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Editor-in-Chief

Jürgen Rudolph

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Introduction to the fifth regular issue of JALT

Jürgen Rudolph

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We live, work, learn and teach in tumultuous times. Covid-19 has been an unavoidable topic in the first half of 2020. Nobody knows when this horrific pandemic can be relegated to the dustbin of history, but if epidemiologists are to be believed, not anytime soon. While rereading the Introduction to JALT's December 2019 issue, it hit me that we were eerily prescient by musing over Nassim Talib's black-swan-type-of-events and the usefulness of self-isolation (Rudolph & Yeo, 2019). This was a time when to most of us, 'corona' still meant something to be drunk, preferably with a slice of lime. The black swan appeared soon thereafter, and in many countries around the globe, social isolation was enforced for months. The country I call home has done quite well with its Circuit Breaker approach (Bonk et al., 2020), leading to Singapore to be considered one of a handful of safest countries worldwide (Koetsier, 2020).

Personally, I have found the last months strangely productive. With no time spent on the daily commute (or even minor matters such as: dressing up for the office, small talk with colleagues or the occasional extensive lunch conversation), I can hit the keyboard straight after waking up and throughout my waking hours. Despite feeling rather lucky to do what I like (and importantly, getting paid for it), there is nonetheless an imaginary sword of Damocles – of uncertainty and existential angst – hanging on hopefully more than just a horse's hair over our heads. An Australian colleague recently commented that he could not recall having seen lecturers and students more stressed (and Australia, as Margarita Kefalaki and Sophia Karanicolas tell us in this issue of JALT, is supposedly the "lucky" country, thanks to, amongst other things, its large size and dispersed population).

In terms of my productivity, I have been writing more than I have done for many years, and while I always hope to do more than I actually get done, I have been feeling most fortunate to have been involved in a couple of multi-authored projects – one a precious small tome on Why is it worth waking up every morning, edited by JALT Editorial Board member Margarita Kefalaki (2020); one an article on "Pedagogy in the time of pandemic: From localisation to glocalisation" for our sister journal JEICOM (Bonk et al., 2020), and another article in this issue of JALT. More importantly, JALT has both received and accepted a record number of articles, both for an outstanding special issue edited by Joey Crawford, Bill Baker and Mitch Parsell from the University of Tasmania (as a result of the Teaching Matters conference in November 2019) – of which most contributions are already pre-published – as well as the regular issue that is proudly introduced here.

I am writing these lines during a tumultuous time where concerns about a second wave are proving valid, or at least continue unabated and, though hope springs eternal, there is no vaccine or cure. One of the greatest ironies – and to me, this redefines the meaning of cognitive dissonance – is that some stock markets are near all-time highs (for instance, the tech-heavy Nasdaq briefly crossed the never-before-reached 10,000 mark), while the economy underwent one of its steepest declines in history, and unemployment in the U.S. rose at a hitherto unimaginable pace. The decoupling of main street from Wall Street (of the real economy from the stock market) is staggering. In the world's largest economy, the U.S., 20 million workers remain unemployed, and covid-19 has claimed more than 110,000 lives – and we have not even talked about the killing of George Floyd that has convulsed cities across the country and led to global anti-racism protests.

Our Journal of Applied Learning and Teaching is not the place to judge the performance of governments vis-à-vis the pandemic. It is one perspective that China's cover-up of the initial outbreak contributed to its own, and other peoples', suffering. Another (Chinese) perspective is the one of China as a model for taming the disease, and as the 'saviour of the world', by sending Chinese medical supplies (from masks to ventilators) to recipients around the globe, and flying Chinese medical teams to foreign countries to help them fight covid-19 (*The Economist*, 2020). Yet a different perspective would be to speculate on the incompetence and lack of empathy of populist leaders who appear to only care about their grip on power and being re-elected. Certain populist heads of state have appallingly advised to inject disinfectant or irresponsibly compared covid-19 to a mild flu (Tisdall, 2020). Perhaps it is no coincidence that the largest number of covid-19 deaths, as of 14 June, 2020, have occurred in the U.S. and Brazil. A related perspective may

be to elect more female, competent and compassionate women such as Angela Merkel, Jacinda Ardern, and Tsai Ing-wen and to avoid a certain kind of shallow, arrogant men (Tisdall, 2020).

The largest covid-19-related tragedy is that of the global poor who are the hardest hit. In the U.S., around 40 percent of the people in households earning $40,000 or less lost their jobs, with many finding it difficult to get by (Smialek, 2020), this in one of the world's richest countries. In emerging economies, there is oftentimes no social safety net whatsoever, and many poor people (frequently working in the informal sector) have the unenviable choice to either expose themselves to the virus (and to the authorities clamping down on them) or suffering from hunger and other abysmal aspects of extreme poverty. The virus appears to further increase the gap between the rich and the poor, and the haves and have-nots.

In this issue of JALT, three articles focus on the pandemic and Higher Ed (HE). The peer-reviewed section (with a total of nine articles) begins with a multi-authored article, entitled "Covid-19: 20 countries' higher education intra-period digital pedagogy responses". Six Editorial Board members were involved in it (Joseph Crawford, Bashar Malkawi, Matt Glowatz, Rob Burton, Paola Magni and me) as well as Kerryn Butler-Henderson and Sophia Lam. To the best of our knowledge, the piece is the first (pre-)published peer-reviewed article on the coronavirus and HE. As part of our new practice to systematically pre-publish all articles – that was implemented over the last couple of months, with the only difference between the pre-published and published article being the pagination – the article was pre-published on 1 April. The article's abstract has since been viewed more than 50,000 times and cited a dozen times, despite it not even 'properly' published as yet.

A second article centering on Covid was contributed by Margarita Kefalaki and Sophia Karanicolas with the creative title "COmmunication's ROugh NAvigations: 'Fake' news in a time of a global crisis". It is inarguable that fake news, disinformation and misinformation made the crisis even worse, and it is my firm belief that one of the most important things that undergraduates can learn at a university is to differentiate information and knowledge from rumours and rubbish. In other words, metacognition, our knowledge how to learn and where knowledge is located, is of critical importance. A third article, an (non-peer-reviewed) opinion piece by Michael Sutton and Carlos Jorge, discusses the potential for radical change in HE learning spaces after the pandemic. Specifically, game-based learning is considered for an andragogy based upon experiential education.

The coronavirus, however, is by far not the only important topic in our most substantial journal issue thus far. Lim Weiliang and Elaine Chapman develop and preliminarily evaluate a brief epistemic beliefs (referring to beliefs about knowledge and learning) instrument. There is a connection with Kefalaki and Karanicolas's article, as again knowledge and learning are at the centre of the discourse. Lim and Chapman's study provide the context of Singapore's education system moving toward the use of constructivist, rather than more traditional didactic, learning and teaching approaches. As students with sophisticated epistemic beliefs may benefit more from constructivist approaches, the authors developed an instrument and conducted quantitative research amongst Singaporean polytechnic students.

Nimrod Delante discusses "challenges, paradigm shift and theoretical underpinnings of learning advising" in the context of a case study of James Cook University (an Australian university) in Singapore. Delante discusses the vital role of learning advisors and identifies them convincingly as teaching professionals who are key in HE. Learning advisors are on occasion perceived as 'inferior' when compared to other teaching professionals. Delante volunteers concrete proposals how to properly appreciate the roles of learning advisors and discusses them within key theoretical frameworks.

Ibtesam Hussein and Kathryn Schiffelbein write about their research in the U.S., but the issue of "University professors' perceptions of international student needs" that they focus on also resonate in other papers in this issue, such as Delante's and also to some extent (though it is largely 'local' students) in Lim and Chapman's. Hussein and Schiffelbein researched the insights of North American university professors about common challenges that international students face, and top of the list were their – at times – limited English proficiency as well as an imperfect understanding of American classroom culture.

The top challenge of international students in the U.S. being their substandard command of English links up nicely with the next article by Li Jianjun and Yeap Peik Foong on English language learning in China. Li and Yeap come up with a dynamic systems theory model for reading motivation among English as a foreign language (EFL) learners in China. They convincingly show that the reading motivation for the many millions of Chinese EFL learners is a complex issue, and their holistic model was created to address this challenge. Li & Yeap's model is recommended for consideration when designing second language reading curricula and teaching and learning materials.

The remaining three peer-reviewed articles are from a variety of fascinating academic disciplines that transport us from physical therapy education to nursing, and eventually to architecture. Kerry Volansky asks: "What are best practices to teach 'hands-on' skills in a blended environment"? Despite the proliferation of online learning and teaching in physical therapy education, there is a gap that describes best practices used to teach 'hands-on' skills. Volansky comes up with a carefully curated list of best practices for physical therapy educators and recommends a blended learning approach to teaching orthopaedic "hands-on" skills. This article was accepted during the 'pre-covid-19 era' and it is hoped that such a blended approach can soon be pursued again, in the U.S. and elsewhere.

Sam Goh, Tang Mun Leong and Aini Ahmad discuss competence-based frameworks in nursing via a concept analysis. Goh and co-authors review various national competence-based frameworks and detect some shortcomings when it comes to the assessment methods

currently used by nursing regulatory bodies for their licensure system. They propose to use a modified Miller's model in nursing education.

The final piece in the peer-reviewed section is by Aleks Catina on "Dialogue and studio space: the architectural design studio as the setting for continuous reflection". Schools of architecture such as CASS at London Metropolitan University offer their students an iterative process of inquiries, reflection and actions in their design studios. Catina goes beyond a problem-based learning approach in order for architecture students to become truly reflective practitioners on their way toward professionalisation. I am impressed by the level of deep reflection in Catina's contribution.

JALT's issue at hand also contains an interview with HE expert George Siemens, entitled 'As human beings, we cannot not learn', where we discuss his theory of knowledge (connectivism), Massive Open Online Courses (an approach pioneered by Siemens) and learning analytics. In a wide-ranging interview, Siemens shares his personal experience of the utilitarian schooling system in his childhood which inspired him to have different perspectives on the interactions between education and technology, thus leading to his concept of Connectivism as well as his creation of MOOCs. Amongst many things, Siemens offers some clarifying insights from his seminal book, *Knowing Knowledge*, as well as a glimpse of his future work which will focus on how human and artificial cognition may influence knowledge processes and their impacts on society.

Including the interview with George Siemens, JALT has thus far featured interviews with four prominent educational thought leaders – previously, we had interviewed John Biggs, Stephen Brookfield and Bror Saxberg (Biggs et al., 2019; Brookfield et al., 2019; Saxberg et al., 2018). I have always enjoyed reading interviews, and I am increasingly convinced that this is an important genre. I recently came across an affirmation of this view:

> Reading interviews and transcripts of conversations is a more dialogical and dialectical experience than reading the typical monograph. Also, in conversational settings, authors are compelled to be more concise and clear than they may be in their writing, and if they are not, good follow-up questioning won't let them obscure things (Gilman-Opalsky, 2019, pp. 6-7).

Vanessa Stafford provides the ed-tech review of this issue, another cherished component of JALT. She reviews Zeetings, a relatively new tool in the rich world of EdTech that, according to Stafford, combines the features of a slide platform such as PowerPoint with online polling functionality à la Kahoot! In addition, Stafford presents two case studies from her fascinating professional development sessions at Kaplan Business School Australia, demonstrating a variety of applications of the tool.

The section with usually shorter pieces (that do not undergo double blind peer reviews) is kicked off with the earlier-mentioned piece on the potential for radical change in HE learning spaces after the pandemic by Sutton and Jorge. Next is our Editorial Board member Samson Tan's take on "Artificial Intelligence in education: Rise of the Machines". The arrival of the Fourth Industrial Revolution is an earth-shattering paradigm shift and also changes the world as we know it at breakneck speed. Despite the allusion to the Terminator movie franchise in his eye-catching title, Tan argues that the future of learning, like much else, will indeed be driven by the rise of the machines (in particular, AI, fuelled by 'datafication').

Nelson Ang philosophically poses the question "What is curriculum?" Ang argues that after many a learned contribution, curriculum remains a 'complicated conversation'. He asks some excellent questions and contends that the answers thus far have been underwhelming. The final piece in this 'informed journalistic' section is Lucy Gill-Simmen's inspirational discussion of a classroom exercise, entitled "Developing critical thinking skills: Using Edward de Bono's six thinking hats in formative peer assessment & feedback". Designed to develop undergraduate students' critical thinking and problem-solving skills through a peer assessment and feedback task, Edward de Bono's famous approach to thinking is gainfully applied.

The book review features five detailed book reviews. The books by Gabbard (*Silencing Ivan Illich revisited*), Choudhry and Vally (*The university & social justice*), Brookfield (*Teaching race*), Caplan (*The case against education*) and Yorkstone (*Global lean for higher education*) struck the reviewers as sufficiently salient and intriguing to go beyond the standard length of book reviews. It was delightful to have one of my former students (Shannon Tan) to contribute a critically reflective book review on *The case against education*, no less. Shannon Tan has also been instrumental in supporting JALT as its journal manager since the beginning of the year, and she has been uncomplainingly and efficiently dealing with an avalanche of projects. Much credit is due to her for continually improving the JALT website and too many other things to mention.

The usual big Thank You must go once again to our fantastic Editorial Board and the Management of Kaplan Singapore (especially Associate Professor Rhys Johnson, COO and Provost, and Mike Christie, Executive Director) for their continued support of the JALT project. Also, our esteemed Editorial Board member Nigel Starck provided critical proofreading of parts of the issue (all remaining errors are solely my fault!) and agreed to add the role of Associate Editor to his honorary portfolio. Also, Margarita Kefalaki and Joseph Crawford were extremely kind in agreeing to double up as Associate Editors, in addition to their role as Editorial Board members. My sincere gratitude continues to be due to academic colleagues worldwide for their continued sharing of the JALT initiative with their networks.

JALT is currently having its two-year anniversary of publishing, with (soon to be) seven issues published (five regular and two special issues). Such anniversaries are great opportunities for critical reflection. By July this year, the number of articles (including peer-reviewed articles, interviews, ed-tech reviews, journalistic articles, book reviews, introductions and prefaces) will have surpassed 100, and we have had around

140 contributors from 19 countries in four continents. Contributors have been from highly diverse backgrounds, exactly the way we like it, ranging from pro vice-chancellors and full professors to early career academics and students (the very reason for our professional existence as teachers). Geographically, contributions range from the next door in my office in Singapore to far-flung places such as Australia, the U.S., Ukraine and Lebanon. Our Editorial Board includes highly reputable academics from universities around the world.

In the past, JALT was supported by educational conferences in Greece and Tasmania, and no thanks to the virus, conferences had to be cancelled this year in Athens and in Singapore (we hope they will take place in 2021). With Kaplan Singapore and its partner universities, we also conducted six symposia over the last two years. We have now decided to move five symposia online for the remainder of 2020, and there are forthcoming symposia with the University of Essex (led by Stevphen Shukaitis), Murdoch University (led by Peter Waring, Paola Magni and Anne Palmer), Griffith University (led by Rob Burton), University College Dublin (led by Orna O'Brien and Matt Glowatz) and University of Portsmouth (led by Lena Itangata) – the aforementioned wonderful scholars and teachers are all Editorial Board members of JALT. As always, I welcome all feedback and ideas.

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COVID-19: 20 countries' higher education intra-period digital pedagogy responses

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Abstract

The Coronavirus 2019 (COVID-19) pandemic has created significant challenges for the global higher education community. Through a desktop analysis leveraging university and government sources where possible, we provide a timely map of the intra-period higher education responses to COVID-19 across 20 countries. We found that the responses by higher education providers have been diverse from having no response through to social isolation strategies on campus and rapid curriculum redevelopment for fully online offerings. We provide in our discussion a typology of the types of responses currently undertaken and assess the agility of higher education in preparing for the pandemic. We believe there are significant opportunities to learn from the pedagogical developments of other universities, in order to strengthen our collective response to COVID-19 now and into the future.

Introduction

The Coronavirus 2019 (COVID-19) pandemic has had such an extensive impact on the global higher education sector. Initial responses in countries impacted by the 180 million Chinese students (primary, secondary and tertiary) market were focused on the delivery of online training to students who were unable to leave China and the economic impact on universities who relied on the income from this international cohort (Perrotta, 2020). Faculties rushed to convert curriculum to an online environment, mindful of technology and websites that could be accessed from China. The spread to South Korea, then Iran and Italy resulted in the higher education sector in affected countries to change to focusing on their own operations (UNESCO, 2020). It was a test of organisational agility (Wu, 2020), with many initially focused on transitioning content to an online environment, and not necessarily on online pedagogy. Yet, it was also a demonstration of the impact of poorly resourced institutions and socially disadvantaged learners where limited access to technology and the internet impacted on organisational response or students' ability to engage in an online environment (Zhong, 2020). Many scholars questioned if higher education was prepared for the forthcoming digital era of learning (Houlden & Veletsianos, 2020). This paper will explore the first wave of responses from universities globally to summarise collective responses in the face of a pandemic.

Background

On 31 December 2019, the Wuhan City Health Committee (2019) reported a cluster of 27 pneumonia cases stemming from an unknown etiology, with a preliminary source linking this to the now closed Wuhan Huanan Seafood Wholesale Market. This was later determined to be a novel coronavirus (2019-nCoV). By 20 January 2020, there were 295 laboratory-confirmed cases, with 291 from Wuhan, China (European Centre for Disease Prevention and Control, 2020). Since these cases, there has been substantial growth across the globe. According to the World Health Organization (2020a), on 31 March 2020, there have been 697,244 confirmed cases with 33,257 deaths (4.77% mortality rate). The World Health Organization (2020b) has declared COVID-19 a pandemic. The top ten countries by reported cases are: China, Italy, United States of America, Spain, Germany, Iran, France, South Korea, Switzerland, and United Kingdom (World Health Organization, 2020a).

Consumer sectors are being affected by radical purchasing decisions based on components of fear. Toilet paper, disinfectants, tissues, pasta, and long-life foods are seeing significant growth in sales (Thom, 2020; Wright, 2020). Data connectivity is positioned as an important addition as individuals choose, or are required, to work and study from home (Morris, 2020; Perez, 2020). The higher education sector has been confronted by a need to respond to the evolving landscape in terms of Chinese student load, self-isolation guidance from national governments, and supporting staff and students who are unable to travel cross-nationally or to their local campus. Many universities are responding in diverse ways, and given the speed of the changes unfolding, are not likely discussing and studying the changes evolving globally. We also have observed some challenges unfolding with alternate delivery structures, particularly in relation to rapid digitalization of curriculum.

This paper begins a conversation to explore the first wave of responses from universities globally. A desktop analysis at the country-level of a select group of countries and their broader higher education response highlights the different approaches to higher education taken across the globe. We undertake this analysis for the purpose of answering the first of our research questions: How are universities responding to COVID-19? We continue to address this in our discussion to provide some preliminary types of current and forthcoming university responses.

Method

This manuscript adopts a desktop analysis approach with careful consideration as to the quality of the information source. In order to create an effective and rigorous status update for universities globally, it is critical that we seek to use reliable sources given the general fluctuation of information regarding COVID-19. For transparency, we used 172 sources, and provide a summary of sources used in Table 1. For developed nations, the emphasis was on the use of direct university and government sources (47.09%) supplemented by news articles, higher education news outlets, and other forms of communication. In developing nations and those whose language is not English; we required more supplement and translation support from co-authors.

Table 1. *Sources used for findings*

Source type	Example	*n*	%
News articles	CNN news articles	84	48.84
University website	University of Tasmania website	51	29.65
Government information	Government press releases	17	9.88
Higher education news	Times Higher Education	9	5.23
Reports and papers	Consultancy reports	7	4.07
University communication	Direct emails to student cohorts	4	2.33

To assure that we reviewed across the globe, we attempted to achieve a rough equality of countries across the World Health Organization's (2020c) six regions. We present these in Table 2, noting that some regions provide a slight skew because they are more affected by the COVID-19 spread. There are several countries that we deemed to have equivalent or similar strategies to the current sample. Our focus was to explore at least two countries from each region, with a stronger focus on countries that have differing strategies to others. The aim of this stratification was to support our digital pedagogy strategy. We also attempted to balance countries with high cases and those whose cases are just emerging.

Table 2. *Summary of countries reviewed by region*

Region	Countries
African region	Nigeria, South Africa
Eastern Mediterranean region	Egypt, Jordan, United Arab Emirates
European region	Germany, Ireland, Italy, United Kingdom
Region of the Americas	Brazil, Chile, United States of America
South-East Asia region	India, Indonesia
Western Pacific region	Australia, China, Hong Kong, Malaysia, Republic of Korea (South Korea), Singapore

Findings: how are universities responding?

The findings presented in this paper are organised by country, in alphabetical order.

Australia

Australian higher education has responded to COVID-19 with a varied effectiveness. These came in the form of first: responding to international student load concerns due to flight restrictions, then to domestic cases and the requirement for social isolation. Each positive test of a student on campus received significant commentary in the media. Some universities began with careful cleaning of campuses after student tests of COVID-19 were positive. The University of Sydney began with rapid building cleaning activities after their first case (University of Sydney, 2020). However, the majority are now progressing to alternative forms of learning. Some have a temporary halt to learning to design online learning (e.g. Macquarie University, 2020; Monash University, 2020; Victoria University, 2020) and others are intending to continue face-to-face learning with social distancing protocol and supplemented online recordings/offerings (e.g. University of Queensland, 2020; University of Technology Sydney, 2020). Others have made rapid progressions towards online learning without suspending offerings (e.g. Australian National University, 2020; University of Tasmania, 2020). In line with government bans of public gatherings of 500 people on 14 March (Worthington, 2020), some universities are continuing to offer face-to-face classes with alternative delivery structures for large lectures and seminars (University of Adelaide, 2020; University of Melbourne, 2020) including Flinders University and Deakin University (Ross, 2020). Some universities have not created significant responses for domestic students not requiring self-isolation (e.g. University of Western Australia, 2020). This evolution continued to Australian government bans of public indoor gatherings exceeding 100 people on 18 March (Bagshaw, 2020), and exclusions of all public gatherings exceeding two non-family/households announced on 24 March. This is likely to significantly affect those universities that did not move online immediately.

