre culturel universitaire et de l'association A Rinasola, elle donne régulièrement des cours de danse grecque. De temps à autre, à l'occasion de soirées conviviales, elle fait également apprécier ses talents de chanteuse. C'est d'ailleurs à ce niveau que se situent ses aspirations : la réalisation d'un CD de douze chansons ; six titres grecs traduits en corse et six titres corse traduits en grec. Un véritable défi, plus encore une opération de rapprochement culturel sans précédent.

« Chaque culture mérite de garder tout ce qui fait sa force, considère Margarita, et je crois que la langue est un atout essentiel dans cette perspective. Aussi, j'ai eu envie de mettre en relation ces deux terres méditerranéennes aux identités propres, mais aussi aux multiples points communs ».

Consacrer son stage de fin de diplôme à ce projet, et trouver les financements nécessaires à la production de cet album, tels sont les objectifs immédiats de la jeune étudiante qui travaille d'arrache-pied. Afin de mettre tous les atouts de son côté, elle a créé un support associatif destiné à la promotion des échanges culturels entre la Grèce, la Corse et les pays méditerranéens. Margarita espère, par ailleurs, fédérer les acteurs de la culture corse pour parvenir à ses fins, conclure en apothéose son séjour dans l'île, et donner bien sûr une orientation artistique à sa vie professionnelle.

L'esprit d'ouverture et d'initiation d'ont et déjà démontré conquis, quoi qu'il en soit, le gage d'un avenir prometteur.

Une belle blonde aux cheveux bouclés et aux talents musicaux. Visage sympathique et désormais familier des Cortésiens, Margarita a fait ce qu'il fallait pour s'intégrer à la communauté.

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Introduction

This book forms part of a rich literature on the debate over the idea of the university. Historically, this literature has been concerned with who and what is taught, what kind of knowledge is produced as well as the design and location of university campuses. Charles Kelsall's *Phantasm of an University* (1814) is one oft cited example. Wilhelm von Humboldt and John Henry Newman are others – in Western Europe at least. However, as this book points out, the literature tends to be somewhat Eurocentric and overlooks institutions of indigenous higher learning in other parts of the world that were often destroyed by European colonialism. Furthermore, the literature tends to be highly gendered as the authors point out referencing ideas of great white men and ignoring the contributions of women to the production and dissemination of knowledge within universities.

Grounded in political activism, debate about the idea of the university took a more critical turn with action taken by the Students for a Democratic Society in the USA and globally as part of the 1968 Student Movement within which students (and others) critiqued not only the nature and form of universities, but also their purpose in capitalist society. More recent academic debates about the idea of the university have come under the umbrella of Critical University Studies which examines the shift from a public to a private model of higher education provision since the 1970s and is grounded in a critique of late capitalist society. Here, there is a specific focus on neoliberal policy and reforms, culture, ethnicity, gender, academic labour and student debt. This debate has continued both inside and outside higher education as evidenced by the number of organised strikes, protests, student occupations and the free university movement that emerged in the early 21st century across the world (alongside the Occupy Movement and other forms of political activism). What is clear from these debates, critiques and activism is that there has, and continues to be, a struggle over the idea of the university. That is a struggle over its very nature, purpose and form within society.

Since the 1980s, there has been a tendency around the world to rapidly restructure higher education provision. This process, overseen by governments of different political persuasions and underpinned by neoliberal ideology, has seen higher education shift from what is often described as 'higher education as a public good' or the 'idea of the public university' to a more entrepreneurial and corporate model of provision. While universities have historically been private and elitist institutions, there seems to be a collective lamentation (at least in academic circles) for the demise of the 'golden era' of the idea of the public university, which is considered to lay in ruins, destroyed by an act of intellectual vandalism and replaced with a neoliberal model of provision. However, as the book rightly points out, not all was well within the idea of the public university and the authors are not agitating for a nostalgic return to it but, instead, the prefiguration of a new idea of the university.

Integral to the idea of the neoliberal university has been the shift to a more financialised and marketised model of provision. This includes attempts to shift the burden of funding higher education from the state to individuals through the introduction, and increase, of tuition fees. Furthermore, there has been an attempt to impose market principles through an emphasis on 'student as customer' and 'student voice' and the external imposition of quality assurance measures to create competition between higher education institutions for student numbers.