China

As the first country to report a case, China's higher education sector had little time to prepare. Yet during January, while there were numerous reports from the higher education sector in countries that rely on the Chinese student import trade, little information was emerging about how the spread of the virus was impacting universities in China. All schools, including primary, secondary and universities, were on break until after the Lunar New Year, with a planned return on 31 January. Beijing announced on 26 January, they would postpone the start of the spring semester (Berlinger et al., 2020). China's Ministry of Education then announced on 28 January, this would extend across the country, including government-run colleges and universities (Khaliq, 2020). Several standardised tests were cancelled on 28 January, including the Graduate Record Examination (GRE), the Graduate Management Admission Test (GMAT), the International English Language Testing System (IELTS), and the Test of English as a Foreign Language (TOEFL; ICEF, 2020).

Reports conflict with how quickly the higher education sector responded. While some reported rapid transition by 2 February (Leung & Sharma, 2020), others reported the transition did not occur until mid to late February (McKenzie, 2020; Qu, 2020). New York University Shanghai (2020) announced all classes would be taught online from 17 February, while Duke Kunshan University (2020) and Zhejiang University (2020) transitioned to online by 24 February. Many other universities, including Peking University and Tsinghua University reported a similar timeline for their transition to online delivery (Leung & Sharma, 2020), with Shanghai Jiao Tong University reporting their first online class on 1 March. Yet not all universities have the resources or academic capabilities or capacity to transition to online delivery (Leung & Sharma, 2020). The delay to the start of the spring semester was almost a month for many universities. Few higher education institutions offered online delivery prior to COVID-19, and many were not prepared for the transition, with numerous reports suggesting this was a short-term approach and onsite teaching would commence in two to four weeks. At present, they remain closed for onsite classes. With the transition to online in place for organisations, attention has now turned to the quality of the learning experience (Qu, 2020). Further, the ongoing physical social isolation is impacting the academic workforce that traditionally is up the front of the classroom (Cappelletti, 2020).

Egypt

Egypt is the most populous country in the Arab world with a total population of over 90 million (World Population Review, 2020). As of 29 March, Egypt reported 579 confirmed positive cases, with 36 deaths (WHO, 2020a). Similar to other Arab countries, Egypt has temporarily closed schools, universities, and other educational institutions (Ahram, 2020; *Reuters*, 2020a). This closure affects hundreds of thousands of students.

Notable private Universities have taken steps to carry out their teaching online during the period of campuses closure. For instance, the British University in Cairo offers e-learning using Moodle, Microsoft Class Notes, and Microsoft Teams software (The British University in Cairo, 2020). The American University in Cairo also took several steps to move from face-to-face classes to online classes (American University in Cairo, 2020). Some of the tools that are used to deliver online classes include Blackboard, Moodle, email, and Zoom (American University in Cairo, 2020). Some of these tools were well-known before the crisis, but the crisis has accelerated the plans to use them.

There might be some issues in implementing online learning by major state universities in Egypt like Cairo University and Alexandria University. This is due in part to the large number of students admitted (Ministry of Higher Education and Scientific Research, 2014). Other issues relate to the availability of the right hardware and software, networks,

and storage capacity. Some universities like Alexandria University have opted for live and recorded sessions (Alexandria University, 2020). Live situations can assess whether the technology infrastructure in state universities can smooth online learning considering the expected traffic and connectivity.

Germany

In March 2020, Western Europe became the epicentre of the COVID-19 pandemic, with Germany one of the most affected countries (Statistica, 2020). As of 29 March, more than 52,000 German residents are confirmed to have been infected and at least 389 people have died from the disease (WHO, 2020a). Germany's relatively low mortality rate has intrigued experts and rivaling theories are emerging (The Guardian, 2020; Sauerbrey, 2020). Like many other countries across the globe, Germany has implemented several measures counteracting and slowing down COVID-19 spread across the nation. As of 22 March, and for at least two weeks, new social distancing measures were enacted, with not more than two people being allowed to meet in public (unless they belong to the same family or household) and a distance of minimally 1.5 meters to be adhered to (*Spiegel*, 2020a). In a dramatic development, German chancellor Angela Merkel self-quarantined herself on 22 March 2020, having been in contact with a member of medical staff who tested positive shortly after meeting the chancellor; she has since tested negative (*CNN*, 2020; Sauerbrey, 2020).

Due to Germany's federal structure of 16 states (or *Länder*) operating and implementing laws and guidelines independently, although following the overall government's recommendations, different (often inconsistent) approaches to tackle the COVID-19 crisis have been implemented in the past. This independent decision-making process has also been adopted by many of the 424 higher educational institutions offering several thousand programmes in Germany (Statistisches Bundesamt, 2020).

The University of Passau (Bavaria), for instance, provides an excellent case study on how the higher education sector in Germany responds to challenges associated with COVID-19 (University of Passau, 2020). On 12 March, face-to-face teaching was suspended and one day later, university staff could work from home. The university library was closed and as a result, extensions were granted for theses, dissertations, and other written assignments (University of Passau, 2020). On 18 March, examinations were announced to be limited to an absolute minimum, and oral examinations were suspended. Notice was given: "Please note that oral exams must not be conducted via Skype, Facetime or other digital means, as there is no legal basis for this" (University of Passau, 2020). The University of Passau also announced that as of 21 March, the State Government of Bavaria imposed a state-wide lockdown. Residents were prohibited from leaving their homes unless there was for a permissible reason (such as work, seeking medical assistance, and purchasing items needed for daily life). Also, as a precautionary measure, electronic student ID's were disabled, with the University's assurance that students would not be put at a disadvantage. Additionally, the University announced that buildings will be closed from 24 March to 19 April 2020. (University of Passau, 2020). At the time of writing, it was unclear how teaching would continue in the summer semester, with a "general technical framework" for "virtual teaching" still in the process of being established (University of Passau, 2020).

The University of Passau case is an example of a swift and rigorous approach. But in late March, due to the contact ban by the German Federal Government, the universities' responses converged. Lower Saxony's University of Göttingen announced that teaching is suspended with immediate effect, and the only events allowed to take place were "committees and other meetings necessary for the operation of the University" with video conferencing technology being strongly preferred over face-to-face meetings (University Göttingen, 2020).

Similarly, Heidelberg University (2020) announced its campus closure effective from 22 March 2020 for the rest of the semester. Students that were residing on campus were required to move out. However, they would be provided with a pro-rated cash reimbursement for the cost of room and board for the remainder of the semester (until mid-May). Online learning preparations have been put into place. Although the commencement ceremony scheduled for mid-May had to be cancelled, graduates will still receive their awards in a timely fashion (Heidelberg University, 2020).

Hong Kong

On 29 March, there were 682 confirmed COVID cases in Hong Kong (Worldometer, 2020). The city is geographically close to mainland China, having more than 100,000 daily border crossings (GovHK, 2020a), the number of confirmed cases remains relatively low. The Severe Acute Respiratory Syndrome (SARS) in 2003 caused 286 people to die and raised the awareness of the whole city on contagious viruses. The Hong Kong government suspended all kindergarten, primary and secondary schools from 27 January (GovHK 2020b; Zhang et al., 2020). For higher education, the Chinese New Year holiday in early February was extended for two weeks, and it was announced that online learning will be adopted for the remaining semester (Lau et al., 2020).

Implementation of online teaching at higher education in Hong Kong is not brand-new. Back in November 2019, when the extradition law protests were intense, several universities ended the first semester immediately or used online teaching (*South China Morning Post*, 2019). Consequently, the universities responded to the outbreak of COVID-19 in mainland China promptly (Chinese University of Hong Kong, 2020; Hong Kong Baptist University, 2020; Hong Kong University of Science and Technology, 2020; University of Hong Kong, 2020).

In the beginning, relevant online teaching training was provided to staff and students. The universities created videos and teaching guides and conducted online workshops to equip staff and students to use various online learning platforms (e.g. Zoom, Skype, Moodle, and Google Drive). The content of the training was based on the request from lecturers and developed by the information technology

team of the university, to ensure different stakeholders are competent and familiar with the relevant skills of online learning.

Later, universities developed synchronous and asynchronous online learning approaches. The online teaching can be conducted through real-time lectures, or lecturers can upload videos or use PowerPoint on learning platforms. This is to cater to students with different learning style preferences, and most importantly, international students who might be in different time zone and are unable to attend some lectures. Constant feedback from staff and students during the period has supported university quality reviews and monitoring of online learning and teaching. Actions are required by staff in response to the feedback as part of the quality assurance mechanism. Finally, the evolving situation of COVID-19 has led to updates for teaching arrangements (e.g. workshops, laboratory, and practicum are all suspended, and some students requested a partial refund of tuition fee; Chan, 2020). Information flow amongst stakeholders and flexibility to respond and react to the situation are continuing challenges for Hong Kong higher education.

India

With a neighbouring border with China, the low number of cases (979 as of 29 March; WHO, 2020a) relative to the large population size of India left many concerned that the number of community-acquired cases is higher than reported (Mansoor, 2020). Their health system is poorly underprepared should the number of cases reach the proportions seen in Italy or the United States of America (*The Economist*, 2020). Public gatherings continued, with a gathering on 24 February of students from the Manav Rachna International Institute of Research and Studies (MRIIRS), University at Faridabad to show solidarity with victims of COVID-19 (Hui, 2020). Whilst there has been no nationwide decision to shut down schools (Mansoor, 2020), most regional governments have announced schools in their areas will be closed (*The Economist*, 2020). Schools in Delhi were closed from the 13 March (Press Trust of India, 2020) and the Maharashtra government announced on 16 March, it would postpone all university examinations (Mansoor, 2020). Pondicherry University (*TNN*, 2020) announced on 17 March, it would suspend all academic activities, followed by the University Grants Commission advising all universities on 19 March to postpone examinations until the end of March (*The Economic Times*, 2020). The University of Hyderabad (2020) announced on 20 March, it would defer all academic activities and close their hostels, followed by the SRM Institute of Science and Technology and VIT, Vellore declaring the summer vacation for students (Sujatha, 2020). No universities could be identified as announcing a move to online instruction because of COVID-19 and many are implementing a shutdown or postponement strategy until the end of March.

Indonesia

There is little information from Indonesia regarding higher education, or COVID-19 in general. The University of Indonesia in Depok and Gajah Mada University in Yogyakarta (*Jakarta Globe*, 2020) have closed their campuses and staff are delivering training online. Whilst the University of Indonesia (2020a) has published a prevention protocol, the Gajah Mada University (2020) has published information about their strategy to move classes online. More than 200 Indonesian citizens who were enrolled at universities in Wuhan were evacuated by the Indonesian Government in early March (Souisa & Salim, 2020).

Indonesia announced its first two positive cases on 2 March (*The Star*, 2020a). As of 29 March, Indonesia's COVID-19 fatality rate was very high at more than eight percent (102 deaths from 1,155 confirmed cases; WHO, 2020a). As of 15 March, Indonesia's President Joko Widodo suggested people stay, work, study and pray at home for two weeks to prevent further spread of the highly contagious disease (Sutarsa et al., 2020; *Indonesia Expat*, 2020). The President further encouraged social distancing, while he deemed a national lockdown – or even a lockdown of 'red zone' epicentres – unsuitable for Indonesia (*Indonesia Expat*, 2020; *New Straits Times*, 2020a). With more than half of Indonesia's workforce working in the informal sector and 25 million people living below the poverty line, many people cannot afford to self-isolate as they risk losing their sole source of income (Sutarsa et al., 2020).

On 24 March, it was reported that all national exams – for elementary, junior high and high school students were cancelled (Ghaliya, 2020). The national exam for high school students had originally been scheduled for the week starting 30 March. At the time of writing, three main alternatives to the cancelled national exams were under consideration: (1) to use assessments based on cumulative grades on report cards from three years of study for high school students, (2) an online national exam or (3) minimum competency assessment evaluating students' literacy and numerical competence (Ghaliya, 2020).

The University of Indonesia in Depok and Gajah Mada University in Yogyakarta (Jakarta Globe, 2020) have closed their campuses, and staff are delivering training online. Whilst the University of Indonesia (2020b) has published a prevention protocol, the Gajah Mada University (2020) has published information about their strategy to move classes online. More than 200 Indonesian citizens who were enrolled at universities in Wuhan were evacuated by the Indonesian Government in early March (Souisa & Salim, 2020).

The approach of Universitas Indonesia (UI), Indonesia's highest-ranked university, may serve as a case study. On 16 March, the Rector of UI published a letter on the university website that recommended online learning instead of face-to-face teaching for the rest of the term; staying away from campus when feeling unwell; and avoiding large-scale events as much as possible. However, he still thought that some activities were impossible to postpone or cancel, such as the UI Entrance Test, the National Competency Test or the oath-taking ceremony (Universitas Indonesia, 2020). On 30 March, a quarantine order for Greater Jakarta's approximately 30 million population seemed imminent (as more than half of the confirmed cases were from Indonesia's

capital – *Bloomberg*, 2020). Thus, a rethinking of the severity of the threat that the pandemic poses to the world's fourth-largest country is occurring.

Italy

The first cases of COVID-19 in Italy were reported on 31 January, when two Chinese tourists were tested positive in Rome (Ministero della Salute, 2020). An increasing number of cases were confirmed in the north of Italy, with the first death occurring near Milan on 22 February (Ravizza, 2020). Following the first case of death, the government imposed a multi-city quarantine in a number of locations found highly affected, called red zones. Despite imposed penalties and law enforcement, thousands of Italians travelled out of the north to avoid such restrictions. By the beginning of March, cases were reported throughout the peninsula and the main islands of Sicily and Sardinia.

Schools, public events, and religious services were cancelled in red and yellow zones, with the closure of all commercial activities and all school closures across the country to follow. The Italian Minister of University and Research announced that universities' online lessons would be delivered starting from 2 March and graduations would be conducted using Skype (De Giorgio, 2020). Only a small number of universities like the University of Basilicata installed thermal scanners to continue their learning and teaching activities (ANSA, 2020). Medical and other health-related internships and trips were suspended (Bronzini et al., 2020). On 4 March, the Italian government imposed the shutdown of all schools and universities. The universities of Bologna, Turin, and Milan as well as polytechnics of different cities set up remote learning and teaching with examinations and learning activities delivered to students online, especially via Webex.

The University of Turin has 80,000 students across 155 courses. There have been more than 2,500 video-conferencing sessions with more than 70,000 participants, 4,200 hours of recorded video by 3500 academics and researchers as of 13 March (University of Turin, 2020; Di Paco, 2020; RedazioneOP, 2020). In order to assist students, several public universities have also approved the postponement of fee payments from March to May (Di Paco, 2020). On 12 March, the Rector and the Managing Director of Bocconi University in Milan, a private university, sent a message to all the students and staff, focusing on resilience and innovation. They acknowledged the impressive effort of all the academics and staff and shared the extraordinary result of a total of close to two million teaching minutes that had been produced and delivered. Almost 9,000 students had watched videos on demand, with an average of 12 videos viewed per student, and more than 6,000 students participated in at least one live streaming session (over 800 sessions in all) (Verona & Taranto, 2020).

In the south of Italy, the University of Catania in Sicily was considered a green zone until the end of February. At the beginning of March, the University was closed for large-scale cleaning. The reopening was planned for 9 March, but later postponed, with e-learning starting from 19 March. A large emphasis of the media is on Italian students studying in other countries, particularly through learning mobility programs conducted under Erasmus+ projects (approximately 13,000 students). The 'crisis unit' of the Farnesina, the Italian Ministry of Foreign Affairs, is working to provide Italian students in foreign countries information and advice on how to return to Italy despite current travel restrictions (Stippoli, 2020; Ziniti, 2020).

Jordan

Like many countries, Jordan is strongly affected by the spread of COVID-19. Jordan has 246 confirmed cases as of 29 March (WHO, 2020a). To prevent the spread of COVID-19, Jordan closed its land, air, and sea border crossings (Jordan Times, 2020) and took extreme measures such as imposing a curfew (*The Guardian*, 2020), closing schools and universities (Ashara-Alwsat, 2020) and moving its university classes to online delivery (Khaberni, 2020; Jordan's Ministry of Higher Education and Scientific Research, 2020).

Teaching in Jordan began using chalkboards and soon graduated to transparencies and overhead projectors. Then PowerPoint took root in colleges with slides projected from a computer onto a classroom screen (Malkawi, 2007). With e-mail, videoconferencing, high-speed internet access, on-line legal libraries, and the like, education is quickly melding into a new shape. However, offering effective online classes requires more than simply taking the material from the conventional course and posting it onto a web-based repository. To be successful, the course needs to foster effective student engagement and be digitally dynamic. The solution is to offer a course that has a little bit of everything: personalised feedback from professors; discussion boards for interaction between students and law professors; quizzes with immediate feedback; and lessons containing the core reading materials.

During the COVID-19 crisis, Jordan universities are required to provide the Ministry of Higher Education and Research with the number of courses converted to online media and the number of students who log on to a university's online learning platforms (Hala, 2020). Some universities are using Skype to live broadcast professors' lectures, Google Classroom, Moodle, and Facebook (Al-albayt, 2020).

The current COVID-19 climate could provide a necessary platform for the digitalization of the curriculum for Jordan. For the foreseeable future, there will be only limited learning from university classes that have been moved online. 'Classroom professors' are likely required to undergo professional development and adopt continuous improvement philosophies to rapidly move to online delivery. Such university professors who taught effectively in face-to-face lectures and workshops may not find it effective or easy to deliver content digitally. The universities in Jordan are unlikely to be able to engage in training and development at the speed needed for this climate. It is also likely to be difficult for students who are used to conventional classrooms to learn online. The synthesis: a potential decline in learning quality in the short-term, despite best efforts.

Malaysia

Malaysia has been labelled "by far the worst-affected COVID-19 country in Southeast Asia" (*New Straits Times,* 2020b). However, the situation in Southeast Asia as well as other regions around the world is far from clear, as confirmed infections should not be confused with actual infections: restricted by testing capabilities, willingness, and frequencies. A mass religious pilgrimage – to some extent comparable to the thousands of infections linked to services of the Shincheonji Church of Jesus in Daegu, South Korea – at a mosque complex in Kuala Lumpur (held in late February, 2020) was a source of hundreds of COVID-19 infections, with 16,000 attendees from Malaysia and other Southeast Asian countries, holding hands and sharing plates of food during the event (*Reuters*, 2020b). In response to the alarming increase of infections in Malaysia, Prime Minister Muhyiddin banned all non-essential social activities (including religious, sport, social, and cultural events) from 18-31 March to combat the spread of COVID-19 under a nationwide Movement Control Order (Tee, 2020).

As of 16 March 2020, the response by most of Malaysia's 20 public universities was to encourage or mandate online learning (Lim, 2020), using live streaming on Facebook or YouTube, Lightboard Video Technology, Zoom, or in-house e-learning platforms (Lim, 2020; Ramadan, 2020; Teoh, 2020; Universiti Malaysia Sarawak, 2020). This approach can be viewed as a fragmented approach to achieving higher education learning and teaching quality. This includes assessment strategies such as lab research continuing to be allowed at Universiti Kebangsaan Malaysia and Universiti Malaysia Trengganu; face-to-face lectures going on as usual at Universiti Utara Malaysia and International Islamic University Malaysia; or Universiti Malaysia Perlis banning their students from leaving campus without express permission (Lim, 2020).

After the nationwide closure of all public and private institutions of higher learning, Malaysia's Ministry of Higher Education took the unusual step to also prohibit all *digital* learning activities on 17 March (Asia Pacific University of Technology & Innovation, 2020). Both public universities and private higher education institutes are forbidden to conduct "any Teaching and Learning activities including in online mode, as well as examinations, vivas, student development and research activities" during the above-mentioned Restricted Movement Period (Asia Pacific University of Technology and Innovation, 2020).

Nigeria

Nigeria is the continent of Africa's most populous country and announced the closure of its airports to international flights for one month from 21 March 2020 in response to the COVID-19 situation (Adigun et al., 2020). On the same date, the Federal Ministry of Health confirmed there were currently 22 confirmed cases but no reported deaths at that time. Advisory measures related to social distancing were recommended along with suggestions to restrict travel, postpone and cancel large gatherings (Nigeria Centre for Disease Control, 2020). All public and private schools were ordered closed in 10 of 26 states to prevent the spread of the disease (Adnan, 2020).

Following on from the directive to close all schools, the National Universities Commission (NUC) ordered all universities in Nigeria to close (Ezeri, 2020). This was scheduled to last for a period of one month commencing from 23 March 2020. This was issued as a 'directive from federal government to prevent the spread of the virus' according to a NUC spokesperson (Adedigba, 2020) Fast-tracking of ongoing second term exams in Unity colleges was also advised following the ordering of closure of 104 unity schools by the Federal Ministry of Education (2020).
On 29th March 2020, it was reported that there was a lockdown order in Lagos, the most populous city in sub-Saharan Africa for one week (*CNBC*, 2020).

Republic of Ireland

The island of Ireland has been and will be playing a special role in the Brexit process (Blitz et al., 2019) as it remains the only European Union (EU) territory with a shared land border with the United Kingdom (UK). As of 29 March (RTE, 2020; WHO, 2020a), there were 2415 confirmed cases spread amongst 33 identified clusters with 36 COVID-19 related deaths in the Republic of Ireland. The highest number of cases can be found in two geographical locations, namely Dublin (55%) and Cork (9%) with County Monaghan remaining the only county with no confirmed COVID-19 case yet. It is worthwhile mentioning that Dublin and Cork are the two most densely populated regions in the Republic of Ireland. Travel-related cases account for 35 percent of overall cases with community transmissions making up 42 percent of all cases.

The first COVID-19 case on the island of Ireland was confirmed on 28 February (RTE, 2020). This was followed by the first confirmed case in the Republic of Ireland on 29 February (RTE, 2020), a male secondary school student who returned home from a mid-term skiing trip to Northern Italy. COVID-19 has since dramatically escalated on the island of Ireland resulting in business, restaurant, pub, and entertainment facility closures, 'home office' work arrangements, 'social distancing guidelines', and the country's health system's infrastructure struggling to source sufficient numbers of COVID-19 testing equipment. This is a worrying fact as the number of tested people in Ireland remains below average compared to other EU counterparts (RTE, 2020). In certain instances, patients must wait for up to seven days to get an appointment to be tested for COVID-19.

Trinity College Dublin (2020) was the first Irish university to immediately close its physical infrastructure and move to remote online teaching the same day one of its students was confirmed positive for the COVID-19 infection in early March. On 12 March 2020 (UCD, 2020), University College Dublin (UCD) president Professor Andrew Deeks informed both staff and students of the closure of all UCD's physical infrastructure taking effect from 13 March until 29 March 2020 except the library and medical research facilities to be utilised combating COVID-19. The Irish Prime Minister Leo Varadkar visited UCD's National Virus Reference Laboratory

on 19 March 2020 (*Independent*, 2020a) obtaining an overview of ongoing COVID-19 research.

In an unprecedented move in Irish history, on 16 March 2020 (Deeks et al., 2020) presidents of 21 higher educational institutions with the support of two student unions disseminated a cohesive and consistent message through email to all registered students in the respective institutions offering advice on COVID-19 and nationwide procedures to be implemented nationwide in order to maintain a satisfactory and safe learning environment utilising innovative educational technologies (EdTech) enabling remote learning and assessment.

Many of the Irish higher educational institutions (UCD, 2020; Trinity College Dublin, 2020; University College Cork, 2020; Queen's University, 2020), however, were not only closing their physical infrastructure until 29 March 2020. They have already informed both staff and students that both lectures and assessment, in a virtual and online environment, must be offered until the end of the academic year on 31 August 2020. UCD's Teaching and Learning (2020) – like many other higher educational institutions on the island of Ireland – has implemented dedicated teaching continuity measures for academic staff and students.

Republic of Korea (South Korea)

The first confirmed COVID-19 case in South Korea was on 20 January. On 29 March, South Korea had more than 9,500 cases and 105 deaths (WHO, 2020a). The outbreak and spread were primarily caused by a gathering at Shincheonji Church of Jesus at the Temple of the Tabernacle of the Testimony church in Daegu. However, South Korea learned from the 2015 outbreak of Middle East Respiratory Syndrome (MERS) (*Nature*, 2020) and has been widely praised for its disease control system and large-capacity healthcare system during the COVID-19 pandemic (Sonn, 2020). The country achieved slowing down the spread of the virus and maintain a downward trend in daily infections.

In South Korea, 1 March is the Independence Movement Day, and schools at all levels start the new academic year on 2 March. It is an important day for Koreans. Due to COVID-19, the Ministry of Education (MoE) postponed the school term (MoE, 2020) for the first time. All primary and secondary schools are on temporary vacation until 6 April (*The Korea Herald*, 2020). For higher education, the semester was postponed for two weeks, and the semester will be shortened from 16 weeks to 14 weeks (MoE, 2020). In addition, commencement and matriculation ceremonies are all cancelled to avoid mass gathering (MoE, 2020). Most of the universities adopted online teaching for one month (Seoul National University, Hankuk University of Foreign Studies). The universities provide face-to-face training workshops or guide for lecturers to be equipped with various modes of online teaching (HUFS, 2020). Also, examples of online teaching demonstrate to lecturers how to conduct lectures online, including voice-over PowerPoint teaching, uploading the videos on YouTube, real-time lectures using WebEx, Zoom or YouTube streaming. Lecturers are also encouraged to use a mixed mode of different teaching modes to deliver online lectures (HUFS, 2020).

The Korea Education and Research Information Service (KERIS) is a public institution under the Korean MoE that promotes various projects and academic research related to Information and Communication Technology (ICT) in education ranging from primary to higher education (KERIS, 2020). Although the use of technology in teaching has been implemented in South Korea for almost two decades, solely online teaching is new to lecturers and students. In general, the universities regard the online teaching approach as a temporary solution and expect to resume face-to-face teaching after the crisis.

Singapore

As of 29 March, Singapore had 802 confirmed COVID-19 infections (with two deceased, 629 hospitalized and 212 having been discharged; WHO, 2020a; Upcode Academy, 2020). The city-state's use of public-health best practices (that have built on the experience of the SARS outbreak in 2003) have garnered praise from the World Health Organization (Seet, 2020) and its success so far may be attributed to several factors: rapid and widespread deployment of testing; rigorous, technology-informed contract tracing; real-time integrated tracking and analytics; the availability of expert medical care; and an efficiently-imposed system of quarantine orders, stay-at-home notices and leaves of absence (Craven et al., 2020; Singapore Ministry of Health, 2020). In this context, Singapore's education system has not witnessed measures quite as drastic as some other countries reviewed in our article: universities and schools have not been closed (with some institutions of higher learning currently teaching fully online, while others pursue blended learning approaches). However, graduation ceremonies and other large-scale events have been postponed throughout, and overseas placements (including internships and exchange programs) as well as inter-university and other external activities have all been suspended (*Channel News Asia*, 2020a; Singapore Ministry of Health, 2020). Affected students are being provided with alternative, credit-bearing learning arrangements such as online learning. Singapore's Ministry of Education has asked about 2,300 students in the local Autonomous Universities and polytechnics to return from their official overseas placements as soon as possible (Ang, H. M., 2020).

One Singaporean polytechnic has launched a short online course on infection control and prevention of COVID-19 (Ang, J., 2020). At the National University of Singapore School of Design and Environment, one of its professors became ill with COVID-19 in late January. Consequently, all lessons were conducted online from 14 February with assessments and meetings suspended as precautionary measures (*The Star*, 2020b). Face-to-face classes at local universities (including those run via Private Education Institutions) are supported by online strategies, galvanizing a sudden EdTech boom. Universities use web-conferencing platforms such as Zoom, Webinar, and Panopto, partially as contingency measures, and partially integrated into their learning management systems (James Cook University, 2020; National Technological University, 2020; National

University of Singapore, 2020; Singapore University of Social Sciences, 2020). It remains to be seen whether this will be an event-driven adoption or whether educators will continue to use additional technological tools for their innovative andragogical practices in a post-crisis environment.

South Africa

In South Africa, there are 1,187 confirmed cases of COVID-19 on 29 March, with one reported death (WHO, 2020a). In response they issued regulations enforcing limitations of gatherings over 100 amongst other measures such as travel restrictions, self-isolating, and closing of schools (*South African News Agency*, 2020).

Some higher education institutions undertook precautionary measures following earlier concerns of a lack of urgency raised by the South African Union of Students (Kyama et al., 2020). The student union encouraged students to remain at home until formal decisions were made in the Ministry of Higher Education, particularly as one identified case was a student. Several institutions such as the University of Johannesburg, Fort Hare, Wits, and Cape Town suspended all face-to-face classes. Other universities such as Stellenbosch, Rhodes, and Witwatersrand suspended upcoming graduation ceremonies (Sobuwa, 2020). Following this, the Minister of Higher Education, Blade Nzimande, announced that all universities and colleges would be closed from 18 March until 15 April as an 'extended break'. Some university infrastructure and maintenance activities such as research work could continue, while institutions were advised to use the break to explore digital and online delivery methods for teaching and learning to support programmes at a later stage (Chothia, 2020).

The Ministry also placed travel restrictions on students or staff unless there is a critical reason, in which case the relevant authorities would need to be consulted. The advice was also given on self-isolating requirements for those with recent international travel. All symposia and conferences should be restricted and replaced with alternative formats. Universities were advised to develop mitigation plans for students residing on university campuses. They also advised some 12,000 South African students on study abroad experiences to stay in contact with their in-country contacts for further support and potential evacuation (South African Government, 2020).

South America (Chile and Brazil)

Latin America has strong ties to Italy with several flights a day to or from that country with Milan one of the major ports of exit from Italy and an epicentre of the pandemic (*PSB News Hour*, 2020). On 26 February, the first case in Latin America was identified as a man who visited the north of Italy in February (Rodriguez-Morales et al., 2020). Consequently, in Peru, Argentine, Venezuela, Chile, Brazil, Colombia and Puerto Rico, passengers arriving from Italy were subjected to fever checks and asked to sign declarations regarding any flu-like symptoms. Passengers suspected to be infected with COVID-19 were transferred to an isolation ward in a nearby hospital. As a new preventive measure, officials queried passengers regarding travel from a host of countries. Furthermore, Health Ministries are enforcing a four-to an eight-year prison sentence for quarantine violations (*PSB News Hour*, 2020).

Despite the enactment of these measures, as of 31 March, Brazil has reported 5,812 cases, and Chile has 2,738 confirmed COVID-19 infections (Worldometers, 2020). In total, the region has registered 341 deaths (Montanez, 2020). In order to combat the spread of COVID-19, Latin American countries have adopted typical preventive measures, e.g. cancellation of mass events, school and university classes, closure of borders, and restricting transit of foreign travelers (Montanez, 2020). Latin American universities reacted in vastly different ways to the pandemic, either keeping their premises open and functional or closing them down and moving to e-learning.

The University of São Paulo (USP) in Brazil announced on 11 March that it created a committee to monitor COVID-19 at the university, following the first case of a student affected (Globo.com, 2020). Following a geography student testing positive, USP suspended the geography course. At present, USP remains open and the Institute of Tropical Medicine team is investigating the genomic diversity of the virus that infected two patients in Brazil (Nuno, 2020). The Laboratory of Immunology at Incor (Heart Institute) at the Medical School of USP is developing a vaccine against COVID-19 (Bravo, 2020).

The Pontificia Universidad Católica de Chile (UC) provides a different case study. They announced the progressive move toward online coordination for teams from all areas of the University (Pontificia Universidad Católica de Chile, 2020). Great effort was put in place to reach all the students, therefore several messages of updates where shared on the university's social media channels (e.g. the official FaceBook page of UC). By 16 March, the University aimed to have only 25 percent of staff working on campus, with a further reduction to no more than 10 percent of officials by 20 March. The decision was taken after the Chilean Ministry of Health confirmed that the country reached Phase 3, with the number of cases having increased significantly and without traceability. E-learning replaced classroom teaching, with academics preparing to conduct courses using the same academic schedule and employing the Canvas platform.

United Kingdom

As of 29 March, there were 17,093 confirmed positive cases, with 1,019 deaths (WHO, 2020a). The risk level throughout England had been raised to high. Early in February, the first UK case of the virus was a Chinese national student from the University of York (*BBC News*, 2020a). They had not attended campus or stayed in student accommodation. The Vice-Chancellor of the University stated that the university would be open and continue to operate as normal, while providing advice on precautionary measures. On 20 March, the British Government declared a nationwide closure of public houses, restaurants and other institutions while pledging a range of support packages for employees and employers affected by

the social distancing and isolation requirements (*BBC News*, 2020b). On the 25 March, the Prime Minister revealed new measures in the face of a 'national emergency' that the public must be isolated in their own homes with minimal contact with others for a period of 3 weeks.

Since then, the situation has changed drastically in the UK. UK universities are not only facing uncertain times in relation to the unknown factors related to 'Brexit' and the impact of leaving the European Union (e.g. recruitment and student experience), but are now responding to a number of students being unable to attend their place in university due to travel restrictions with no endpoint currently in sight (Gov.uk, 2020). There has been a flurry of measures announced by the British Government from 20 March which has required a shift in higher education learning and teaching.

In addition, Universities UK (2020) recently stated they are now seeing measures across the sector such as shifting to online delivery of teaching as far as possible, encouraging working from home, postponing graduation ceremonies, cancelling open days, and changing examination arrangements. Scotland's universities are also deploying similar measures (*BBC News*, 2020c). Some Universities (e.g. University of Hull and University of Exeter) had already suspended face-to-face teaching. Universities may not be planning to fully close and are committed to supporting students living on or nearby to campuses while maintaining infrastructure particularly around some research priorities which cannot be left unmonitored (*BBC News*, 2020d, 2020e). There is also a recognised need to support international students separated from friends and family (Morgan, 2020).

There is a growing tension for those seeking entry to University in the next academic period. The British Government has closed down schools except for some students with special circumstances (such as those being children of people identified as 'key workers' such as healthcare staff), meaning 'O' level and 'A' level exams have been suspended or cancelled (*BBC News*, 2020f). Morgan (2020) outlines that admissions to university may be affected by these measures. Bothwell (2020), reports that universities should focus on introducing more flexible admission processes, delay start dates and relax some entry requirements. This does not necessarily mean reducing English requirements for international students, rather they should instead be providing extra support and opportunities for those that have not met such requirements to improve those skills whilst on their course. Advance HE (2020) are also offering online services to maintain as flexible a service as possible. There has been some controversy over what appears to be universities suggesting a move to unconditional offers for places amidst the COVID-19 confusion, with arguments being posed that this may affect student decision making where they might choose a course that is not in their best interest (*BBC News*, 2020g). Meanwhile, some students are creating voluntary groups to help support fellow students and members of their communities during the advised social distancing and isolation measures put in place (*BBC News*, 2020h, 2020i).

Since leaving the EU on 29 February 2020, the government of Northern Ireland is only obliged to follow UK directives, being 'officially' part of the UK and not obliged to follow EU guidelines anymore. Although, having only left the EU a few weeks ago, there is still ongoing confusion not only among the two governments but more so among citizens living in border regions due to conflicting policies, guidelines and travel restrictions imposed by respective administrations. For instance, all schools, colleges, and universities in the Republic of Ireland were closed on 13 March (HSE, 2020), while Northern Irish schools, colleges, and universities remained open until 20 March (Public Health Agency Northern Ireland, 2020). This caused widespread confusion and anxiety among many employees usually commuting daily between the two jurisdictions. Since global travel restrictions imposed by the Department of Foreign Affairs and Trade (2020), Republic of Ireland-based employees found themselves left in limbo over the period of approximately one week being advised against all non-essential travel including the UK and Northern Ireland (Department of Foreign Affairs and Trade, 2020). However, Northern Ireland-based employees were still allowed traveling to the Republic of Ireland as the UK government only implemented widespread travel restrictions on the 17 March 2020 (Gov.uk, 2020) one week after EU member states instigated theirs.

United Arab Emirates

As of 29 March, the total number of COVID-19 cases in the United Arab Emirates (UAE) has reached 468, with two reported deaths (WHO 2020a). The UAE has a low infection rate, and a low death rate. Right from the start, in the light of the COVID-19 pandemic, the UAE has been successful in containing the spread of the virus by taking several safety measures. The measures include the closure of all schools and universities, cancelling public events, suspending entry into the country, precautionary measures by food outlets, limiting flights, country-wide disinfection, and adopting working from home for employees (*CNBC*, 2020). In response to the COVID-19, all UAE universities have moved their teaching online (KHDA, 2020).

As a result of this world-changing situation, many UAE universities have suddenly been thrust into a new world of digital delivery. Zayed University will adopt Adobe Connect, University of Sharjah and United Arab Emirates University have adopted Blackboard systems, and Heriot-Watt University Dubai will virtual learning tool, called Vision (*The National,* 2020; UAEU, 2020). Hamdan Bin Mohammed Smart University was the first e-University in the UAE (inaugurated in February 2009) and has extensive experience in delivering content online (HBMSU, 2020a). Therefore, HBMSU is assisting other higher education institutions in implementing online classes. Educators and professors in UAE universities have been attending training on effective online delivery in higher education (HBMSU, 2020b).

Online education is a complex issue. It is important to set realistic understandings and expectations of how it can support students affected by COVID-19 measures. Universities are not progressing strategic moves to online teaching. Rather, they are moving to emergency online delivery of in-person content. UAE higher education institutions are uniquely positioned to continue to engage

students in interactive discussions (whether synchronous through web meeting tools) or asynchronous (through discussion boards and other tools). It is not yet clear whether these digital pedagogy evolutions are going to create permanent fixtures in UAE higher education or whether they will be reverted at the eradication of global COVID-19.

United States of America

Like other western countries, the United States of America initially responded to meet the needs of Chinese students who were unable to travel and address the impact of reduced enrolments as a result. With the first suspected on-campus case reported the week of 17 February, the response from higher education across the US was to support staff and student safety, with many organisations publishing resources on self-protection and prevention. With the country's head of state and many media outlets downplaying the impact of COVID-19, and spring break leaving many campuses empty, the higher education sector did not begin a significant online education response until March, with several eminent institutions making an announcement early in March, and many others joining by mid-March. Then the infection rate dramatically increased, and by late March, the number of confirmed cases in the USA had surpassed China. As of 29 March, there were 103,321 confirmed COVID-19 positive cases, with 1,668 deaths (WHO, 2020a). Harvard University (Herpich, 2020) announced on 10 March, it would move to full online delivery by 23 March (as did Massachusetts Institute of Technology: MIT). Yale, Princeton, Stanford, and the University of California, whereas Southern Oregon University (2020) announced on 19 March, it would also deliver all instruction remotely by the same date. Many universities moved Spring Break by one week to allow the transition to online, with an analysis of higher education in Texas (Bawab, 2020) revealing that whilst the majority will return with online instruction, some institutions as of the 22 March have yet to decide. Whilst some websites (Clark, 2020) by mid-March were reporting only 5 percent (260 out of 5,300) higher education institutions had decided to move to online instruction with minimal on-campus presence, anecdotal evidence suggests most higher education institutions have made the transition.

Discussion

The synthesis and meta-analysis of the twenty countries across all six World Health Organization (2020c) regions show distinct similarities and differences to the approach taken in higher education. Table 3 summarises the meta-analysis from the above information, including the economic status of each country, using the World Economic Situation and Prospects (WESP, 2020) categories, the COVID-19 status according to the number of cases per one million population (Worldometer, 2020), and UNESCO (2020) monitoring of school closures. This analysis highlights certain trends across the globe.

Nearly all the countries categorised as developed economies are reporting a high number of cases per one million population. None have taken the approach of extending their semester break and most are closing campuses and moving to online instruction, except for the United States of America. This contrasts with the countries categorised as developing economies. While the majority have closed their schools, Brazil and Singapore continue to only have localised closures and not a country-wide policy. According to UNESCO (2020), there is no country-wide policy on school closures for Brazil, Canada, Greenland, Russian Federation, and the United States of America. Universities in China, Hong Kong, India, the Republic of Korea (South Korea), and South Africa took the approach of moving the semester break dates (extending or starting early). Of these, China, Hong Kong, and, to some extent, the Republic of Korea (South Korea) and South Africa have implemented an online instruction strategy to support students to continue with their studies.

Except for Malaysia, Republic of Korea (South Korea) and Indonesia, the analysis also shows that countries closer to China or with a larger number of COVID-19 cases per one million of their population have a digital strategy for higher education across the nation. Interestingly, Malaysia's response was to move online but higher education providers have now been instructed not to provide online tuition to restrict movement (Asia Pacific University of Technology & Innovation, 2020). There is an opportunity for higher education providers in countries who have yet to experience a growth in cases to establish their online instruction strategy now.

However, migrating from traditional or blended learning to a fully virtual and online delivery strategy will not happen overnight and is associated with many challenges with many questions to this stage remaining unanswered, such as the lack of 'home office' infrastructure (Do academics have sufficient recording and internet bandwidth available?), student infrastructure (How can students access online and virtual content from remote locations? What about accessing content from jurisdictions where Internet access is monitored and restricted by the Government?), and general skillsets needed to professionally design and offer online/ virtual education, just to name a few.

Table 3. Synthesis and meta-analysis of higher education response by country.

WESP (2020) category	Country	COVID-19 Cases/1M pop*	Extension of semester break	Reported campus closures'	Reported move to online teaching
Developed economies	Australia	166	No	All	All
	Germany	745	No	All	All
	Italy	1,616	No	All	All
	Republic of Ireland	530	No	All	All
	United Kingdom	288	No	All	All
	United States of America	431	No	Some	Some
Developing economies	Brazil	20	No	Some	Some
	China	57	Yes	All	All
	Chile	112	No	All	Some
	Egypt	6	No	All	All
	Hong Kong	86	Yes	All	All
	India	0.8	Yes	All	Some
	Indonesia	5	No	All	Some
	Jordan	25	No	All	Some
	Malaysia	81	No	All	No
	Nigeria	0.5	No	All	Some
	Republic of Korea (South Korea)	188	Yes	All	Some
	Singapore	144	No	Some	Some
	South Africa	22	Yes	All	Some
	United Arab Emirates	58	No	All	Some

1M pop = 1 million population, # = Worldometer, 2020 (30 March 2020), ^UNESCO, 2020 (30 March 2020)

The analysis highlighted the variability within nations for higher education organisations to implement digital strategies, largely based on the resources available to the organisation and the cohort of students attending the organisation. This was more noticeable in countries

categorised as developing economies. For example, Jordan reported several low technology solutions to support online instruction, including narrated PowerPoint presentations and freeware, such as Skype, Google Classroom, Moodle, and Facebook. They can engage their students with the resources available, so that the impact on learning is minimised where possible. Whilst many higher education organizations in countries where schools are closed have initially focused on transitioning to the online environment, the focus is now on online pedagogy. Never has there been a time for a coordinated, collaborative, and collective global response to the best practice principles for online instruction. And in a time of global crisis, there is an opportunity for shared resources and expertise across the world to ensure the education of our students can continue in the face of COVID-19.