These reforms have been underpinned by the logic of neoliberalism and the belief that embedding market principles will drive up the quality of provision and improve value-for-money or efficiency. This will be achieved, according to neoliberal reformers, by increasing competition among higher education institutions to attract student numbers with undergraduates gravitating towards popular and well-run courses, forcing others to improve the quality of their provision, reduce prices or go out of business. This is not only part of an attempt to impose a neoliberal model of the university, but also the (re)imposition of capitalist social relations to produce conditions for the creation and extraction of profits by attempting to commoditise what is produced in universities – teaching and research.

These reforms have resulted in increasingly precarious working conditions for academics, deteriorating pay, contractual and pension entitlements, and increased levels of stress and mental health problems as academic labour is intensified and casualised. Furthermore, it has led the erosion of courses based in the arts, humanities and social science that have had their state funding eroded or completely removed with emphasis (and funding) being placed on STEM subjects instead. Concomitantly, students face increased levels of debt, career uncertainty and are forced to juggle their education with paid employment, voluntary work and caring responsibilities while in full-time study. Unsurprisingly, higher education students and staff are experiencing a mental health crisis, which has been exacerbated by the COVID-19 pandemic.

These reforms have not gone unopposed and a diverse range of struggles over the idea of the university have emerged in response to these reforms both inside and outside of mainstream higher education. The struggles include trade union strikes, undercommons, occupations, protests and the creation of autonomous learning spaces. These struggles and resistance are often referred to as cracks – cracks in the logic of the neoliberal idea of the university that is being imposed across the globe. These cracks are spaces within which alternative models of higher education provision *contra* the neoliberal logic are prefigured that “pursue alternative priorities resistance and refusals” (p. 2).

The importance of this book is that it documents these cracks. It provides an account of the diverse range of struggles, resistance and experiences that academics have within the neoliberal university and how they try to resist the imposition of its logic. These accounts capture the practical and emotional implications of the neoliberalisation of higher education and consider the intersectional discrimination and oppression groups face in terms of gender, ethnicity and social class (both inside and outside of the university). Much of what is documented in the book will no doubt ring true for many of those that work(ed) in higher education. Indeed, one of the strengths of the book is its ability to connect on an emotional level with the reader. However, the book is much more than a tale of woe about life in the neoliberal university. The documentation of these struggles engenders a spirit of love, hope and political resistance that many readers will find inspirational.

Both editors and the contributors to this book have backgrounds in education and educational research, especially with regard to social justice, social pedagogy and intersectional inequalities within education. The composition of the book was a communal process and a political act of love that emerged out of conversations between the authors about their struggles in higher education. This blend of expertise provides astute insights into higher education policy and practice in the Australian university context. The book is intended for those that work within higher education or who are interested in the impact of neoliberal reforms to the sector and those involved in the struggle over the idea of the university and serves as a platform for likeminded people to share experiences and connect. The key message of the book to those in higher education (or previously inside) is that you are not alone.

That others share your experience. That others are resisting and struggling and walking and asking questions about alternative models of higher education that are grounded in “academic freedom, autonomy, participatory and cultural democracy and the public good” (p. 23).

The book is prefaced with a powerful foreword by Antonia Darder about the politics of love which perfectly captures the sentiments and hopes of the rest of the book. Chapter 1 does all of the heavy lifting and provides a forceful critique of the neoliberal university and introduces concepts, such as ‘cracks’ and ‘prefiguration’. This is an important chapter as it gives authors in the subsequent chapters space to reflect on their experiences rather than revisit conceptual definitions important to the progression of the text. The book is divided into two sections, Part 1: Seeing Outside-In and Part 2: Seeing Inside-Out. Part 1 is an account of the intensification of academic work and highlights how the transformative claims made about university education’s cultures of respect and care towards its staff and students are a pretence. “Behind the shiny public façade, we see how ‘traditional’ aims are carelessly discarded by the hand of authoritarian managerialism” (p. 17). Part 2 focuses on the cracks or spaces within neoliberal closure and openness within which people struggle and prefigure alternative forms of higher education provision. The chapters are presented as a series of reflections and autoethnographic accounts of life within the neoliberal university. The autoethnographic accounts allow the book to convey the experience and sentiments of working conditions and the impact neoliberal reforms have had on people as well as educational provision. Reading the book, you get a tangible sense of the frustration and heartache of the authors and much of what is written will resonate with those who work(ed) in higher education.