We caveat this paper with recognition of the lack of information to date on the pedagogical approaches and principles being adopted with the rapid movement to digital education. This has the potential to be an enabler of more flexible and innovative digital methods of education, but it could also lead to less quality assurance activities while the focus is on revenue mitigation. Universities undergoing a rapid change period need to be conscious of their ability to continuously monitor the quality of the learning design.

Conclusion

This paper highlights what we term the intra-period COVID-19 response for a series of universities across twenty countries. This analysis demonstrates diverse responses to a complex challenge. With the presence of more accurate data, it would be possible to map out rates of technological adoption among the countries' universities from extended starting periods as an opportunity to 'wait out' the fourteen-day travel quarantine. On one side of the extreme, one group of universities did very little to respond and opted to meet their government's minimum standards (e.g. 1.5-meter distance or reduced social gatherings). On the other side, universities rapidly closed their face-to-face operations and moved to digitalised education. Some universities, like the University of Tasmania, were already partially prepared for this endeavor given the University had some blended or fully online offerings. Other universities had a lot more ground to cover.

The aim of this paper was to discuss university responses across the world. The goal: to support a knowledge-sharing activity across a balanced sample of universities. At this stage, there is a recognition that the sector needs to unite to postulate a future where students can be supported digitally, without compromising academic quality and standards of the curriculum. We suspect the status updates from each of the university's positions will change significantly in the coming months as governments mandate diverse directives relating to gatherings, social outings, and similar. Universities have a role in the transition to support a society that needs to stay at home for periods of time, and higher education may be a valuable addition to their productive home environments in the short and potentially medium-term.

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COmmunication's ROugh NAvigations: 'Fake' news in a time of a global crisis

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Abstract

"Disinformation can cost lives" (Ursula von der Leyen, 2020).

The current pandemic of the novel coronavirus or COVID-19 has created an environment of diverse challenges facing humanity, including 'Stay at Home' global strategies, isolation, social distancing, school and border closures, and widespread travel bans. The risk of this biological threat, its multiple unknown health aspects, social and economic impacts, and the inability of humanity to control it at present makes it difficult to predict how this situation will evolve. Unfortunately, such a global crisis gives rise to the manipulation of people by opportunistic groups through the falsification of information and news reporting. Loosely moderated social media platforms have largely contributed to an explosion of news referred to as 'fake'.

Global occurrences like the current COVID-19 pandemic reinforce the importance of developing critical thinking skills in undergraduate students as a fact-finding strategy to address the rising popularity of misinformation and disinformation found on social media sites. Consequently, this paper aims to highlight the importance of building a capacity to recognise fake news while seeking out reliable and valid information sources. Strategies to address fake news by international and local organisations will be explored using examples from Greece and Australia, as both of these countries demonstrated strong government leadership in the swift containment of the virus. Greece was quick to impose lockdowns that were respected and dutifully exercised by the Greek people. Similarly, Australia also imposed strict lockdowns strategies in the initial stages of their first reported COVID-19 cases and were also dutifully enacted by Australian citizens. Greece and Australia have been proactive in addressing disinformation and misinformation through comprehensive data analytics and fact-checking strategies, which are reported on through official platforms.

Specifically, the authors aim to:

a) Discuss the severe and even fatal problems that misinformation can cause, especially in the case of a global pandemic, like COVID-19,
b) provide an audit and access to reliable sites,
c) provide an outline of simple strategies that all individuals (including undergraduate students) can implement to source valid and reliable information surrounding the COVID-19 pandemic.

I. Background

The United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2020) provides the following definitions: Disinformation is information "that is fake and deliberately created to harm a person, social group, organisation or country", while misinformation is information "that is fake but not created with the intention of causing harm".

"Disinformation is understood as verifiably fake or misleading information that is created, presented and disseminated for economic gain or to intentionally deceive the public, and may cause public harm" (Action Plan against Disinformation, 2018, p. 1). Fake news[1] includes both disinformation and misinformation (Chong & Choy, 2020) and forms an exceptionally complicated research field, where multiple scientific and applied disciplines are involved (Katsaounidou et al., 2019). The Director-General of WHO declared a pandemic on 11 March 2020 at the media briefing on COVID-19. In conditions of a global pandemic, fake news constitutes a sad and harmful reality, as Ursula von der Leyen, the President of the European Commission stated. People's fear, uncertainty and anxiety about the actual situation is often exploited by groups who think of this crisis as an opportunity to make an economic profit or undermine political and health strategies. Fortunately, many reliable international organisations have launched special social media pages and websites to provide information that 'debunk' these fake stories. Sites like Australia's Corona Check website and Europe's EUvsDiSiNFOCOVID19 (both of which will be discussed in more detail below), aim to provide people with evidence-based facts on user-friendly platforms.

Despite this, with the explosion of social media in the recent decade, this pandemic has been covered by a diverse range of authors and commentators, which include conspiracy theorists, high profile political leaders, social activists, religious leaders and all members of the community, sharing and accessing information across the web. On The 'Conversation's website, Ali and Kurasawa (2020) quoted Tedros Adhanom Ghebreyesus, the Director-General of the World Health Organization (WHO), as referring to the deluge of disinformation as the "corona virus infodemic". The same authors state that these social media "platforms act as facilitators and multipliers of COVID-19 related misinformation" (para. 1). This level of accessible misinformation creates panic, division and ignites a level of fear that gives rise to racism, suspicion and xenophobia. In 2018's Nature, Heidi Larson stated that "the deluge of conflicting information, misinformation and manipulated information on social media should be recognised as a global public-health threat" (p. 309). It is misinformation and disinformation that incite a public debate against life preserving medical approaches such as vaccines, which is causing one of the biggest disinformation debates during the COVID-19 pandemic.

The extent to which social media influences everyday life is captured by Arvanitakis (2020), an Australian Professor from Western Sydney University who states that "not only have the 'traditional' media been overwhelmed with new media channels, social media is now a significant source of news for many of us" (para. 7). The Australian Centre for Media Transition 2018 report identifies how social media platforms "will have an ongoing and profound impact on the supply of news and journalistic content" (p. 10). Consequently, Rosenberger (2020), reinforces the importance of using a critical analysis framework to explore the challenges that social media news reports pose to democracy, through the manipulation of the truth. Chou et al., (2018) have identified the difficulty that health authorities face in managing the surveillance of massive volumes of online data covering public health issues, along with an associated growing body of misinformation and disinformation. Whether misinformation or disinformation become a 'truth' for some depends on "the recipient's social network, sociocultural identity and values, emotions (particularly fear and anger), levels of trust, and concomitant social media use patterns" (Chou et al., 2020, p. 2418).

Currently, there is a lack of high-level scientific research into the causes, management and prevention of this pandemic. Garrett (2020, p 943) expands on this by stating that "sifting fact from inaccurate information is aggravated by the speed of unfolding events, how much is still to be researched and understood by scientists and clinicians about COVID-19, alongside earlier deliberate obfuscation by some governments", with the latter having raised the level of distrust towards official agencies. As a result of the complex challenges associated with COVID-19 related misinformation and disinformation, the authors of this paper have based their investigation on:

a) providing an outline of official government and health education websites to increase awareness of how and where to access reliable information
b) the exploration of examples which highlight the significant dangers of misinformation and disinformation surrounding the COVID-19 'infodemic' and
c) proposing a simple fact-finding framework approach to evaluate the reliability of COVID-19 related health information circulating on the web.

This paper will use Greece (Europe) and Australia as examples of how these two countries have been successful in providing credible sources of information on the net. Additionally, the paper will provide a reference to official sites of the Greek and the Australian governments, the European Union, and international organisations such as the World Health Organisation (WHO), for the provision of current and valid information. Insight into official responses to emerging COVID-19 misinformation and disinformation will outline the process of how official government, health and education sites support individuals and communities to avoid the mass transmission of fake news through fact validation. Clear communication skills are pertinent to assist individuals in implementing informed decision-making skills with regard to health-related outcomes.

1 The term 'fake news' has been popularised by President Donald Trump since the 2016 elections (Victoria University, 2020). Since most of the current literature refers to the falsifying of information as 'fake', this article will refer to this term to represent the current trends in the literature.

In this current pandemic, the transmission of the same disinformation tends to cross borders, as will be demonstrated through the examples used in this paper from the Greek and the Australian COVID-19 health-related contexts. A typology and the type of responses currently provided for a range of main fake news that has emerged as a result of the COVID-19 pandemic will be discussed. It is the authors' belief that there are significant opportunities to learn from the examination of an array of reactions to this pandemic of misinformation and disinformation that will strengthen our collective responses now and into the future, providing a more sustainable management strategy through an informed public. The authors also suggest that in order to build an informed public, education institutions should focus on explicitly embedding the development of an individual's research skills capability across all aspects of a curriculum. In his interview for the Journal of Applied Learning and Teaching, George Siemens identified the need to develop a different skill set as we can no longer just simply "find the person who knows the answer to the problem" (Siemens et al., 2020, p. 4).

> Today, it's about: are you able to not just access a distributed network of expertise, but do you have the skills to navigate contradictory opinions, false information? Do you have the ability to exhibit combinatorial creativity when you're taking multiple sources and to be able to create something different? (Siemens et al., 2020, p.4).

II. Methodology

The impetus for this paper emerged with the announcement of the governmental organisation 'Digital Single Market' on Facebook on 1 April 2020, an initiative developed by the European Commission to shape Europe's digital future. The introductory video on this site describes how important it is to separate facts from fiction and to rely on 'authoritative sources'. Viewers were encouraged to rely on authoritative sources such as the WHO or national health ministries to get up-to-date information. The European Commission is in close contact with social media platforms to fight fake narratives and help them identify and take down illegal content. Further to this, the European Commission has also launched the #factmatter page addressing myths around the coronavirus outbreak. The facts help keep people informed, safe and healthy #factmatter (European Commision, 2020).

For this cause, the official website of the European Commission has also launched a website and Facebook page to tackle misinformation and disinformation facts and provide an evidence-based rebuttal for readers to follow. Similarly, in Australia, the government has launched an official Facebook[2] page as well as a Twitter[3] account to provide the evidence-based facts to a generation of social media followers.

As a result of the widespread social media coverage of COVID-19, a digital search of the most common disinformation and misinformation web pages was conducted between April 1st and May 5th, 2020 with the purpose of identifying the most popular fake news and claims that have been circulating on a global context. This was then narrowed down to five fake news stories that have been the hot topics of discussion in Greece and Australia, respectively. These facts were further researched, to exemplify how and where the claims originated from, and how the Greek and Australian governments and health agencies have responded to these through official briefings on websites and other media outlets. A typology was then created to provide a list of official government and international health organisation sites, along with a list of online networks that exist which help with the verification of these stories and/or facts.

III. Disinformation Facts claims

Brennen et al. (2020), quoted Cristina Tardáguila, Associate Director of the International Fact-checking Network (IFCN), as saying that COVID-19 has been "the biggest challenge fact-checkers have ever faced" that has been propagated by social media commentators. A 2019 Australian study conducted by the News and Media Research Centre and led by Professor Caroline Fisher, found that only 36% of Australians checked the accuracy of a story, by accessing several other sources, before they shared it on social media. This is an alarming amount of people who are left potentially propagating misinformation/disinformation stories on social platforms. To combat the spread of disinformation in Australia, the Australian Broadcasting Commission (ABC) has collaborated with the Royal Melbourne Institute of Technology (RMIT) to launch a website and an online newsletter called Corona Check, to increase their social presence. Corona Check is a fact-finding website that raises the latest debunked disinformation on COVID-19. Equivalency for Greece and the EU is the EUvsDiSiNFO fact finding site. Section IV below will outline "How to avoid being misinformed", where more sites will also be provided to fact check the information that has been sourced on the net.

Giugliano (2020) states that although the COVID-19 pandemic has been claimed to expose poor leadership, poor health and education systems and incompetent governance worldwide, Greece has remained an exception to this trend. The same author explains how, despite having faced a longstanding financial and social crisis for over a decade, Greece's swift reaction through an effective government leadership style has helped the country avoid a tragic healthcare crisis. The people of Greece abided by the policies set out by the recently formed Mitsotakis government and has truly 'defied the odds' (Magra, 2020), with 168 reported deaths in a total population of 10,428,331 (Worldometer, 2020). Greece has triumphed with the way that it has managed the 'treatment' of the pandemic, with its swift reaction and strategic plan and avoided the tragic fatalities that other European member states experienced.

Likewise, Australia has had minimal fatalities and has been swift to flatten the infection rate curve and consequently reduce it quite markedly. At the time of writing, on 22 May 2020, South Australia had zero new cases for 15 days in a row. With a total population of 24.99 million people,

2 The Australian Government Department of Health have launched their own Facebook page to access the population through popular social media pages. Accessed May 15th 2020 from: https://www.facebook.com/healthgovau/
3 The Australian Government Department of Health have also set up a Twitter account: #Updates on COVID-19 Australia to use social media as a means of updating Australians on evidence-based facts. Accessed May 15th from: https://twitter.com/i/events/1242311410245222400

Australia experienced only 100 COVID-19 related fatalities (Australian Government Department of Health official site, 2020). Wyeth (2020) has identified some of the reasons why Australia has performed so well: geographic isolation and immediate border closures contained the cases immediately. The author continues to explain how the people of Australia have an innate trust in their public institutions and trust between individuals within its society, accounting for the success of the coronavirus lockdown strategies.

However, despite the successful management of the pandemic by these two countries, fake news still inundates their social media pages, raising peoples' anxiety levels through the fear of the unknown. A recent survey conducted by Park et al. (2020) from the University of Canberra identified that at least two-thirds (66%) of Australians encountered COVID-19 related misinformation via social media. A Reuters study by the Oxford Institute for the Study of Journalism found that while politicians, celebrities and other public figures were responsible for producing and sharing 20% of fake statements about the new coronavirus, their posts accounted for 69% of the impact to the public through social networks (Brenan et al., 2020). Consequently, research conducted by Daniel Allington, a researcher in social and cultural artificial intelligence at King's College London, demonstrated that there was a statistically significant correlation between a belief in fake claims and citizens' tendency to ignore social distancing measures. According to his research, people who said they believed corona was connected to 5G antennas were less likely to stay home, wash their hands regularly or follow the rules of social distancing. Allington's 2020 research identified that COVID-19 related fake news fell into three categories:

a) misleading health advice (e.g. drinking chlorine will make the virus disappear, anti-vaccine movement and microchipping of vaccines),

b) the origin or the spread of the virus (e.g. 5 Gs, USA, China),

c) the severity of the crisis (photos and videos out of context).

Five social media cases from Greece and Australia, each falling under one of the above categories, are discussed below as examples of COVID-19 disinformation.

A. Fake coronavirus cures and overestimation of some 'medical products'.

Fake 'corona cures' constitute a large percentage of the COVID-19 disinformation in Greece. The high demand for hygiene products driven by the COVID-19 outbreak has contributed to the promotion and sale of fake cures. The usefulness of some 'medical products' is exaggerated, with surgical masks being first on the list. In this case, not only is there reference to fake news, but also bogus medicines and health supplies. A global operation to track these bogus medicines took place between 3 and 10 March 2020, supported by Europol and coordinated by Interpol, involving 90 countries worldwide. Mercier (2020) claims that the more worrying aspect of fake news regarding COVID-19 and its potential cures is that the ingestion of recommended harmful substances can have fatal effects.

An example that was circulated via videos on Facebook was the selling of a bioresonance device that was being promoted as a successful treatment for the coronavirus (Σιτίστας, 2020a). According to the Ministry of Health, bioresonance is an "alternative therapy" with an effectiveness that is not scientifically substantiated (Sitistas, 2020a). Similarly, in Australia, celebrity chef Pete Evans was fined 25,000 AUD by the Therapeutic Goods Administration for trying to sell a bioresonance device that provided protection from the coronavirus (Scanlan, 2020). This disinformation claim is also an example of how celebrities can initiate and promote fake claims as a profit-making strategy.

B. People who smoke have little risk to be exposed to COVID-19.

A popular misinformation in Greece was the claim that people who smoked were 20 times less likely to become infected with the coronavirus (Sitistas, 2020b). This misinformation originated from a study conducted by Changeux et al., (2020), where the authors hypothesised that nicotine receptors on cells interfere with the normal pathophysiology of the COVID-19 virus. The authors of this inconclusive study did not intend to promote smoking as a means of decreasing the chances of COVID-19 infection; rather it was a hypothesis, or an idea that required further research. The researchers hypothesised that in controlled situations, nicotine itself could show some potential in decreasing infections. The authors of this study summarised by stating that "smoking has severe pathological consequences and remains a serious danger for health" (para. 11). The misinformation that smokers were much less likely to become infected with COVID-19 could lead to a dangerous overdose from nicotine replacement therapies as a means of protection from COVID-19. Here is an example of how a potential idea or hypothesis can be misconstrued to capitalise on people's smoking habits. This claim was debunked by WHO Director General Tedros Adhanom Ghebreyesus, who was quick to explain that "contrary to what people may believe, young people are not invincible and smokers are not immune" (*BBC*, 2020 para. 5).

C. The first volunteer to test the vaccine against the coronavirus died.

Elisa Granato, a researcher at the University of Oxford and the first vaccine volunteer against the coronavirus, was claimed to have complications a few hours after receiving the vaccine and died on arrival at the hospital (Koutroumpelis, 2020). This fake claim, as Koutroumpelis (2020) explains, was posted at various blogs and sites[4] and on other social media posts. The Ministry of Health and Social Welfare of the UK announced in a tweet, that the misinformation, which was

4 Blogsites that announced the death of Dr Elisa Granato as a result of trialling the coronavirus vaccine (sinomosiologos.blogspot.com, diodotos-k-t.blogspot.com, kalliroi600.blogspot.com, spoilers.gr, skoupanews.com, amazonios.net)

circulating on social media, referring to the first volunteer in the vaccine coronavirus testing program dying in the UK was completely untrue. It also called on citizens to use available tools to verify sources of information before sharing it (Prifti, 2020), as a means of limiting the spread of disinformation. Section IV of this paper will provide an outline of how to avoid the sharing of misinformation and disinformation.

D. The rollout of 5G technology has contributed to the spread of the virus.

This fake fact has not only stirred up a lot of anxiety as Australia rolled out its 5G network in 2019-2020, but it is a source of fake news that has been spread globally. The claim that the 5G network is spreading the virus as the radio waves emitted by telecommunication networks such as 5G can compromise the immune system, has spread like wildfire across the net. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) carefully regulates high-power radio waves to ensure they are working within safety limits. The 5G infrastructure is also carefully regulated by the Australian Communications and Media Authority (ACMA), ensuring that all 5G emissions comply with the ARPANSA safety limits. 5G infrastructure and devices emitting radio waves are regulated by the Australian Communications and Media Authority (ACMA), and emissions must comply with the ARPANSA safety standard. This claim has also been debunked by many other fact-finding sites such as SNOPES and Australia's Corona Check, along with several other sites listed in Table 1. The Snopes website page that covers the 5G conspiracy theory explains why such conspiracy theories arise from pandemics by saying that "people want to simplify and make sense of complex and unprecedented situations. As a means to understand this pandemic…" (Hill, 2020, para. 7).

Furthermore, people seek out stories that help to support their pre-determined biases. Psychologists refer to this as 'motivated reasoning' (Weir, 2020), where people seek to believe stories or information that support their own worldview. For example, the belief that autism is caused by vaccinations has occurred over the years due to an ineffectively designed study conducted in 1998 (South Australian Health Department, Autism Leaflet) that associated autism development with the measles-mumps-rubella vaccination. Despite the fact that this study was retracted from the medical journal it was originally published in, certain groups still hold firmly to this belief. Forbes (Salzberg, 2020) has stated that the WHO refers to these groups as "anti-vaxers" who demonstrate "vaccine hesitancy" which poses to be one of the greatest threats to health in these current times. The COVID-19 anti-vax conspiracy theory is discussed further in the following disinformation example.

E. A consortium developing COVID vaccine and led by Bill Gates, will contain a microchip for mass surveillance.

In 2014 Bill Gates wrote an article for the *New England Journal of Medicine*, in response to the Ebola outbreak which affected Sierra Leone, Liberia and Guinea. He explained how lessons learnt from the epidemic of the Ebola virus outbreak, could help governments identify the weaknesses in their medical systems and medical reserves. He highlighted the need for a more effective world health strategy for countries to better manage and prepare for a possible future pandemic. This was reinforced in his 2015 TedTalk (Gates, 2015), titled *The next outbreak? We're not ready.* Members of the right-wing conspiracy group Qanon (Elise, 2020) have used the fears of groups such as the anti-vaccination groups to promote the fact that Bill Gates' intention is to gain control of the global health system, through the development of a COVID-19 vaccine. Johnson et al. (2020) revealed in their study of over three billion Facebook users that the anti-vaccination network clusters became more highly entangled, as opposed to pro-vaccination clusters that were more peripheral on social media posts. A systematic review undertaken by Wang et al., (2019) revealed that there was a significantly higher prevalence of disinformation surrounding the issue of vaccinations on social media as compared to the number of stories which contained accurate vaccination information. The COVID-19 'infodemic' has thus sparked a popular anti-Bill Gates sentiment with the anti-vaccination groups.

The Bill and Melinda Gates Foundation is a hugely charitable organisation that provides medical aid to developing countries, through their Global Health Division. This division aims to eradicate infectious diseases in children through widespread vaccinations in underprivileged communities, igniting the Gates and COVID-19 vaccination disinformation. The future COVID-19 vaccine has also been associated with the placement of a Radio Frequency Identification Chip that will exert population control (Reuters Fact-Check, 2020). On the Snopes website (Kasprak, 2020), the Bill Gates conspiracy theory of microchipping vaccines as a means of population control has been debunked through an evidence-based narrative. Further to this, the Australian Corona Check website has also warned readers to be aware of a photo being circulated on social media, showing a sign outside the Bill and Melinda Gates Foundation headquarters which reads: *Centre for Global Population Reduction. Corona Check* website has confirmed that this photo has been adjusted and added through photo editing tools.

So how and why do these fake stories with negative health outcomes like the ones discussed above become such topics of engagement on social media platforms? This is a complex process which requires further research on "the understanding of socio-demographic and ideological asymmetries in the intention to spread misinformation" (Wang et al, 2019 p. 8). There are some major forms of misinformation and disinformation agents. The 'denialists' who reject and mistrust authoritative information, those who view major social or political events as conspiracies against individualism, referred to as the conspiracy theorists, and partisanship with allegiance to certain political groups or figures (Uscinski, et al., 2020). Furthermore, Brennan et al., (2020) found that the majority of the disinformation posts on social media were stories that re-fabricated accurate information, with a lesser amount relating to a total fabrication of a situation. These authors also found that the spread of disinformation occurred more so from a bottom-up approach, meaning shared and generated from the general public, as opposed to a top-down approach which

originates from prominent public figures.

Rimal & Lapinski (2009) provide us with detailed insight into the importance of health communication in relaying public health messages through various mediums and channels to deliver clear messages to diverse communities. As communication is central to all that we are as human beings, these authors describe how health information is shared through social networks interacting with one another in a variety of online and offline formats. It is for this reason that the construing of information during a pandemic becomes a central challenge to health, education and government departments alike. The April 2020 Communication Report of the European Commission on tackling online disinformation emphasised the key role played by civil society and the private sector (notably social media platforms) in both tackling the problem of disinformation through clear communication. In 2018, The European Council had already called for measures to "protect the Union's democratic systems and combat disinformation" (6 European Council conclusions, 18 October 2018). The Action Plan against Disinformation (2018) highlights the importance of cooperation as a means to deal with events of misinformation. These include:

> the Commission and the High Representative, with the assistance of the European External Action Service, in cooperation with Member States and the European Parliament, a plan that includes input received from Member States, discussions at Council, in Permanent Representatives Committees I and II, the Political Security Committee, relevant Council working parties and meetings of strategic communication and political directors of Ministries of Foreign Affairs, not to forget taking into account the cooperation with the Union's key partners, including the North Atlantic Treaty Organization and the Group of 7 (G7) (Action Plan against Disinformation, 2018).

Australia has also responded to the need for a united and cohesive approach to the communication efforts during the COVID-19 pandemic. The Prime Minister of Australia formed the National COVID-19 Coordination Commission (NCCC) to manage the public health and social issues associated with the pandemic. Along with Australia's Chief Medical Officer, NCCC provided regular updates on the government and the health department's dynamic response to the pandemic with daily updates on social media and television. To ensure a streamlined communication strategy, a National Cabinet was also formed, which comprised the premiers of every state of Australia along with the territory chief ministers (Saunders, 2020). The Parliament of Australia website states that fake news is identified "*as a major threat to democratic and social institutions*."

IV. How to avoid misinformation and disinformation.

> "Disinformation is playing with people's lives. Disinformation can kill" (Borrell, 2020).

The EEAS Strategic Communications and Information Analysis Division report on COVID-19 gives us an idea of the current trends and insights into disinformation activities related to COVID-19. On 1 April 2020, the EEAS special report update stated that "evidence shows that online platforms continue to monetize COVID-related disinformation and conspiracy theories" (para. 2). They refer to examples from an EU and global context that seek to exploit the public health crisis in order to advance their geopolitical partisanship interests, often achieved by directly challenging the credibility of the European Union and its partners to confuse its citizens. For example, the EEAS also reported that pro-Kremlin Russian media outlets cover conspiracy narratives that claim the virus was man-made or that washing hands does not help in containing the virus. This is contrary to one of the main disease control strategies that have been promoted by the WHO and endorsed by health officials across the world.

The Australian Strategic Policy Institute has uncovered "a loosely controlled pro-China trolling campaign on Twitter"(Thomas & Zhang, 2020 p. 1), which has harassed western media outlets, spreading false information about the COVID-19 outbreak and undermining Taiwan's strained relations with the WHO. Although these authors state that there was no clear evidence linking these posts to state support, this type of trolling appeared to support China's geopolitical strategies and was most likely linked to the actions of partisan actors trying to defend China's handling of the coronavirus outbreak. Interestingly, articles that saw the most significant engagement numbers on EUvsDiSiNFO (EUvsDiSiNFO, 2020) claimed that the virus was manufactured by the United States. Articles from 22 January until 1 April 2020, presented by EUvsDiSiNFO on 1 April 2020 (215 results), classified this information based on different countries and the number of disinformation cases that appeared. EUvsDiSiNFO presented each of the above cases with a summary of what was considered to be fake news with an explanation disproving these stories. One particular story with the title "EU has failed in Greece, Spain and abandoned Italy" (EUvsDiSiNFO, 2020b) claimed that the European Union failed to solve the economic crises of Greece, Italy, and Spain, leaving Italy mired in the coronavirus pandemic with little if any relief. This information was highlighted as misleading and fake with information confirming the EU's 47.5 million euro as financial support of research projects to improve epidemiological and public health efforts surrounding COVID-19.

Extensive misinformation on the internet is a serious cause of concern. Fake content is disseminated and often goes viral because of its influential and emotive nature, which encourages people to share more widely (Katsaounidou et al., 2019). Nevertheless, it is not merely a question of simply knowing that there is a case of misinformation and/or disinformation, but equally as important is being aware of how and when to report it. Owen (2019) explains that there is

a tipping point when it comes to reporting on disinformation. Reporting too early gives unnecessary oxygen to rumours or misleading content that might otherwise fade away. Reporting too late means the falsehood takes hold and there is nothing to do to stop it (it becomes a zombie rumour — those that just won't die). Consequently, the timing of when to report fake information plays a crucial role in relation to its continuity. People at large should always be alerted on the influence of such topics, where disinformation could even have life-threatening consequences.

The crucial questions which therefore need consideration are:

1) What strategies exist to limit the potential of becoming misinformed? And:

2) How can evidence-based information be accessed and then trusted to provide reliable sources?

Wang et al. (2020) identify that although efforts to moderate and retract disinformation on social media can be effective, this approach can also ignite more activism from the disinformation agents. Instead, they recommend that "a more constructive approach may be to cultivate critical thinking and to improve health and media literacy, thereby equipping individuals with the faculty to critically assess the credibility of information" (p. 8). In this way, freedom of speech and opinion for all can be maintained without the tight control of social media content while building the capacity of individuals to critically seek and evaluate potential errors of fact that may be encountered in various forms on the internet.

To assist individuals in their search for reliable and valid information in the process of critical thinking, the official EU site (European Commission, 2020) that manages disinformation provides some guidelines to communities by suggesting that individuals should follow the advice of their public health authorities. Interestingly, this same site also provides a full list of national information resources for the public on COVID-19 (ECDC, 2020). Additionally, as far as Greece and Australia are concerned, the national authorities and public health agencies websites, such as the eody.gov.gr/ (National Public Health Institute of Greece) and the Australian Health Department provide a comprehensive list of links to official sites handling every aspect of the pandemic.

Further to this, Table 1 below provides links to pages from EU, Greece and Australia, including global organisations such as the WHO, as a means of sourcing reliable data on the actual situation of this global crisis. Using the Smithsonian Institute (Thulin, 2020) guidelines and the University of Adelaide's (UoA) Source Credibility Criteria (The University of Adelaide learning guide, 2014), for evaluating the validity of facts, the authors undertook a desktop analysis, leveraging official and government sources, to provide a timely map at the time of publication of the EU and Australian responses to COVID-19 Misinformation and Disinformation.

Based on the Criteria used for Evaluating Electronic Sources on the Net (adapted from UoA's Credibility Criteria Handout), the following questions can easily be adapted not only by students, but by all members of the public to undertake a fact-checking mission of their own:

- Who is responsible for the site? If it is an organisation, does it have a credible history? Is it generally known? Does it have any political affiliations?
- Is there an official logo on the site?
- Is there a link to the homepage that describes the organisation and their activities?
- Are contact details provided?
- Are the facts and the evidence clearly presented to the reader?
- Who is/are the authors of the content? Are they experts in the field? Can you search them to find out their background and affiliations?
- Do the authors have a conflict of interest?
- Is the site sponsored by a private company that may provide biased information?

Furthermore, Willison & O'Regan's (2006-2012) Research Skills Development Framework (RSD), provides educators and students with a rubric covering a 6-Step Process that explicitly guides the building of critical research skills through a scaffolded pedagogical approach.

The RSD steps are as follows:

1. Clarifying and Embarking on research
2. Finding and Generating required data
3. Evaluating and Reflecting on degree of source credibility
4. Organising and Managing to reveal patterns or themes
5. Analyse and Synthesise to develop coherent understandings
6. Communicate and Apply understandings and application of research.

WHO also provides a link of regional offices (https://www.who.int/about/who-we-are/regional-offices) where valid information on COVID-19 can be found. Valid information for Europe can be found at http://www.euro.who.int/en/home .

From a researcher perspective, Katsaounidou et al. (2019) present a browser extension, the True News Plugin that evaluates news authenticity in a multimodal, integrating and collaborative way. With this extension, a user reveals information from trusted sources, classifying them by the accuracy of their domain names, while also spotting

Table 1: Sample of government and official websites, and social media pages where valid information about COVID-19 can be accessed.

Sites treated	Links to the Sites
European Commission official pages	https://europa.eu/european-union/about-eu/institutions-bodies/european-commission_en https://www.facebook.com/EuropeanCommission/ https://ec.europa.eu/digital-single-market/en
European Centre for Disease Prevention and Control	https://www.ecdc.europa.eu/en/novel-coronavirus-china/sources-updated
European Centre for Disease Prevention and Control	https://www.ecdc.europa.eu/en/covid-19-pandemic
European Commission	https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/fighting-disinformation_en
EEAS (European Union External Action - Europa EU)	https://eeas.europa.eu/ https://euvsdisinfo.eu/
World Health Organisation	https://www.who.int/emergencies/diseases/novel-coronavirus-2019 https://www.facebook.com/WHO/
Greek Governmental official sites	https://government.gov.gr/ http://www.visitgreece.gr/en/home/about_covid_19 https://www.facebook.com/coronavirus_info/
Ministry of health in Greece	https://www.moh.gov.gr/ https://www.facebook.com/YpYgGR/
Ministry of health and social solidarity	http://www.ermis.gov.gr/
WHO in Greece	http://www.euro.who.int/en/countries/greece
National Public Health organisation	https://eody.gov.gr/
Greek Ministry of Foreign affairs	https://www.mfa.gr/index.html
The Greek Prime Minister	https://primeminister.gr/
Australian Government Department of Health	https://www.health.gov.au/resources/collections/novel-coronavirus-2019-ncov-resources#find-the-facts
Australian National Government Department of Health	https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-current-situation-and-case-numbers#in-australia
Australian State Government Health Department sites	https://www.nsw.gov.au/covid-19/community-resources https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/conditions/infectious+diseases/covid+2019/community/information+for+the+community+-+covid-19 https://www.wa.gov.au/organisation/department-of-the-premier-and-cabinet/covid-19-coronavirus-community-advice https://www.dhhs.vic.gov.au/victorian-public-coronavirus-disease-covid-19 https://www.coronavirus.tas.gov.au https://www.qld.gov.au/health/conditions/health-alerts/coronavirus-covid-19/find-the-facts https://www.covid19.act.gov.au https://coronavirus.nt.gov.au
Council on The Aging (COTA) Tasmania	https://www.cotatas.org.au/news-items/coronavirus-covid-19-advice/
Musculoskeletal Australia (MSK)	https://www.msk.org.au/covid-19/
Diabetes Australia	https://www.diabetesaustralia.com.au/about-covid-19
SA Health Facebook	https://www.facebook.com/sahealth/
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	https://www.facebook.com/CSIROnews/ https://www.csiro.au/en/Research/Health/Infectious-diseases-coronavirus
South Australian Health and Medical Research Institute (SAHMRI)	https://www.sahmri.org/covid19/
National COVID-19 Clinical Evidence Taskforce: Monash University	https://covid19evidence.net.au
University of Melbourne: School of Population and Global Health	https://mspgh.unimelb.edu.au/centres-institutes/centre-for-health-equity/research/che-covid-19
UNESCO Building peace in the minds of women and men	https://en.unesco.org/news/covid-19-check-facts
Smithsonian Magazine (Smithsonian Institute)	https://www.smithsonianmag.com/science-nature/how-avoid-misinformation-about-covid-19-180974615/
John Hopkins University & Medicine: Corona Virus Resource Centre	https://coronavirus.jhu.edu

possible misinformation through doctored images. The user can identify relevant information regarding the five clues, which frame a news story (Title, Date, Creator, Source, Containing Images). For Katsaounidou et al. (2019, p. 11), "...discovering the dedicated steps to indicate fake content, according to the fact-checking procedures, and utilize them in automated/semi-automated mechanisms, is the key to defend the truth." In the EEAS report (2020), there is a strategy to protect information and media freedom, when platforms try to increase the visibility of the WHO and other authoritative health content on their services. It might also be important to mention that European External Action Service (EEAS) on its internet page also proposes a link for people to share their personal experience, sharing feedback in an effort to control fake news.

Additionally, platforms like Facebook have adjusted their content policies in response to COVID-19 by working closely with organisations such as the WHO to help contain the spread of disinformation. More particularly, Facebook announced (Jin, 2020), it will ensure everyone has access to accurate information and will remove harmful content. Facebook currently partners with fact-checking organisations in 76 countries and regions, notifies the users that have interacted with the fake post and then reduces the content's visibility (Mandas, 2020). Valentinos Tzekas, a 20-year-old student from Larissa, Greece, created a FightHoax.com algorithm with the ability to scan in seconds any kind of information written on the internet, deciding whether it is a misleading news story or real news (Chrysopoulos, 2017).

Furthermore, a number of initiatives and networks, cited by Katsaounidou et al. (2019), and presented in the table below (Table 2), assist in the process of checking credibility of information for possible misinformation and disinformation cases.

Table 2: Initiatives and networks, treated by the authors of this article, presented by Katsaounidou et al. (2019), which can help us check stories for possible misinformation and disinformation.

Networks for information Verification	Links
International Fact Checking Network (IFCN)	https://www.poynter.org/ifcn/
First Draft News	https://firstdraftnews.org/
Truly Media powered by Truth Nest	http://www.truly.media/ https://www.truthnest.com/
Image Verification Assistant	http://reveal-mklab.iti.gr/reveal/
Forensically	https://29a.ch/photo-forensics/#forensic-magnifier
Ghiro	http://www.getghiro.org/
Photo Detective	http://metainventions.com/photodetective.html
Amped Authenticate	https://ampedsoftware.com/authenticate
JPEG Snoop application	http://www.impulseadventure.com/photo/jpeg-snoop.html
Amber Video	https://ambervideo.co/
InVID	http://invid.condat.de/
Iverify	http://www.iverifysecurity.com/solutions/video-verification.html
Amnesty International	https://www.amnesty.org/en/
Citizen Evidence Lab	https://citizenevidence.org/
Storyful	https://storyful.com/
Montage	https://montage.meedan.com/welcome
Tweet Verification Assistant	http://reveal-mklab.iti.gr/reveal/fake/
IKAR Lab	https://speechpro.com/product/forensic_analysis/ikarlab
"True News" extension	https://github.com/selfagency/bs-detector
Browser extensions	
B.S Detector	https://github.com/selfagency/bs-detector
Open Sources Repository	http://www.opensources.co/
Fake News Guard	https://chrome.google.com/webstore/detail/fake-news-guard/jpmebnfgmcgnpmecdcopidnjdlnggebech
Fake News Detector	https://chrome.google.com/webstore/detail/fake-news-detector/aebailmeedenaijgjcfmndfknoobahep https://chrome.google.com/webstore/detail/fake-news-detector/alomdfnfpbaagekmdokilpbjcihacabk
RevEye	https://chrome.google.com/webstore/detail/reveye-reverse-image-sear/keaaclcjhehbbapnphnmpiklalfhelgf?hl=en
Check Databases	
Google	https://www.google.com/
TinEye	https://tineye.com/
Bing	https://www.bing.com/
Yandex	https://yandex.com/
InVID	https://chrome.google.com/webstore/detail/fake-video-news-debunker/mhccpoafgdgbhnjfhkcmgknndkeenfhe?hl=en
Send to Exif Viewer	https://chrome.google.com/webstore/detail/send-to-exif-viewer/gogiienhpamfmodmlnhdljokkjiapfck?hl=en
Instant Snopes Checker (Unofficial)	https://goo.gl/UIvzih
First Draft News Check	https://chrome.google.com/webstore/detail/firstdraftnewscheck/japockpeaaanknlkhagilkgcledilbfk?hl=en
Greek Hoaxes Detector (in greek)	https://goo.gl/ryBNGA
Ellinika Hoaxes (in greek)	https://www.ellinikahoaxes.gr/

Furthermore, Carmichael & Spring (2020) provide some user-friendly guidelines that can assist readers in reflecting on the stories they read on the web to avoid becoming viral distributers of misinformation and disinformation themselves. They ask readers to:

1. Stop and Think
2. Check the Source
3. Could it be Fake?
4. Unsure whether it's true? Don't Share.
5. Check each fact individually.

A special research team of EUvDiSiNFO specialists treats the urgency to separate facts from fiction and disclose harmful disinformation. The fight against disinformation is proposed as a joint effort involving all European institutions (European Commission, 2020, para. 3). Collectivity and collaboration is eventually a very important weapon for the fight against misinformation and disinformation. The EU is actually working in close cooperation with online platforms that the EU encourages to promote authoritative sources, demote content that is fact-checked as fake or misleading, and also take down illegal content or content that could cause physical harm (European Commission, 2020, para. 3).

Although it is beyond the scope of this paper to discuss the role of journalism in the curation of facts and the role of censorship that could arise from the curation of information shared on social media platforms, the crucial role that journalism plays in the sharing and 'offering' of information should not be omitted. The role of experts in the field, journalists and other media professionals are an important source of providing 'valid' information. In addition to improving fairness in reporting news, media professionals and journalists should always be wary of anonymous sources. "In this era of fake news, the tenets of good journalism have never been more vital. Starting with fairness, reporters should analyse and fact-check their stories" (Ehrlich, n.d.).

For Berger (2020), Director for Policies and Strategies regarding Communication and Information at UNESCO, improving the supply of truthful information, and access to information from official sources, is very important to improve credibility and fight disinformation. Reid & Sands (2016) present a simple way to check the history of a picture on the Web by reverse image search (a content-based search driven by the visual data and not by text), proposing some popular reverse image search engines like Google Image, TinEye, Bing, Yandex and Baidu.

Fact-checkers can help sort fake from true material and accurate from misleading claims (Brennen et al., 2020). The International Fact-Checking Network and the Australian Fact Check are also sources to check information. As mentioned previously in this paper, Snopes is also a website whose main aim is to fact check investigative reporting and provide facts based on evidence. For COVID-19, they source all the facts that have been reported by journalists and news media, highlight the sources of misinformation through data analytics, the danger they could pose to individuals and communities, and provide the evidence that backs up their arguments.

V. Conclusion

The COVID-19 pandemic has seen an explosion of fake news being propagated around the world, causing a new 'infodemic' with negative impacts on the psychosocial well-being and general health outcomes of consumers. Agents of fake newsgroups such as conspiracy theorists, denialists and partisanships are now taking advantage of the masses who have become more reliant on social media for news reporting, in times of COVID-19 social isolation measures. In challenging times like these, it is easy to be driven by emotions and lose clarity of critical thought. For Huw (2018), as the technology used to create fake news gets cheaper, easier to use, and more sophisticated, fake news will continue to be a problem to society. It is critical then for educational programs across diverse contexts to focus on the building of an individual's capacity to confidently seek credible information, and as a result develop into a more well-informed global citizen. It is important for education, health, and government agencies to inform communities of the opportunistic trolling activities that can occur on social media platforms. It could also be the role of education agencies to make provisions for the development of fact-finding skills within their local communities.

This paper has provided a brief outline of the complex and multi-layered COVID-19 misinformation and disinformation processes. It has presented an initial discussion on the way fake news is generated, propagated and then, debunked through various official websites. The authors believe that it is not only the responsibility of governments, health and education agencies to help individuals become aware of the negative health impacts that can occur with the propagation of fake news, but that each citizen assumes responsibility to seek out information that can be verified.

There is a simple strategy that could be adopted: if there is doubt or uncertainty surrounding a news story, or if emotion is the underpinning driver, these stories require further investigation and confirmation before sharing on social media. Secondly, the use of an investigative mindset following the simple steps as outlined in this paper can assist individuals to source evidence-based health facts from the myriad of official sites and collaborative fact-finding groups that have been covered in this paper, and discussed through examples from Greece, Australia and other international organisations. Although the authors recognise that not all individuals may have access to technology and/or the skills required to undergo a critical investigation into potential fake news, this paper encourages all individuals to inform themselves through the credible sources of information other than social media outlets, and to make others aware of potential fake news that could have adverse health effects.