This book makes a meaningful contribution to the literature in this area. It documents and reflects in detail about people’s experience with the neoliberal university in the Australian university context. Furthermore, it provides hope that there are cracks in the neoliberal university within which resistance, struggle and the prefiguration of alternative forms of higher education provision can be experimented with. As such, the book is similar to publications in the UK (see Lawrence, 2021; Noble & Ross (Eds., 2021); and Hall & Winn (Eds., 2017) in that there is a similar critique of the neoliberal model of higher education and an exploration of how it might be organised differently along more egalitarian, democratic, collective and humanistic lines.

Overall, this book provides an insight into life within the neoliberal university within an Australian context. The autoethnographic accounts capture the difficulties and struggles that people face and how they resist the imposition of neoliberal reforms within higher education. The strength of the book is how it examines the prefiguration of alternative ideas of the university that are grounded in love, hope, compassion, social democracy and social justice. I highly recommend this book to those who work(ed) in higher education or involved in the struggle over the idea of the university.

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Fifty years ago, when an undergraduate on a creative writing course, I took my first plunge into the archives. The reward was immediate – and ultimately so encouraging that it set me on track to becoming a scholar and published author. More about that day of illumination, and its benefits, later. Let us first reflect on contemporary scholarly research practice, and the seismic shift it has experienced in recent times.

Archives today have become unfashionable within a society that seeks instant gratification, ease of application, and immediate results. I have found, in delivering classes throughout the Asia-Pacific region, that students' reference lists are almost exclusively composed of online sources. There is widespread reluctance to seek out books, microfilm, microfiche, dissertations, journals, serials, correspondence, mementoes, recordings, and manuscripts. This pattern is understandable. Why not roam effortlessly through the internet, instead of actually going to a library?

I'll tell them why not. Because online links give you only a fraction of the story. As this excellent textbook informs us in one of its many instructive passages:

Many people assume you can find everything on the internet. You might presume that with the right combination of search terms, the history of recorded knowledge will be at your fingertips. However, the truth is more complicated ... search engines are limited when it comes to unpacking complex phenomena or locating details about obscure topics. Furthermore, search engines favor the most recent, the most popular, and the interests of companies that can pay for advertising (p. 91).

Those are the words of Brigette Adair Herron and Scott Creney, two contributors whose reflections grace the pages of *Exploring the Archives*. And they are right words. Online inquiry alone makes no allowance for serendipitous revelation and tangential temptation. It is driven by algorithms that, as Adair Herron and Creney warn us, are too often subjective in their nature.

Back, then, to the day that I lost my research virginity in the archives. The university assignment required the composition of a magazine-style article on a topic found through random investigation within an archive – any archive, anywhere. I was living in Canberra, Australia's capital city, at the time and chose as an inquiry site the Australian Institute of Anatomy. There, in response to my request for a look at something not on public display, a helpful curator suggested examination of a holding in the institute's collection of death masks.

He opened a cardboard box and revealed the posthumous visage of Ned Kelly, Australia's most notorious bushranger (or highwayman, as they would put it in the UK) of the 19th century. Following his execution in 1880, for murdering a policeman, an impression of his shaved skull and neck was created in plaster. This was common practice in those times, when it was believed that behavioural inclination – especially of the criminal kind – could be determined through examining the shape and the features of the head.

I took a photograph and wrote up my minor triumph, winning myself a High Distinction grade. Next, I submitted an edited version to *The Age*, a Melbourne daily newspaper. This brought further reward: a publication debut as a freelance contributor and a cheque, from the paper, for \$30. I've been writing for money ever since.

Accordingly, I warmly endorse the manner in which the authors of this text encourage students (undergraduate and postgraduate alike) to wallow in the riches of the archives. As Kathryn Roulston and Kathleen deMarrais put it:

This book offers qualitative researchers an entrée into the world of working with archival repositories and special collections. It serves as a primer for students and researchers who might not be familiar with these sorts of collections. ... Suited to novice researchers seeking a general introduction into how special collections are created and how they can be used, the book offers useful, clear guidance on using different types of archives, developing topics for research within the archives, assessing materials available, how to work with archivists and curators, documenting the research process, and writing up an archival study. Archival records and material culture (including manuscripts, documents, audio- and video-recordings, and visual and material culture) housed in special collections provide a wealth of resources for qualitative researchers seeking to conduct research in the social sciences (n.p.).

To that, I must add that explorers of the archives can experience the thrill of unpredicted enlightenment. I recall one such occasion at the National Library of Australia when I found a letter written on notepaper made from grass by prisoners of war held in Changi jail, Singapore. And then there was the book that I plucked (gently) from the shelves of the Grolier Club Library in New York; it was bound in human flesh. Digitised records surely lack that degree of dramatic discovery.

Encourage students to read the advice proffered by Roulston and deMarrais – and to use it as a guide towards exploring the archives. The material they find there will enrich our collective body of knowledge.



Daniels, L. & Minot, N. W. (2019). An introduction to statistics and data analysis using Stata. Sage Publications, Inc.

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This is a phenomenal book that provides a stepwise introduction to the research process via an extensive use of the statistical software called Stata. Intended for undergraduate students of the social sciences, it is also useful for graduate students and researchers. Devoid of jargon, its simplicity of language and content are its greatest strength; any individual with basic English skills and an interest in research will obtain much benefit from reading this book.

The book is divided into five parts and part one begins with Chapter 1 that succinctly describes the overall research process. All the steps of the research process such as literature perusal, identification of gaps, theory examination, formulating the research question and hypotheses, questionnaire design, using and analyzing data and finally, report writing are concisely explained. The chapter also provides a list of databases that contain scholarly literature from different fields within the Social Sciences. Chapter 2 begins with an absorbing article on the most prominent polling mistake in US history and it is evaluated insightfully to highlight the importance of sampling. The chapter then describes basic concepts of sampling and elaborates on different sampling methods. It concludes with calculations and the use of sampling weights. Chapter 3 provides and discusses guidelines on designing a questionnaire. It focuses especially on structured questionnaires and close-ended questions. Ample information is provided on question order, phrasing, and recording responses of respondents. The chapter concludes discussing ethical issues related to research and the mandatory approval that research plans must obtain from review boards before they are conducted.

Part two of the book focuses on data description. Chapter 4 offers an introduction to the widely-used statistical software Stata with special emphasis on do and log files. Chapter 5 emphasizes on cleaning data which includes checking every variable for missing data, outliers, and errors. Descriptive statistics, i.e. statistics used to describe or summarize data, are broadly covered in chapter 6. The chapter concludes with bar graphs, pie charts, box plots, and histograms to pictorially describe data.

Part three consists of five chapters that are dedicated to testing of hypotheses. It opens with chapter 7 that provides a detailed explanation of the normal distribution, central limit theorem, standard scores and errors as well as sampling distribution. The chapter then discusses the identification of the research question and the formulation of hypotheses, testing for statistical significance and when (or when not) to reject a null hypothesis. Chapters 8 and 9 are dedicated to testing of hypotheses about a single mean and two independent means, respectively. Chapter 10 elaborates on the One-Way Analysis of Variance (ANOVA). Cross-tabulation and chi-squared tests are reviewed in chapter 11.

Part four explores relationships among variables. Chapter 12 discusses the use of regression analysis (and when to use it). After providing a clear explanation of correlation, the chapter then proceeds with a description of simple and multiple regression analysis. Chapter 13 is a momentous chapter as it elaborates on regression errors such as specification and measurement errors, multicollinearity, endogeneity, heteroskedasticity from which biased estimates ensue. Furthermore, suggestions and methods are provided to avoid or overcome these issues when conducting regression analysis. Lastly, chapter 14 explores regression methods that involve binary dependent variables. Logit and probit models are explained in detail and are well illustrated using Stata.