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Development and preliminary evaluation of a brief epistemic beliefs instrument

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Abstract

This study was conducted to develop and validate a brief instrument to measure the epistemic beliefs of Singaporean polytechnic students. The Brief Epistemic Beliefs Instrument (BEBI) comprised 12 items, organized in four subscales: Malleable Ability (MA), Need for Effort (NE), Fallible Authority (FA) and Evolving Knowledge (EK). The instrument was completed by both groups of students within the research. An Exploratory Factor Analysis (EFA) was used to explore the latent structure of the BEBI on data from polytechnic A, while a Confirmatory Factor Analysis (CFA) was used on data from polytechnic B. While the EFA indicated a three-factor structure for the instrument (in which the factor Fallible Authority – FA – failed to emerge), the CFA confirmed the original four-factor model proposed. Cronbach's alphas also indicated moderately high levels of internal consistency for the four subscales. These results suggested the internal structure of the instrument to be sound for use within the Singapore population cohort, although the factor structure of the instrument did appear to differ somewhat across samples.

Introduction

In 2014, the Singapore Ministry of Education (MOE) published its 21st Century Competencies (21CC) Framework, which stipulated the need for students to develop specific competencies to meet the challenges and opportunities brought by ongoing demographic shifts and technological advances (MOE, 2014). In response to the release of this framework, the Singapore education system has been moving toward the use of pedagogies which reflect constructivist, rather than more traditional didactic, teaching approaches (MOE, 2008, 2011) Research has indicated, however, that constructivist approaches are likely to benefit some students more than others. In particular, it has been found that students with sophisticated beliefs about knowledge and learning (i.e., epistemic beliefs) may profit more from constructivist learning environments than do others. As such, the ability to assess these beliefs may be important for predicting which students will be able to benefit more from constructivist learning environments.

The term 'epistemic' or 'personal epistemological' beliefs are used within the research literature to refer to the beliefs that students hold about the source, certainty, and organisation of knowledge (Schommer, 1994). These beliefs have been found to relate to thinking, problem-solving and reasoning in important ways (Schraw et al., 2002). Schommer (1990) proposed that epistemic beliefs comprised several more or less independent dimensions. Schommer proposed five sub-constructs of epistemic beliefs: Simple Knowledge, Certain Knowledge, Omniscient Authority, Innate Ability, and Quick Learning. Simple Knowledge referred to a belief that knowledge is simple rather than complex. Omniscient Authority referred to a belief that knowledge is handed down by authority rather than being derived from reason (such as whether parents should be seen as 'always right'). Innate Ability referred to a belief that the ability to learn is innate rather than acquired. Certain Knowledge referred to a belief that knowledge is not tentative, as opposed to the belief that knowledge can change in light of new evidence. Quick Learning referred to a belief that learning occurs quickly or not at all. While Schommer's conceptualisation has attracted some empirical support within the literature, others have suggested that not all five constructs will be relevant in all populations, particularly across cultures (Chan & Elliot, 2000).

Literature review

Epistemic beliefs and learning processes

Epistemic beliefs have been found in numerous studies to affect students' learning processes. For example, empirical research has suggested that beliefs in quick learning prompt oversimplified conclusions, while beliefs in certain knowledge prompt inappropriately absolute conclusions (Schommer, 1990). Further studies have indicated that epistemic beliefs can affect students' levels of engagement in learning, persistence with difficult tasks, comprehension of written work, and coping with ill-structured problems (Schommer, 1994). These attributes relate to higher learning outcomes and are critical to learners' success as societies become more technologically advanced.

Several researchers have also suggested that epistemic beliefs may be an important factor in determining which students will benefit from a shift to constructivist learning environments. Magolda (1992) suggested that a pedagogy that promotes complex thinking must take account of students' personal epistemologies or epistemic beliefs and that students learned better when the learning process matched their ways of knowing. Aligned with this proposition, students with epistemic beliefs based on scientific evidence have been reported from empirical studies to prefer constructivist-oriented learning environments (Tsai, 2000). Windschitl and Andre (1998) similarly reported that students with "simple, quick and certain knowledge" beliefs can find constructivist learning environments frustrating, because there are often no 'right' answers to their questions, and learning will often not be as structured as in more objectivist learning environments. Students who believe that knowledge is fixed (i.e., does not change in response to new findings), certain (i.e., is black and white) and resides in omniscient authority (i.e., is handed down by authority) have also been found to take a more passive role in their learning (Schraw et al., 1995). The latter tendency would also make constructivist environments, in which students are encouraged to take an active role in constructing their own learning experiences and knowledge acquisition, more of a challenge for these students.

Instruments to measure epistemic beliefs

Various instruments have appeared in the literature to measure epistemic beliefs. Two popular instruments are the Epistemological Questionnaire (EQ) devised by Schommer (1990), and the Epistemic Beliefs Inventory (EBI) developed by Bendixen et al. (1998). This section presents a review of these two instruments, as well as the Epistemological Beliefs Survey (EBS). Some adaptations of the EQ for use in Asian contexts are also discussed. In the context of this paper, the terms instrument and questionnaire are used interchangeably.

Epistemological Questionnaire (EQ). Schommer's (1990) EQ is a 63-item survey designed to measure five constructs associated with epistemic beliefs: Simple Knowledge (e.g., "Things are simpler than most professors would have you believe"), Omniscient Authority (e.g., "How much a person gets out of school mostly depends on the quality of the teacher"), Certain Knowledge (e.g., "A good teacher's job is to keep his students from wandering from the right track"), Innate Ability (e.g., "Genius is 10% ability and 90% hard work"), and Quick Learning (e.g., "If you are ever going to be able to understand something, it will make sense to you the first time you hear it"). For each statement, respondents are asked to fill in a circle on an answer sheet, indicating the extent to which they agree with the statement on a five-point Likert scale (1 for Strongly Disagree to 5 for Strongly Agree).

In the initial study in which the instrument was developed (Schommer, 1990), this 63-item questionnaire was completed by 1182 American high school students, of whom 68.2% were

white Americans, 21.5% were African Americans, 5.5% were Asian Americans, 3.4% were Hispanic Americans, and 1.5% were Native Americans. An exploratory factor analysis (EFA) of the scores extracted four factors, pointing to the fact that "epistemological beliefs may be characterised as a set of more or less independent beliefs" (Schommer, 1990, p. 500). The construct of Omniscient Authority was not, however, extracted in this study. Subsequent results published by Schommer (1993) also indicated internal consistencies for the instrument factors to range from 0.51 to 0.78.

Since Schommer's original (1990) paper appeared, however, many researchers who have used the EQ to measure epistemic beliefs have been unable to replicate the factor structure results reported in this study (DeBacker et al., 2008; Schraw et al., 2002). Debacker et al., for example, found low internal consistencies of the EQ item subsets, ranging from 0.11 to 0.44. In their research, the EQ was administered to 935 mainly female (75%) and white (68%) college students. Ages of the respondents ranged from 18-45 years (Mean=20). In addition to the low internal consistencies obtained, according to the researchers, "an EFA of neither item subsets nor individual items produced a factor solution that resembled Schommer's (1990)" (p. 301). While confirmatory factor analysis (CFA) fit indices showed good fit, this was performed on only a six-item subset from the instrument, which represented only two dimensions of the original five proposed.

Schraw et al. (2002) reported factor internal consistencies between 0.53 to 0.79 for the EQ. In their research, Schraw et al. (2002) administered the 63-item EQ to 160 undergraduates in a large Mid-western university in the USA. Respondents were aged between 18 and 46 years (Mean=21.36, SD=4.73), with 12% of respondents being older than 22 years. The factor analysis results did not yield the five hypothesised factors for the EQ without a priori groupings. No CFAs were used in this survey. Given these results, it appears that while the Schommer EQ remains a popular instrument for measuring students' epistemic beliefs, its internal structure has not been confirmed consistently since the original paper in which the instrument was first published.

Epistemic Belief Inventory (EBI). The Bendixen et al. (1998) EBI is a 32-item survey designed to measure the five constructs specified by Schommer (1990), using a shorter (32-item) instrument than the EQ (Schraw et al., 2002). The items within the EBI are similar, but not identical, to the original Schommer EQ items: Simple Knowledge (e.g., "The best ideas are often the most simple"); Omniscient Authority (e.g., "Parents should teach their children all there is to know about life"); Certain Knowledge (e.g., "I like teachers who present several competing theories and let their students decide which is best"); Innate Ability (e.g., "Some people will never be smart no matter how hard they work"); and Quick Learning (e.g., "Students who learn things quickly are the most successful").

In the original study in which the EBI was validated (Schraw et al., 2002), 160 undergraduates of a Midwestern university in the USA completed the instrument. Respondents were asked to rate their agreement with each statement on a five-point Likert scale. Factor analysis of the data yielded the five epistemic belief dimensions, including Omniscient Authority, but with a reduced number of items (three per factor). Furthermore, Cronbach's alphas for each of the factors obtained ranged from 0.58 to 0.68, indicating low internal consistencies for each individual factor. This might reflect the number of items eventually included in each one.

In subsequent research carried out by DeBacker et al. (2008), further problems were identified in the psychometric properties of the EBI. In this research, the instrument was administered to two samples. Sample 1 comprised of 417 college students. The mean age was 22 years, and respondents were mostly female (94%) and white (67%). Sample 2 comprised 378 university undergraduates. The mean age of the sample was 20 years, and again, the sample was mostly female (78%) and white (80%). CFAs were applied to the data from both samples. Fit indices obtained in these analyses were somewhat mixed, with some (e.g., the Root Mean Squared Error of Approximation or RMSEA) indicating adequate fit (0.069 and 0.060 for samples 1 and 2, respectively). Others, however (i.e., the Comparative Fit Index, CFI; the Goodness of Fit Index, or GFI; and the Adjusted Goodness of Fit Index, or AGFI) fell well below suggested cut-off levels in both samples (.79, .83, and .80, and .83, .85, and .83, respectively). Internal consistencies were reported to range from 0.47 to 0.62 for Sample 1 and from 0.50 to 0.68 for Sample 2. Some loadings from the CFA also fell below 0.35, suggesting that these items were not strong indicators of the hypothesised latent structure.

Epistemic Beliefs Survey (EBS). The EBS is an 80-item self-report instrument developed by Wood and Kardash (2002) to measure the same five constructs as Schommer's (1990) EQ. The items used within the EBS are again similar, but not identical, to the original Schommer EQ items. These are designed to measure the factors of Simple Knowledge (e.g., "I like information to be presented in a straightforward fashion; I don't like having to read between the lines"); Omniscient Authority (e.g., "Even advice from experts should be questioned"); Certain Knowledge (e.g., "The only thing that is certain is uncertainty itself"); Innate Ability (e.g., "The really smart students don't have to work hard to do well in school"); and Quick Learning (e.g., "If something can be learned, it will be learned immediately").

The EBS combines the items of EQ and an instrument developed by Jehng et al. (1993), using a five-point Likert scale. In the initial study to evaluate the EBS by Wood and Kardash (2002), 793 students completed the instrument. Of this group, 32.7% were males, 65.4% were females, and the remaining 1.9% were of unknown gender. Ages of respondents ranged from 17 to 52 years, with a mean of 22.35 years. Five factors were extracted in the analysis of these scores: Speed of Knowledge Acquisition (8 items), Structure of Knowledge (11 items), Knowledge Construction and Modification (11 items), Characteristics of Successful Students (5 items), and Attainability of Objective Truth (3 items). Internal consistencies of 0.74, 0.72, 0.66, 0.58 and 0.54 were found for these components of the instruments (respectively).

In a later study, Debacker et al. (2008) reported internal consistencies for the EBS of 0.50 to 0.73, comparable to

those reported by Wood and Kardash (1993). Some factor loadings in the latter study were below 0.35, however, indicating these to be weak indicators of the hypothesised latent factors. In this research, two samples were used. Sample 1 included a sample size of 380. Respondents were mostly females (75%) and white (71%). The mean age of this sample was 24 years. In Sample 2, the sample size was 415. Respondents were again mostly female (73%) and white (72%). The mean age of this sample was 25 years. CFAs were applied to the two samples. RMSEA values were reported to be .050 and .052, respectively, which indicated a reasonably good model fit. However, the CFI, GFI, and AGFI were below cut-off values for good fit (.90, .85, and .83, for Sample 1, and .88, .85, and .83 for Sample 2). As such, these results offered only mixed support for the internal structure of the EBS.

Furthermore, in contrast to the high internal consistency results obtained by Debacker et al. (2008), Schommer-Aikins and Easter (2006) reported relatively low internal consistency for the EBS of between 0.23 to 0.76. In the latter study, the EBS was administered to 107 college juniors and seniors. Both genders were represented (48 males and 57 females). Respondents represented diverse ethnicities and reported a mean age of 23.44 years (SD=3.08). Based on their results, Schommer-Aikins and Easter concluded that the internal structure of the EBS was variable across samples.

Adaptations of the EQ for the Asian context. Over the years, epistemic beliefs researchers have carried out studies across many countries outside North America. Many of these have used Schommer's EQ or an adapted version of the instrument. Examples of such adaptations include those developed by Chan and Elliot (2000) and Youn (2000). In their rationale for developing a culture-specific version of the EQ, Chan and Elliot (2000) noted that the factor structures obtained in studies across countries had not replicated those reported by Schommer (1990). They attributed this to the cultural differences of the respondents, which would prompt varied interpretations of the items (Chan & Elliot, 2004). Youn (2000), in his rationale for developing a more culture-specific version of the EQ, argued similarly that "students' beliefs are shaped by the culture or situation around them" (Youn, 2000, p. 102).

Chan and Elliot (2000) suggested a 30-item adaptation of the EQ for the Asian context. In their research, 352 final year students at the Hong Kong Institute of Education were surveyed. The respondents were aged between 20 and 26 years, with 25% males, 66% females and the rest of the unknown gender. Results confirmed that the four factors of the original EQ could be retained (i.e., Innate Ability, Learning Effort, Authority, and Certain Knowledge). Internal consistencies were reported to range from 0.6 to 0.7.

Research carried out by others such as Chai et al. (2010) and Lee et al. (2013), however, failed to completely replicate Chan and Elliot's (2000) results. For example, only 16 items were retained in Chai et al.'s (2010) study, and 18 were retained in Lee et al.'s (2013) study. Chai et al.'s (2010) study included 445 undergraduate students from a Chinese university. Respondents were represented by 36% males and 64% females, with ages ranging from 19-23 years. The modified instrument used in this study was a 29-item General Epistemological Beliefs Scale (GEB) which was adapted from Chan and Elliot's (2004) 30-item scale. Seven of the 29 items were removed by Chai et al. (2010) because of low loadings. The 22-item dataset was then analysed using a CFA. Based on this analysis, six items further items were removed, resulting in a 16-item scale with internal consistencies between 0.58 and 0.80 for each of the four subscales. CFAs applied to the reduced 16-item scale produced good model fits (i.e., GFI = .94, TLI = .94, CFI = .95, RMSEA = .043, SRMR = .049).

Lee et al. (2013) also administered a modified version of Chan and Elliot's instrument to 1008 junior secondary school teachers from three Chinese cities. The sample consisted of 258 males (26%) and 746 females (74%). The sample was randomly split into two samples, one used for EFA and the other for CFA. Again because of low loadings, only 18 of the original 30 items were retained. An EFA on the first sample resulted in the retention of 19 items. The CFA on the second sample saw another item excluded, resulting in an 18-item instrument. The CFA on the retained 18 items, however, showed good fit indices (i.e., RMSEA = 0.087, and NFI, CFI, and RFI all > 0.9). Internal consistencies of the subscales were also reported to range from 0.79 to 0.93. Based on these results, while the full version of Chan and Elliot's epistemic beliefs instrument has not consistently been supported, reduced versions of this instrument have received empirical support across multiple studies.

Rationale and aims for the present research

Students' epistemic beliefs are a potentially important construct in education because they predict many aspects of students' learning processes. However, as noted above, there have been problems in the measurement of students' epistemic beliefs using current instruments, which could impede research and practice in Singapore within this area. In particular, much of the research on each instrument has been conducted in a Western context. When these instruments have been used in non-Western counties, the original validation results were often not replicated (Hofer, 2008). This has been attributed in part to the sociocultural contexts of the studies that were conducted (Chan & Elliot, 2000).

The aim of the present study was to develop a brief instrument to measure epistemic beliefs that would be suitable for use in the Singapore context. Given the results obtained by Chan and Elliot (2000), the Brief Epistemic Beliefs Instrument (BEBI) developed in this study focused only on four epistemic belief constructs (Innate Ability; Omniscient Authority; Learning Effort; and Certainty of Knowledge). Items were worded to overcome any English language issues, given the multicultural nature of Singapore as a country. While Standard Singapore English (SSE) is the medium used in schools, Singapore Colloquial English ('Singlish') is also common among students. Care was therefore taken to ensure that the words and sentences used in the survey would be unambiguous in either standard English or 'Singlish'. Item formats were also altered to a statement-based, bipolar scale format. These scales have been found

to reduce acquiescence bias and produce better model fits than Likert scales (Friborg et al., 2006). Seven-point scales have also been found to be more reliable and consistent than Likert-based scales (Wirtz & Lee, 2003). In addition, due to the level of variability anticipated in responses to the questions posed, a seven-point scale was used.

This research was approved by the Human Ethics office of the University of Western Australia (Approval Reference: RA/4/1/8141). Participants were duly informed regarding the anonymous and voluntary nature of the participation.

Method

Participants

Participants were students from two polytechnics, A and B, in Singapore. The sample from polytechnic A was drawn from the School of Information (SOI), while that polytechnic B sample was drawn from Information Technology and Business schools. In all, 421 students from polytechnic A and 271 students from polytechnic B responded to the survey. Following data screening to remove partially completed surveys and instances of clearly disengaged responses (i.e., where the respondent put the same response for all questions), the number from polytechnic A was 350 (83.1%), and from polytechnic B was 205 (75.6%). There were 156 (44.6%) males and 187 (53.4%) females from polytechnic A (7, or 2.0%, did not report their gender). For polytechnic B, there were 93 (45.4%) males and 110 (53.6%) females (2, or 1.0% did not report their gender in this sample). The ages of the respondents ranged between 16 and 25 years, with a mean of 18.0 years (SD=1.58) from polytechnic A and a mean of 18.84 years (SD=1.36) from polytechnic B. All participants were Asians, with the majority being Singaporeans (89.3% for polytechnic A and 91.2% for polytechnic B). The ethnic groups were Chinese, Malay and Indian: 58.2%, 24.5%, and 12.1% (respectively) from polytechnic A, and 83.9%, 9.3% and 3.9% (respectively) from polytechnic B.

Instrument

The Brief Epistemic Beliefs Instrument (BEBI) created in this research includes 12 items, to which students respond using a 7-point bipolar statement rating scale. The BEBI was designed to include four subscales, each with three items, to measure four constructs of epistemic beliefs: Malleable Ability (MA), which represents the opposite of innate ability; Need for Effort (NE), which represents the opposite of Learning Effort (i.e., representing beliefs about the need to invest effort in learning, as opposed to the belief that learning will only be successful if it is easy and effortless); Fallible Authority (FA), representing the opposite of Omniscient Authority; and Evolving Knowledge (EK), representing the opposite to Certain Knowledge. A list of all BEBI instrument statements and their subscales can be found in Table 1. Items were scored from 1-7, with higher scores indicating higher levels of the attribute indicated in the subscale title.

Procedure

Students were invited to participate in the survey at the end of the school day in the first week of the academic year. They were encouraged to complete the survey in the classroom and in one sitting to avoid possible abandonment, a likely scenario when students are interrupted for other tasks. To ensure that all participating classes had the opportunity to complete the survey, however, the survey was left open for up to two weeks. As the students did the survey at the end of the school day, no instructors were present. In addition, no special incentives were offered to respondents to participate.

Prior to the actual survey class session, a time trial was conducted with a small group (n=20 students) from polytechnic A, who did not then participate in the final study. This was done to determine how long the students would take to complete the survey. The time trial indicated that all respondents were able to complete the survey within 15 minutes, which was considered ideal, given that a longer survey could produce fatigue and attendant loss of data quality.

Table 1. Item statements in the BEBI

Dimension	Item Label	Low scoring statement (scored 1 at endpoint)	High scoring statement (scored 7 at endpoint)
Malleable Ability (MA)	BEBI_MA1	How smart you are is fixed at birth.	You can make yourself smarter in life.
	BEBI_MA2	A person can be taught to learn well in any subject.	People are born with the ability to do certain things and not others.
	BEBI_MA3	Some will never have the ability to learn well in certain subjects because learning is innate.	One's ability to do things is not limited at birth.
Need for Effort (NE)	BEBI_NE1	You can generally do well just by depending on others.	The amount you learn depends on your own efforts.
	BEBI_NE2	There are shortcuts to excel in your exams.	You need to study really hard to excel in your exams.
	BEBI_NE3	No matter how hard you try, you may not understand certain concepts.	Understanding concepts requires lots of effort.
Fallible Authority (FA)	BEBI_FA1	The authorities are always correct.	The authorities are not always correct.
	BEBI_FA2	Parents have absolute authority and we should always listen to them.	It is alright not to listen to our parents all the time.
	BEBI_FA3	People who question authority should be silenced.	People have the right to question authority under some circumstances.
Evolving Knowledge (EK)	BEBI_EK1	When disagreements arise between two persons, one of them must be right.	When disagreements arise between two persons, there is no certainty that either person is right or wrong.
	BEBI_EK2	Scientific knowledge is factual and does not change.	Scientific knowledge can change over time.
	BEBI_EK3	Only one teaching method is necessary for the acquisition of specific knowledge.	Teaching methods should differ for different types of knowledge.

Results

To evaluate the internal structure of the BEBI, both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) methods were used. To provide a preliminary assessment internal structure, an EFA was first conducted on data from the 350 polytechnics A participants. A CFA was then conducted to cross-validate the findings of the EFA using data from the 205 polytechnic B participants. All procedures associated with the EFA were conducted using IBM SPSS V25. All procedures associated with the CFA were conducted using LISREL V8.80.