Part five consists of a sole chapter that is the most distinguishing feature of the book. In chapter 15, all the components of a research paper are discussed with examples from different published research articles for each section. The chapter provides easily comprehensible instructions on how to present statistics using APA (American Psychological Association) style and it emphasizes on using an active voice as well as first-person pronouns. Overall, the chapter broadly instructs step-by-step on how to write a good research paper, something which is rarely found in other books on research methodology.

An Introduction to Statistics and Data Analysis Using Stata is unique in several aspects. Interesting yet easily comprehensible examples are used for almost every concept mentioned in the book. From part two to part four, Stata

commands and codes are used extensively for data analysis and a detailed explanation is provided for every output. Most chapters use engaging case studies to conduct analysis with data sets readily available online for readers to perform their own analysis and generate output. At the end of each chapter, instructions are provided along with examples on how to report and represent the results to both technical and non-technical audiences. The authors have attempted to succinctly cover almost every aspect related to research methods in the book, and they also mention additional sources for readers to explore any topic in more depth. Its most distinctive features are the decision tree that helps choose the right statistical method in chapter 8 and the

detailed explanation of each section of a research paper in Chapter 15 with engaging examples. However, the absence of information on abstracts in chapter 15 is notable and its inclusion could tremendously help researchers interested in publishing their articles in journals. Nevertheless, its simplicity and coherence of language as well as its extensive coverage of research methods renders this book a priceless addition to the existing literature in the field of the social sciences. Readers from any part of the world, with basic English skills and some knowledge of research, will be able to benefit immensely from this engaging and informative book.



Rury, J. L. & Tamura, E. H. (Eds.). (2019). *The Oxford handbook of the history of education*. Oxford University Press.

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Introduction

Even as we look forward, it is important to understand that our current situation is always the result of preceding events, and that we are shaped by the circumstances, choices and actions of the past. Therefore, we cannot understand our present situation without knowing history, much as we have been reminded that progress cannot be made by constantly looking at the rear mirror.

- Tan Tai Yong, 2020, p. 170-171

The necessity of studying history grafts in the verity that if we do not know about the past, we then do not know how we got here, from which we would not know where to go; true albeit terribly clichéd. What then counts as historical study done correctly, or at least properly? Is there a definitive narrative, ought there be one, and does it always belong to the Churchillian victor?

In his sixth and final public lecture as the Institute of Policy Studies S R Nathan fellow, Professor Tan Tai Yong (president of Yale-NUS College and eminent historian) appealed for the cultivation of historical literacy, historical consciousness, and historical imagination to enable reasonable understanding of history and "how it affects our personal and public lives" (Tan, 2020, p. 171).

Historical literacy is having a historical knowledge of events, stringing together the chronology, and making sense of the ensued consequences in the form of a coherent narrative. However, beyond high-stake examinations (and dare we say propaganda), how might this knowledge be made relevant and meaningful to us? Tan argues that such a relevance requires historical consciousness.

Historical consciousness rests on collective memories. Collective memories are shared memories and knowledge of a social group. These memories are used by the group to interpret a past that would resonate with the way they identify themselves (Tan, 2020, p. 172).

Do we have our own narratives to contribute to the constantly revising and expanding collective memories and shared consciousness? Are we able to use the threads provided by *what happened* and add to the tapestry of *why it happened*? Thereby, perhaps, proffering a lens that attempts to look forward from the point of view of the historical actors rather than conclude from the perspective of a chronologically removed commentator who has the benefit of 20/20 hindsight? This requires historical imagination.

Is *The Oxford handbook of the history of education* an exercise in historical literacy, consciousness, or imagination?

Emergence of the field

Professionally situated both within education as a distinctive arena of teaching, research, and writing and history as a disciplinary realm, historians of education have strived to address a variety of audiences (p. 12).