Exploratory factor analysis

The EFA on polytechnic A participants' BEBI scores (n = 350) was performed using a Maximum Likelihood (ML) extraction, as recommended by various authors in the field (e.g., Costello & Osbourne, 2005). Given that the factors were expected to correlate, the factors extracted were rotated to an approximate simple structure using the Direct Oblimin method. Three alternative sources of information were considered in determining the number of factors to retain: Kaiser's eigenvalues greater than one criterion; the Cattell scree plot; and a parallel analysis of obtained eigenvalues.

All three sources were considered to reduce the possibility of over- or under-extracting factors from the 12-item set.

Prior to conducting the EFA, the data were screened to ensure compliance with all relevant EFA assumptions. Skewness and kurtosis coefficients indicated no significant departures from normality in the item distributions, based on Kline's (2005) criteria (values below |3.0| for skewness and below |8.0| for kurtosis). Visual examinations of bivariate scatterplots indicated that the relationships between all item score pairs were linear. Using standard (z) scores, no univariate outliers were identified (all z-scores ≤ |3.0|), and Mahalanobis distance x2 values suggested no significant multivariate outliers at the 0.001 level. Indices of factorability (i.e., the Kaiser-Meyer-Olkin, or KMO, test, and Bartlett's test of sphericity) also indicated that the use of EFA was suitable for use with this score set. With a high case to item ratio of 29.17, the sample used was large enough to yield reliable estimates of correlations among the variables.

The EFA on the data collected indicated three distinct factors, based on Kaiser's criterion, the scree plot, and a parallel analysis (the difference between random eigenvalue and obtained fourth eigenvalue -0.35). Together, these three factors accounted for 60.77% of the item variance (29.27, 18.55, and 12.96% accounted for by the first, second and third factors, respectively). Communalities and oblique-rotated factor loadings obtained in the EFA are shown in Table 2. As indicated, the items BEBI_MA1, BEBI_MA2, and BEBI_MA3, which were intended to measure the construct of Malleable Ability (BEBI_MA), all loaded onto one factor as proposed. The items BEBI_NE1, BEBI_ NE2, and BEBI_ NE3, which were intended to measure the construct Need for Effort (BEBI_NE), similarly loaded onto one factor as proposed. However, all remaining items (BEBI_FA1 through BEBI_FA3 and BEBI_EK1 through BEBI_EK3) loaded onto a single factor. This result suggests that items from the proposed factor Fallible Authority (BEBI_FA) did not form a distinct factor from those in the Evolving Knowledge (BEBI_EK) factor. Cronbach's α coefficients for the factors identified were acceptable, ranging from 0.70 through 0.75 (Nunnally, 1978). Thus, the results of the EFA were similar to those reported by Chan and Elliot (2000), with the construct of Omniscient Authority failing to emerge.

Table 2. Communalities and factor loadings for the BEBI items

Item	Communality		Pattern Matrix		
	Initial	Extraction	Factor 1: Fallible Authority and Evolving Knowledge	Factor 2: Malleable Ability	Factor 3: Need for Effort
BEBI_FA1	0.46	0.59	**.79**	-.12	.10
BEBI_FA2	0.35	0.45	**.64**	-.21	.28
BEBI_FA3	0.47	0.60	**.77**	-.05	-.19
BEBI_EK1	0.25	0.28	**.43**	.18	-.04
BEBI_EK2	0.36	0.42	**.50**	.27	.03
BEBI_EK3	0.43	0.49	**.50**	.29	-.17
BEBI_MA1	0.42	0.57	.03	**.75**	.02
BEBI_MA2	0.34	0.47	-.11	**.74**	.12
BEBI_MA3	0.38	0.47	.03	**.67**	-.01
BEBI_NE1	0.35	0.47	.12	-.01	**.67**
BEBI_NE2	0.39	0.61	-.10	-.14	**.79**
BEBI_NE3	0.30	0.39	-.02	.01	**.62**

Confirmatory factor analysis

To cross-validate the EFA results using scores from polytechnic B (n = 205), two CFAs were conducted. The first was based on the original factor structure specified, in which the 12 BEBI items measured four different dimensions or aspects of epistemic beliefs (Malleable Ability, BEBI_MA; Need for Effort, BEBI_NE; Fallible Authority, BEBI_FA; and Evolving Knowledge, BEBI_EK). The second was based on the result of the EFA, in which all BEBI_FA and BEBI_EK items loaded on a single factor. The change in chi-square between the two models was then used to evaluate whether the fit of the two models differed significantly. Again, before this analysis, data screening analyses were performed to ensure that all relevant assumptions for CFA in terms of normality, linearity, factorability, and the absence of outlying univariate scores and multivariate score sets were met. These analyses all produced satisfactory results. Given the high case to item ratio of 17.08, the sample size was also deemed large enough to yield reliable correlation estimates.

Despite the results obtained in the EFA, the change in x2 between the three- and the four-factor models tested was significant, $\Delta x2\ (3) = 36.20$, $p < 0.05$, indicating that the fit of the original, four-factor model was superior to that of the three-factor model indicated by the EFA. Given this result, the four-factor model was retained here for interpretation. The overall chi-square obtained for the four-factor model was $x2(48) = 90.40$, $p < 0.05$. A summary of fit indices, both for the four- and the three-factor models tested, are presented in Table 3. Comparing the obtained fit indices shown in Table 3 with recommended cut-offs for each index (see Hooper et al., 2008), the four-factor BEBI model fit the data moderately well and was superior to the three-factor model. The Goodness of Fit (GFI) and Adjusted Goodness of Fit (AGFI) values indicated that the proportion of variance accounted for by the estimated population covariance fell marginally below recommended minimum levels (GFI ≥ 0.95 and AGFI ≥ 0.90). The Normed Fit Index (NFI) and Non-Normed Fit Index (NNFI) values similarly fell just below the recommended minimum levels (i.e., ≥ 0.95, or improvement of fit by 95% relative to the null model).

Table 3. Fit indices for two models of the BEBI

Model	χ^2	*df*	χ^2/df	GFI	AGFI	NFI	NNFI	CFI	RSMEA	SRMR
Model 1: Four-Factor	90.40	48	1.88	.93	.89	.88	.92	.94	.07	.07
Model 2: Three-Factor	126.60	51	2.48	.91	.86	.84	.86	.90	.09	.08

Values obtained for the Root Mean Square Error of Approximation (RMSEA) (i.e., the square-root of the difference between the residuals of the sample covariance matrix and the hypothesized model), and the Standardized Root Mean Square Residual (SRMR) (i.e., the standardized difference between the observed correlations and the predicted correlation values) fell well within recommended levels (recommended levels ≤ 0.08 in both cases). Both the Comparative Fit Index (CFI) and the x2/df also fell well within recommended ranges for determining good fit (≥.90 and ≤3.0, respectively). Based on these results, the four-factor

model of the BEBI was deemed to be tenable, despite the results of the earlier EFA. Figure 1 presents path coefficients obtained from the four-factor model tested.

The means and standard deviations of the 12 BEBI items for Polytechnic A and B are shown in Table 4.

Table 4: Mean and Standard deviations

Item	Polytechnic A		Polytechnic B	
	Mean	Standard Deviation	Mean	Standard Deviation
BEBI_MA1	5.41	1.49	5.52	1.37
BEBI_MA2	5.07	1.57	4.85	1.56
BEBI_MA3	5.08	1.41	4.85	1.52
BEBI_NE1	5.19	1.58	2.64	1.65
BEBI_NE2	4.82	1.63	3.19	1.70
BEBI_NE3	4.81	1.52	3.12	1.56
BEBI_FA1	4.71	1.38	4.93	1.40
BEBI_FA2	4.06	1.57	4.34	1.29
BEBI_FA3	5.22	1.30	5.42	1.25
BEBI_EK1	5.04	1.43	5.54	1.26
BEBI_EK2	4.93	1.33	5.10	1.41
BEBI_EK3	5.45	1.27	5.70	1.24

Discussion

Based on the results obtained, the 12-item BEBI developed holds considerable promise for meeting the purpose of this study. As noted previously, while other instruments have appeared within the literature to measure students' epistemic beliefs, these are generally worded for students in a Western context and are unlikely to be suitable for students in other countries (Chan & Elliot, 2000).

The EFA on the dataset from polytechnic A indicated that, contrary to the proposed BEBI structure, only three factors could be distinguished within the BEBI items. This result aligned with those reported by Chan and Elliot (2000) and Schommer (1993). In both of these previous studies, the factor of Omniscient Authority (which was labelled Fallible Authority or BEBI_FA, in the BEBI) did not emerge as an independent factor. In the present study, all BEBI_FA and BEBI_EK items (the latter designed to represent the Certain Knowledge construct in Schommer's 1990 conceptual model) loaded on a single factor. This result suggests that for many students, a belief in Certain Knowledge will be associated with a belief in Omniscient Authority in knowledge. This result is intuitively reasonable, as the level of certainty ascribed to knowledge is likely to be associated with the authority attached to that knowledge.

In the CFA performed on data from polytechnic B, however, the fit of the original four-factor model of the BEBI was found to be superior to that of the three-factor model obtained in the EFA. This result suggests that in polytechnic B, the BEBI_FA factor could be differentiated meaningfully from the BEBI_EK factor. Based on the two sets of results, it seems that the factor of Omniscient Authority (Fallible Authority in the BEBI) may not emerge consistently across samples. This result is aligned with the variable results obtained across different samples in the literature.

Based on the CFA conducted on the polytechnic B data, the four-factor model of the BEBI fit the data moderately well. The fit indices obtained fell either just below or within the recommended cut-off points from the literature. Whilst these results suggest that further work is needed to enhance

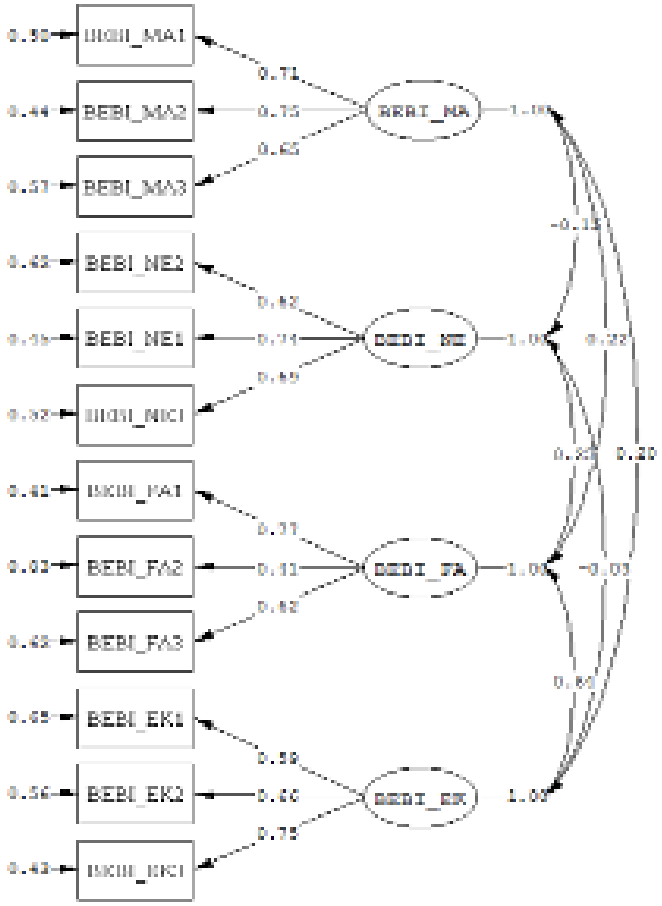

Figure 1. Path diagram for the four-factor model of the BEBI

the instrument before it is used in a broader context, given the brevity of the BEBI, a modified form of this instrument may present an appealing option for educators in Singapore who wish to measure their students' epistemic beliefs.

Students' epistemic beliefs have been found to predict other key learning outcomes such as academic performance, particularly in constructivist learning environments. In light of Singapore's aim to move toward the use of constructivist learning environments such as problem-based learning (PBL) across all levels of education, a short tool such as the BEBI could be particularly useful within this context. Looking beyond Singapore, the BEBI can be translated into different Asian languages and be used in institutions of learning in other countries. In such future developments, however, further refinements to the items used to represent Fallible Authority and Evolving Knowledge should be considered to ensure that these two subscales are empirically distinct.

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Challenges, paradigm shift and theoretical underpinnings of learning advising in higher education: The case of an Australian university in Singapore

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Abstract

Learning advisors are teaching professionals who play an important role in higher education. They exist in universities in order to help students achieve success in their studies and in their careers. However, learning advisors are faced with some key challenges. One issue is the seemingly vague and inferior position that they have in higher education. Another challenge includes the questions about where they belong and what key roles they perform. This paper responds to these challenges through the following propositions: (1) creating a unique and more nuanced understanding of learning advising by looking at an Australian university in Singapore, (2) making a stand that learning advisors constitute a duality of self or function, i.e., as an academic and as a professional, (3) explaining a paradigm shift in learning advising by embracing the humanistic and social constructivist ideologies, and (4) framing the role of learning advisors within key theoretical lenses that guide them in performing such roles in higher education. Examples of teaching practices are discussed by situating them within the key theoretical frameworks. This paper concludes that learning advisors are both academics (teachers) and professionals (e.g., learning resource developers) and teaching is at the core of what they do. Higher education institutions must become proactive in clarifying the misconceptions associated with learning advising and in breaking the labels associated with learning support that proliferate in the academe.

Introduction

Learning support is an integral part of higher education institutions in Australian universities, including some higher institutions in the US and the UK. Almost 75% of Australian universities have a dedicated learning centre or learning support system where a team of learning advisors provides guidance to students who are experiencing challenges in their academic studies (Association for Language and Learning [AALL], 2017) and who are at risk of attrition (Tertiary Education Quality and Standards Agency [TEQSA], 2017; Toh-Heng et al., 2019). A learning advisor is a teaching professional with relevant academic qualifications capable of bringing students from point 1 to point N of learning (Saludadez, 2014). The practice of providing learning support to students in Australian universities has but one aim: for students to be actively engaged in their own learning in order to achieve success in their academic studies in particular and in the real world in general.

In the Singapore campus of James Cook University (JCUS), mixed feelings permeate among students, academic staff and administrative staff about how they perceive the role of learning support. Some have questions that are left unanswered. Some are confused, while others have certain misconceptions about the type of assistance that learning advisors are meant to provide. It is important to answer those questions and eliminate those confusions and misconceptions by giving a clear, unique and nuanced definition of learning support in the context of JCUS as an institution of higher learning. It is also important to inform the community of higher education institutions about the paradigm shift that institutions of higher learning are undertaking, one of which is being carried out by the team of learning advisors in JCUS. The move from a functionalist-behaviourist paradigm to a humanistic and social constructivist paradigm is instrumental as it reminds advisors of JCUS to be mindful of their roles and the theoretical lenses that guide them in performing such roles in the university in order to contribute to the improvement of learning, teaching and student engagement.

Views about learning support in higher education

From a review of literature and reflection on experience, the concept of learning support appears to consist of blurred and overlapping lines in which many people in academia have but a vague understanding.

Some educational institutions define learning support as material or library resources. For instance, in many universities in Australia and the US, learning support is embedded in the university's library support system, appearing in the names "learning centre", "centre for writing and rhetoric", "learning and writing centre", "academic skills hub", "teaching and learning support", "student learning" or "learning hub" (James Cook University Australia, 2020; University of Melbourne, 2019; University of Western Australia, 2019; University of Minnesota, 2020; and University of North Carolina at Chapel Hill, 2020). It refers to materials or resources designed for students to achieve academic success by addressing barriers to and promoting engagement in learning. These material resources can either be in print form or are accessible online (University of Carolina in Los Angeles, 2002). To enable learning, they must be fully integrated with instructional efforts such as being embedded in the library system, the students' subject outlines or within the digital learning environments that students navigate (University of California in Los Angeles, 2002; Association of American Publishers, 2016; James Cook University Australia, 2018).

Other institutions view learning support as social support and counselling for students who are adjusting and adapting to university life. This is a more inclusive view of learning support whereby not only academic support is a key component but also social adjustment, counselling and career guidance (Bates, 2014; School of the Arts Singapore, 2020; Curtin University in Singapore, 2019; The University of South Australia, 2020). Proponents of such inclusive support systems argue that students need assistance not only on academic issues but also on administrative or personal issues such as whether to repeat a course, delay an assignment due to personal problems, be given additional time during exams, or withdraw enrollment in a course due to emotional or mental health issues. This implies a therapeutic view of learning support (Bartram, 2009) that aims to ensure that students succeed academically while addressing personal, emotional or psychological problems (Bates, 2014; Lwehabura & Stilwell, 2008).

In some higher education contexts, learning support is defined specifically as the provision of academic help to students who are struggling in their subjects in the university. This is a more focused view of learning support whereby a strong presence of a team of learning and teaching experts pervade in the university with the goal to provide academic assistance to students and support the teaching faculty. Social support, career counselling and support on personal and mental health issues are undertaken in a separate capacity by other relevant departments in the university, e.g., by a Centre for Wellbeing or a Pschology Clinic. This view about learning support seems to fit with how learning advisors in JCUS operate and embody their roles. In JCUS, learning support generally refers to academic, learning and language skills support by dedicated learning support staff providing assistance in the form of face-to-face consultations, email, collaboration on cloud (e.g., OneDrive), and generic as well as contextualised workshops (Toh-Heng & Delante, 2019). It also includes assistance on statistical analysis, mathematics and research design. The staff providing these services in dedicated learning or study centres are referred to as learning advisors.

Challenges that learning support faces in higher education

In a global world, creating a team of professionals (e.g., a learning support group) as a way of embracing difference has become a business imperative rather than an option. As higher education institutions prepare their students for the complex world of work, their graduates' ability to effectively communicate and collaborate across cultures as evidence of learning has become essential for success. Difference is

a reality in the Singapore campus of James Cook University where students, academics, library staff, marketing staff and learning advisors from more than 50 nationalities work collaboratively in a dynamic learning environment. While this provides for a rich, exciting and inspiring experience, it is not without challenges (E. M. Fink, personal communication, December 2019). The next paragraphs discuss the challenges that learning advisors face in higher education.

One challenge that learning advisors are facing includes the perception that learning support is a seemingly inferior position in higher education. "I feel that I am a support teacher or relief teacher, not a language expert, despite my strong qualifications," shared one fellow learning advisor (C. Wong, personal communication, November 2019). Some believe that learning advisors are jack or jane of all trades. "It seems that they can do a bit of everything related to teaching and learning" shared another academic (J. Panchal, personal communication, April 2017). While being a jack/jane of all trades sounds promising, it conveys another meaning: that learning advisors are a cricket all-rounder essential to the team, but lacking the defined role of the bowler who takes wickets or the opening batsman who scores runs (*The Guardian*, 2017).

Another challenge pertains to the collective feeling that learning advisors share: the feeling of uncertainty or "neither-here-nor-there" phenomenon when it comes to understanding their position in the university. This phenomenon seems to enhance their having a lack of identity in higher education including a career progression that appears indeterminate or unclear (Murray & Glass, 2008; *The Guardian*, 2017). "Are we in the professional domain or are we in the academic domain? Where do we actually belong?" asked a learning development specialist from one higher education institute in Singapore during a symposium attended by learning advisors, learning development specialists and educators in Singapore (F. M. Lai, personal communication, November 2019). The undergirding notions of "academic" and "professional" that seem to push learning advisory from being recognised as not academic yet not accepted as professional are deliberated in an email discussion list for the UK education and research communities and in a learning support symposium facilitated by the Learning Centre of JCUS. In the UK email discussion, Foster (2011) of Nottingham Trent University's learning development team argued that learning advisors or learning development specialists cross both the academic and professional domains, therefore, arguing that they must belong to one domain is illogical. The same has been pointed out by the attendees of the symposium in JCUS.

The push and pull of whether learning advisors belong to the academic domain or the professional domain extends to the labels or identity categorisations that continue to emerge in higher education contexts. One of these categorisations pertain to the idea that learning advisors belong to a "third space" that is gaining steam in higher education institutions in the UK, US and Australia (Whitchurch, 2008). The third space is a contested space because individuals who operate in such a space possess academic credentials, undertake quasi-academic functions, work collaboratively in teams that deal with academic, research, policy or marketing initiatives, and have the capacity to progress towards taking academic management roles. Whitchurch (2008) argued that an identity called "blended professionals" is taking shape within the third space in which individuals falling within this category have dedicated appointments spanning professional, management and academic domains. These blended professionals are not only interpreting their given roles more actively, but are also moving laterally across boundaries contributing to the development and expansion of a third space between professional and academic domains (Whitchurch, 2008).

Murray and Glass (2008) support this contention by arguing that learning advisors are "border crossers" or "boundary crossers" in that they operate in a boundary between providing generic learning support and discipline-specific skills necessary for students to achieve academic success. They also exist in the boundary between performing academic responsibilities and undertaking administrative as well as professional roles, e.g., developing resource materials and conducting trainings with academics. Murray and Glass (2008) asserted that higher education institutions value the importance of learning support professionals as border crossers, however, some misconceptions remain about what they do and their impact on student learning. They postulated that in some higher education contexts, those learning support or learning development professionals are viewed as proof-readers, editors, reading tutors, relief teachers or staff offering support services to learners with disabilities, rather than academics with equally relevant qualifications capable of teaching.