History of education is inevitably inter-disciplinary given that the tentacles of education writhe their way into the economy, politics, culture, and pretty much life in general. Hence, the study of the history of education cannot be walled off from the disciplines of history, sociology, policy studies, economics, and of course education and pedagogical traditions. These are primarily national considerations thus it is no coincidence that the emergence of the field coincides with the rise of formal education and national education systems. The editors of *The Oxford handbook of the history of education* write:

... historians of education... have addressed an array of topics that have proven quite critical both to educational practice and the social and political lives of societies around the world. In the wake of global social change, questions of cultural diversity, social harmony, and economic inequality have grown ever more important, and education systems are implicated to one degree or another in all of them (p. 12).

The twentieth century experimentation with nineteenth century philosophies, especially post-war, proved to be a “decisive turn for the field” (p. 4). In the midst of social and political turmoil, accessibility to education (often the lack thereof) and the concomitant social mobility (often the lack thereof) came into sharp focus. Along with this critical turn was the emergence of social theory which had caused it to “become quite impossible to think of the history of education without considering a larger theoretical frame of social and economic conflict and change” (p. 5). The social and economic themes extend into the emergence of much of East Asia from colonisation and the transformation (or hybridisation) of colonial education systems into national ones. Rury and Tamura report a change of the direction in the field, departing from a predominantly leftist treatment of institutional questions to focusing on the experiences of the recipients of education; a turn towards historical consciousness and historical imagination?

Following trends in the larger field of historical research and writing, historians of education have subtly shifted much of their attention from focusing on schools and other educational institutions to the experiences of children, youth, and adults who spent considerable portions of their lives in them. In many respects it represented a newly sensitised sociocultural turn in scholarly interests (p. 10).

Rury and Tamura appear to follow the same trajectory in their organisation of *The Handbook* - beginning with the interpretive frames in Part One followed by tracing the rise of national education systems from premodern roots right through to the emergence of modern higher education in Parts Two to Four. The shift from institutional study towards narratives of (and by?) the people takes place in Parts Five and Six.

Interpretive frames in educational history

The interpretive frames that form Part One of the handbook attempt to provide the context within which theory is conceived.

There was broad agreement with the assertion expressed by the British social historian Asa Briggs in 1972 that the history of education should be approached as “part of the wider study of the history of society, social history broadly interpreted with the politics, the economics and, it is necessary to add, the religion put in.”

- McCulloch, 2019, p. 26

The history of education, as we are able to know, is a tapestry that has been woven across time and space with threads of emerging literacies and evolving culture, society, and politics. However, it becomes quickly evident that the colours of one thread bleed into the others. Whilst essays at isolating the threads of the tapestry offer useful insights into the constituent fibres, the necessity of the whole means that they can't stand alone; colours from the adjacent threads

are apparent.

Revisionism in the history of education is essentially the problematisation of prior orthodoxy, reconsideration of supposedly benign, perhaps even benevolent, school systems. Education's role in society, more accurately social change, were brought into a radical and Marxist focus (McCulloch, 2019). Indeed, revisionist accounts of educational history were playing catch up with the wider historical revisionism that was gaining traction in the twentieth century, concerning itself “... less with the rise of modern schooling and much more with educational processes as they have occurred in many different kinds of institutions and milieux, pervading individual lives and collective social experiences” (p. 23).

This endeavour of collecting the voices of the people is incidentally ancient and of the oral tradition; a method of historical practice that was usurped by the emergence of the written word that afforded literacy which gave rise to education and mass schooling in the first place, ironically. Subsequent industrialisation of society and the role of education in service to it is what we end up studying and knowing as history of education. As Richardson writes in the handbook:

If there has been a central dynamic propelling it, this seems to have been the evolution into nation-states of societies managed by literate elites. Accompanying this, historiography has been increasingly influenced by the cultural force of political, social, and economic development based on or acquiescent to empirical science and its technical applications such that the worldviews and oral histories of nonliterate societies are pushed inexorably even further to the margins.

Education has been integral to this dynamic. The rise of science and its technologies is predicated on intellectual curiosity and evidential validation by peers (pp. 52-53).

This history is thus firmly planted within the urban context though not always obvious to historians and readers. Given that Singapore is decidedly urban and nation building post-independence was a relentless industrialisation drive, the urban setting of my own study of Singapore's history of education did escape me. As Gottesman writes in the volume:

Tyack's essay offers a classic and startlingly clear example and line of reasoning for why it is important for historians to think about theory in relationship to their work: when one looks at the world, it is with a lens. This guides how and what evidence is collected, the identification of meaning in the evidence, and ultimately the construction of narrative and its contribution to the historical conversation. Theory always matters in historical inquiry. The question is whether we are conscious of and intentional about the interpretive frames brought to our scholarship and the values, beliefs, and assumptions that underpin them (p. 65)

Gottesman surveyed David Tyack's 1976 essay "Ways of seeing: An essay on the history of compulsory schooling" en route to proffering eight theoretical frameworks that historians of education commonly draw upon:

1. Marxist political economy
2. theories of human and social capital
3. new institutionalism
4. feminist theory
5. critical theories of race
6. theories of colonialism and empire
7. indigenous studies
8. transnationalism

The eventual exercise in distilling wisdom then rests on the respective explanatory model deployed, the choice of "lens" raising questions concerning methods and politics. Furthermore, students of history are well warned by Gottesman to take heed of the inevitable "ontological and epistemological questions about the nature of history" (p. 67). It is no coincidence that the same positionality concerns plague researchers with regard to the validity of claims of objectivity.

Though many historians discuss history as if it is reliably concrete ("We know X happened because we have evidence"), especially when talking to nonhistorian audiences, they are also keenly aware that history is reliant on abstract thought, conceptualisations of the social world that frame all aspects of the inquiry process and the historical narratives created (pp. 67-68).

Case in point is my understanding of *social capital* vis-a-vis that of Coleman and Putnam; something Gottesman pointed out as well in his notes section.

The habitus is the product of the work of inculcation and appropriation necessary in order for those products of *collective history*, the objective structures (e.g. of language, economy, etc.) to succeed in reproducing themselves more or less completely, in the form of durable dispositions, in the organisms (which one can, if one wishes, call individuals) lastingly subjected to the same conditionings, and hence placed in the same material conditions of existence (Bourdieu, 1977, p. 85, emphasis not in original).

According to Bourdieu, a dominated culture can only be defined in relation to and by contrast with the dominant culture and vice versa (Swartz, 1997). This is important to Bourdieu as he sees intrinsic characteristics as unwarranted

attributions that are used to perpetuate discriminatory practices. For example the lack of success is due to laziness rather than oppression.

This dialectical relation between the dominant and dominated is always competitive (rather than cooperative), unconscious and hierarchical. However, the competition is unfair because there is no equal opportunity given that "the social world is *accumulated history*" (Bourdieu, 1997, p.46, emphasis not in original). Instead, the dominant is able to inherit then continuously accumulated capital because capital has the innate capacity to expand and reproduce itself. Thus, Bourdieu sees the forms of capital (economic, cultural, symbolic and social) as resources that are "objects of struggle" (Swartz, 1997, p. 74).

In particular, social capital is collectively-held capital, in the form of credentials of the group, that is accorded based on "membership in a group" (Bourdieu, 1997, p. 51). However, the volume of capital accorded is hardly in equal portions and it is dependent on the extensiveness of the agent's connectivity within the group. This will be evidenced by the member's ability to mobilise others in the network, which is in turn dependent on the volume of his/her other forms of capital (economic, cultural and symbolic).

Whilst Coleman and Putnam also refer to the benefits of connectedness as social capital, they theorised that it is good to seek after a network so as to leverage upon it. Perhaps this perspective might formulate a critique of and antithesis to Bourdieu's pessimistic underestimation of the dominated culture's degree of autonomy from the dominant and their capabilities of reforming social identity through imitation and cooperation.

Conclusion

The most effective way to destroy people is to deny and obliterate their own understanding of their history (attributed to George Orwell).

Parts Two to Six are undertakings to create myriad historical narratives (37 to be exact, offered up by 45 scholars) that are exemplars of the field, methods, and theories, resulting in quite a tome. Would threads from this massive work be weaved into new tapestry by would-be historians? Or ought this be an instructional manual on how to weave one's own future reality from the past and present? We shall find out in the second edition, whose necessity and urgency is compelled by the pandemic.

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