The existence of these categorisations seems to expand the dichotomy between "us" and "them" or "support teachers" and "course teachers" (Orr & Blythman, 2006). Orr and Blythman (2006) mentioned that the role of study support or learning support teachers in helping and supporting students, to many subject content teachers, is "not teaching" (p. 5). This seems to undermine the capacity of learning support teachers to teach students. Content lecturers think that learning support teachers who are providing academic assistance to students (e.g., a workshop on writing an essay or basic grammar and sentence rules) is least of their concern. In some cases, learning support teachers are viewed as a "mop that does magic" on students' learning (Orr & Blythman, 2006). When students struggle to learn and fail, institutions would think that the mop has lost its magic.

In an article published by *The Guardian* (2017), an anonymous academic argued that those blended professionals who belong to the third space and are performing a "blended" or a "hybrid" role in universities are facing a significant dilemma in career progression. They appear to fall through the cracks in the hierarchy that determines career progression. Even if they straddle both academic and professional roles and have the right qualifications, their career progression appears to be blurred. "I am not concerned about this because I am already in my mid-50s; however, for young professionals who operate in this field, working in a flat structure might not be helping them progress in their careers" (H. L. Toh-Heng, personal communication, October 2018).

Nonetheless, the proliferation of these labels or categorisations (e.g., third space, blended professionals, border crossers, hybrid professionals, mop that does magic) does not stop learning advisors in asserting their position and in amplifying their voice in higher education. In JCUS, we are aware that these stereotypes and misconceptions will linger in higher education contexts. As a response, we advance a collective, strong and fundamental argument: that we continue to perform both academic and professional duties to contribute to students' success; and that we continue to improve our capacity to teach (e.g., conducting workshops on academic writing) and train (e.g., developing resource materials and facilitate staff development trainings) for students to accomplish learning and for academic staff to improve their pedagogical practices. This leads to the next section that describes the duality of the "self" of learning advisors.

A fundamental stand: learning advisors have a duality of self — academic and professional

In JCUS, learning advisors are guided by the following teaching principles: (1) respecting student diversity, (2) understanding students' conditions, capacities and cultures, (3) openness to ideas, imagination and creativity, (4) teaching students to grow rice rather than giving them a bowl of rice, and (5) collaborating with content lecturers to develop resource materials or conduct workshops that target students' skills and competencies. These suggest that learning advisors: (1) are teachers who have the power to influence and inspire students to achieve their full potential, and (2) are professionals who have the capacity to augment the expertise and technological know-how of academics in performing their job. This affirms that learning advisors constitute a duality of self – as an academic and as a professional. This duality of role is illustrated by Foster's (2011) model of learning development.

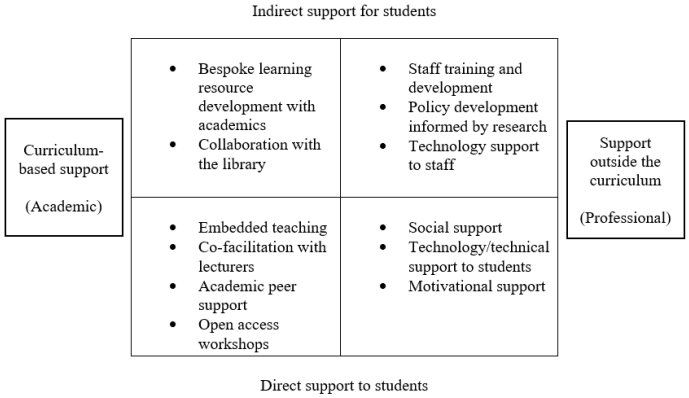

Figure 1. Mapping the academic and professional roles of learning advisors (adapted from Foster, 2011).

Figure 1 shows four quarters that allow learning advisors to map both their academic and professional functions. It illustrates the diverse nature of learning advisors crisscrossing both the academic and professional domains.

Academically speaking, learning advisors perform curriculum-support activities such as academic skills workshops and embedded teaching or guest lecturing in specific subjects. In performing these academic functions, we establish rapport with students and enable direct interaction with them. For instance, in April 2020, with the COVID-19 pandemic disrupting schools, companies, businesses and lives worldwide, I had been requested to teach a subject that falls within my doctoral specialisation (i.e., contemporary business communication) that undergraduate business students undertake in JCUS. This is in addition to my learning advising role in the University. This illustrates my capacity to teach students enrolled in the degree programs, thus affirming my academic self.

Professionally speaking, learning advisors perform an array of professional duties for student development. One of these involve the production and development of learning resources that are designed to help academic staff and students improve their experiences. Examples of these resource materials include (1) an orientation guide for first year students entering the university, (2) an online learning guide that students can peruse due to the COVID-19 pandemic, or (3) a technology guide that helps teaching faculty to record videos and upload them into the online learning management system as part of their pedagogical materials. These examples illustrate the professional self of learning advisors, one that is outside the curriculum but is still focused in helping staff and students achieve their goals. Teaching and professional development are at the core of what learning advisors do. When I meet students face-to-face or in a workshop, I prepare myself to listen to their predicaments and I offer advice on improving their skills with the intention of bringing them from point 1 to point N of learning (Saludadez, 2014). I utilise learning resources to get their attention and engage them in dialogue. I do these as I am guided by those fundamental teaching principles that define teaching as an art, a strategic communication phenomenon, and a noble profession.

Pinning down the cross-disciplinary functions of learning advisors (see Figure 1) must help institutions of higher learning to dispel the stereotypes about learning advisors as third space navigators, border crossers, support teachers, relief teachers, non-academic professionals, tutors or people performing management roles. The real scenario in higher education shows that learning advisors possess both academic qualifications and professional trainings capable of student and staff development. They perform their work with full teaching capacity and a professional expertise that drives staff development, research initiatives and student success. They constitute a duality of self.

Reasons for the emergence of challenges on learning advising

Misconceptions about learning support in higher education as well as the perceived inferior position of learning advisors from course teachers can be brought by a few reasons.

Felt need. One of these reasons pertain to the "felt need" of a few people in the academe (e.g., heads of colleges or departments) about creating a learning support system in order to help students who are performing poorly in their disciplines. This felt need can be magnified by institutional

culture, i.e., the strong views and beliefs of a group in regard to the importance of establishing a learning support system in the university. An illustration of this felt need would be an Engineering faculty head asking for a dedicated learning support staff to help Engineering students who are experiencing difficulties in accomplishing their writing assignments. One of these tasks is to improve their technical and academic writing skills through embedded or standalone workshops, online teaching, face-to-face consultations and other means.

However, these felt needs become a challenge when only the views of a select few from within the internal work environment are heard. To overcome this challenge is to deliberate these felt needs prior to the hiring of people who would fill the position of learning support and any other relevant preponderances. This deliberation must answer questions such as: (1) Why are we creating this position in the university? (2) What are the implications of this to those people performing such role? Three points must be considered in this deliberation: (1) the perspective of the management and relevant staff wanting to establish learning support (internal), (2) the perspective of those who are performing the role (external), and (3) an anticipation about the future of learning advisors trying to accomplish the felt need. According to Wade (2009), anticipating the needs involves an identification of what needs to be done in order to move toward a specified future. In short, anticipatory needs are products of a present-to-future orientation; not present-to-past framework. Attention to the points above will help continue the discourse about why learning support is a necessary component in students' academic life. More importantly, it will help crystallise the crucial roles of learning advisors and deliberate human resource considerations including issues related to their professional development, promotion and career progression. Therefore, the views of those hired learning advisors matter in the continued dialogue pertaining to why a learning support system is necessary in higher education.

Framing. Another reason for the misconstrued constructs surrounding learning support can be attributed to framing theory. In communication situations, framing theory comprises a set of concepts and perspectives on how individuals or groups organise, perceive, and communicate about reality (Entman, 1993). Frames are abstractions that work to organise or structure a message. Framing theory suggests that the ways in which a concept (called "the frame") is presented to the audience influence the choices that the audience make about how to process that concept. This theory was introduced by Erving Goffman in 1974 who said that people interpret what is going on around their world through their primary framework comprising of the natural frame and the social frame. Natural frameworks identify events as physical occurrences happening naturally, while social frameworks view events as socially driven occurrences made possible by the whims, caprices, goals, and manipulations of social players (e.g., relevant people in the academe). Social frameworks greatly influence how an idea, concept or information is interpreted, processed, and communicated.

Manifest in thought, in interpersonal communication and in intercultural settings such as in multicultural universities, the ways in which learning support system is framed by the management and other relevant staff, departments or colleges influence the ways in which learning support staff enact their roles and create their professional identities. Framing theory thus allows them to shape and express their views about the concept of learning support and the roles and expectations of learning advisors. In many cases, how the views of these people about learning support are framed seems to misconstrue the roles and identities of learning advisors that are unique to their conditions. In other cases, such framing may propagate misconceptions related to learning support in general. For instance, a marketing professional who advises a student with anxiety disorder to seek help from a learning advisor conveys a misconstrued notion about the role of a learning advisor towards students. This happens due to a socially-framed (but wrong) perspective that learning advisors are counsellors, when in fact they are not. In general, counsellors deal with students' emotional and mental health issues; learning advisors, on the other hand, deal with academic issues and those related to professional development.

Hierarchy. Lastly, the hierarchical structure in the university system can be a reason for misconceptions about learning support to evolve. Course lecturers or content teachers, for instance, operate in a clear and established hierarchical structure which places them in a more advantaged position in terms of seeking professional development and promotion as well as striding a career path. However, for many learning advisors of learning centres in many universities, operating in an unclear hierarchical system (or a flat structure) puts them in vague waters such that seeking for promotion and establishing a career progression can be challenging. Having no clear structure can be a reason for others to question what they do and where they belong, thus, misconceptions can arise. For example, when one in-country representative brought a student to me, she had an understanding that, as a learning advisor, I can provide answers to students' assignment questions. In short, she thought that I am a tutor to students who are experiencing difficulties in their subjects. To correct that misconstrued notion of learning advising, I explained to her the crucial difference between a learning advisor and a tutor and providing students with answers versus discussing some strategies with students in answering short essay questions.

Nonetheless, learning support, as a unit, can grow organically and evolve continuously in universities. This evolution of who they are and what they do is possible not just with the passage of time but also with the increased consciousness and collective thinking among learning advisors about the reasons and meanings for their existence in the university. The existential question "Why am I here?" or "What is my purpose of being a learning advisor?" would be helpful in raising such consciousness and in shaping a collective thought. This illustrates how deep reflection of one's condition helps individuals in general to think about their purpose of living and enables learning advisors in particular to crystallise their profound roles and responsibilities in the university.

From learning support to learning advising: a shift to humanistic, multidisciplinary and social constructivist paradigms

With the continuous evolution of learning advising in higher education, along with the aim of dispelling misconceptions about it, the team of learning advisors in JCUS have exerted great efforts in reducing the use of the term "support" in their online media (e.g., webpage, BlackBoard organisation), internal LED posters, print collaterals and verbal messaging because the term "support" is perceived to stigmatise many students (Murray & Glass, 2008; Orr & Blythman, 2006; M. D. Thompson, personal communication, November 2019). Students tend to refuse to seek assistance from a learning advisor because they feel that they are being labelled as weak or that they possess learning deficiencies. As a team, we came up with a collective decision to eliminate the term "support" in our title and to use it sparingly, contextually and with care both in our online and offline documentations as well as in our interactions with students and staff.

With collective reflection and persistent interrogation of ourselves and our context, we have become decisive in moving away from the view that students have certain deficiencies, therefore, they need support to cope with academic demands and succeed. We are moving away from this deficit model of education which perceives students as individuals with a diminishing capacity to accomplish their learning goals and, therefore, fail (Bartram, 2009). This is a paradigm shift from the behaviourist and functionalist view of teaching, both of which view teaching as correcting students' behaviour and maintaining order in the classroom. In the functionalist and behaviourist paradigm, the teacher is considered the master in the classroom and his/her authority is necessary to control and form behaviour and maintain structure and order.

This paradigm shift is a move toward the humanistic model of education and the social constructivist worldview in education vis-à-vis the multidisciplinary nature of learning advising. This shift indicates a mindset change among learning advisors in JCU Singapore. This is a significant change as it influences the way we do things moving forward. This shift is a heuristic device that guides us in doing what we do. Being mindful of this paradigm shift makes a difference in embodying and enacting both our teaching roles and professional development functions.

Humanism. Influenced by the humanistic ideology of education, our pedagogical beliefs are shifted towards embracing the importance of helping students achieve their full potential by maintaining a nurturing teaching and learning culture and creating those conditions for students to explore their creativity, critical thinking, ability, curiosity and human agency (Holmes & McLean, as cited in Bartram, 2009; Davies, 1997; Robinson, 2006). With the humanistic model of education that guides our teaching practices, we are committed to the enhancement of holistic student development, well-being, and dignity as the main goal of human thought and action (Aloni, 2014). We believe that our students are unique individuals who have their own strengths, weaknesses and hidden talents waiting to be unleashed. We believe that they are capable of accomplishing their full potential. We believe that blaming them for their perceived incapacity and deficiency is incorrect and inhuman. Framed within the humanistic model of education, we believe that students must maintain a strong awareness of their identity and self-worth, of who they are and what they are capable of doing. We believe that students need to be actively engaged in their learning and be reflective of their learning practices and study habits for them to succeed. We believe that this active engagement in classroom interactions will allow them to freely express their ideas and be creative and critical in dealing with social, cultural and educational issues that matter to them. As we uphold the need to respect each other's differences, we take responsibility in taking the lead in establishing a common ground for us to resolve learning issues and promote equity in learning, freedom of expression, creativity and critical thinking (Craig, 1999; E. M. Fink, personal communication, February 2020).

Multidisciplinary approach. As learning advisors, we also embody a multidisciplinary approach in the things we do. We do not only teach students through opening specialised courses or workshops for them; we also serve as their learning consultants because we provide them with expert advice to improve their academic writing skills in particular (e.g., writing a critical essay in sociology) or their learning in general (e.g., how to keep motivated in college in order to complete a degree). In collaboration with lecturers, we also produce learning materials that are customised to students' needs. These come in varied forms such as short video clips (e.g., a short video about writing a literature review), or PPT or PDF materials about a customised workshop for a group of students (e.g., a PDF document that guides Psychology students in writing a laboratory report). We also work closely with student peer tutors with the aim of providing another layer of support to students in need, e.g., student peer tutors for statistics and accounting. We also embed micro-learning systems into modules and syllabi through collaboration with lecturers (e.g., periodic quizzes in the learning management system) in order to engage students and take ownership of their learning. We also conduct research that are relevant to teaching, learning and student engagement and we collaborate with lecturers in undertaking relevant research projects. One of our recent research collaborations investigated the factors that cause student attrition in the University followed by an action research that measured the effectiveness of an intervention program that aims to retain students by engaging them in online learning (Toh-Heng et al., 2019). In JCUS, it seems evident that we are wearing different hats illustrating that what we do is multidisciplinary.

Social constructivism. Lastly, we frame our teaching practices within the social constructivist paradigm of teaching. Social constructivism believes that individuals seek understanding of the world they live in by interrogating their subjective and multiple experiences and the subjective and multiple meanings that emerge from these experiences (Creswell & Creswell, 2018; Lindlof & Taylor, 2011). These meanings are negotiated socially and historically and are formed through interaction with others and through historical and cultural norms that are embedded in people's lives. In education, proponents of social constructivism focus on specific contexts in which students live and operate in order to understand their social, historical and cultural

backgrounds (Creswell & Creswell, 2018; Lindlof & Taylor, 2011). Particulary focused on social learning, Vygotsky's (1978) principle of constructivism asserts three major themes that include social interaction, the relevance of the more knowledgeable other, and the zone of proximal development. Vygotsky's approach to learning development is constructivist because it emphasises the relevance and impact of social experiences on students' lives involving their family, school environment, community and society at large. Guided by social constructivisim, learning advisors in JCUS operate in a learner-centered and learner-directed classroom where students' subjective experiences matter. Our role is to facilitate and co-create learning (Saludadez, 2011), not to impose rules and regulations on students, and not to blame them for failing to accomplish their goals. We operate in a non-directive, non-dominating context where we listen to students' voices, help them master skills through encouragement and practice, and respond to their unique needs in order to promote interaction, collaboration and curiosity.

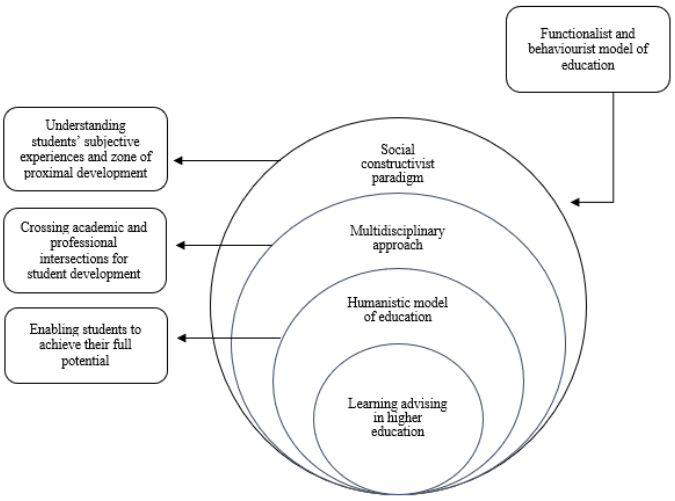

Figure 2. Paradigm shift of learning advising in higher education

To provide an example, when a student came to talk to me about why he keeps procrastinating, I did not act as a preacher to him. Rather, I listened to his stories to understand his context and behaviour. Instead of imposing my rules on learning, I advised him to do something based on my understanding of his reality, i.e., based on my honest opinion about his study and reading habits. When he said that he usually writes his assignments a few days prior to deadline, I explained to him the value of time management, in-depth reading, note-taking and personal analysis. His procrastination does not mean that he does not know anything. He showed a near-mastery of a few skills based on my assessment of a few essays he shared with me. To push him to his proximal development (Vygotsky, 1978), I advised him to spend short periods of deep thinking about the literature he has reviewed, and write at least one paragraph using his own language and interpretation - a paragraph that is anchored in his main argument. I made a contention that if he makes this a practice, he may later realise that he is creating a unified whole – a complete essay that is coherent, organised and powerful. He came back to me one day to thank me for encouraging him to spend short periods of deep analysis about his readings because it is working well for him. He also thanked me because such practice reduced his habit of procrastination.

Embodying the principles of humanism and social constructivism will enable us to perform our teaching role more effectively and help us to push students to create the best versions of themselves.

Learning advising: from "giving a bowl of rice" to "teaching how to grow rice"

With the paradigm shift in our thinking, our teaching practices and our overall philosophy, comes the challenge of whether or not our students can direct their own learning and be autonomous and self-reliant. Mindful of the humanistic and constructivist ideology of teaching, we enter into a collective deliberation as to when to tell ourselves to stop feeding our students with rice because we do not want them to develop dependency. The conversation below from Delante (2019, p. 12) illustrates how learning advisors can guide students towards initiative, self-reliance, self-regulation and learning autonomy.

> *Student: Teacher, I did not receive any feedback on my assignment I sent through email. Did you get it?*
>
> *Teacher: It was the sixth assignment you sent to me this term. I think I spent a substantial amount of time giving feedback on your previous assignments. I explained that in my previous emails.*
>
> *Student: But I think it is your job as a teacher, right? To give feedback to students' assignments.*
>
> *Teacher: I think you're getting the wrong message. We want our students to learn from feedback whether it's face-to-face or in written form. I think you're asking too much, and it's unfair to other students.*
>
> *Student: But isn't it your role to give feedback to students' assignments?*
>
> *Teacher: I think you're not getting my point. I repeat, I've gone through five of your assignments already. It was an opportunity for you to learn some key skills to help you write this new assignment. I could feel that you are becoming dependent on me. Learning is not supposed to be that way.*

In this dialogue, the teacher tells the student to learn from feedback and be self-directed. The teacher utilises explanation and appeal as his teaching strategies. Since the student appears to be insistent of his own view on teaching, the teacher offers him a logical view about learning by saying, "We want our students to learn from feedback whether it's face-to-face or in written form". He explains that the student must learn from previous feedback and be mindful of his mistakes in writing his future assignments. His intention is to inform the student that this is part of the learning process. The teacher also appeals to autonomous learning by telling

him, "I could feel that you are becoming dependent on me. Learning is not supposed to be that way".

Guided by the humanistic and constructivist ideologies in education, we believe that our students can do more and reach new heights when we teach them how to grow their own rice – a metaphorical representation of learning autonomy. Feeding them with rice every time they get hungry will have repercussions in their later life. One of which is that they may develop dependency in terms of making decisions for themselves and their own future.

The principle of teaching students "to grow rice" affirms one of the dual roles of learning advisors which reflects an important goal of teaching – to make students self-directed, autonomous and independent learners which is a step away from the funtionalist and behaviourist perspective of education. "Teaching students to grow rice" is a metaphor that reflects the principles of humanistic and constructivist manifesto in education and is driven by the multidisciplinarity or cross-disciplinarity of the functions that learning advisors undertake. These educational paradigms will be helpful for both academic and administrative staff in universities to reframe their throughts and conceptualisations about learning advisors in general. These educational paradigms serve as a guiding manifesto that remind academics in general that learning advisors do not belong to an inferior position in the university; they are rather equals because they have a similar capacity in helping students accomplish learning. They have a similar capacity to help students craft their success and their future because of their ability to teach and influence minds (as a teacher) as well as their ability to help academics develop their pedagogical skills (as a professional).

Theoretical frameworks undergirding the teaching role of learning advisors

In JCUS, the principles of humanism and social constructivism encouraged learning advisors to think deeper about their roles and functions in higher education. Humanism reminds us about viewing our students holistically, not in fragments. Social constructivism also reminds us about the subjective experiences and multiple identities of our students that merit openness, encouragement and understanding. Both paradigms encouraged us to speak to ourselves both as teachers and professionals. Both philosophies brought us to a discursive reflection which led us to pin down those theoretical frameworks that guide our teaching practices.

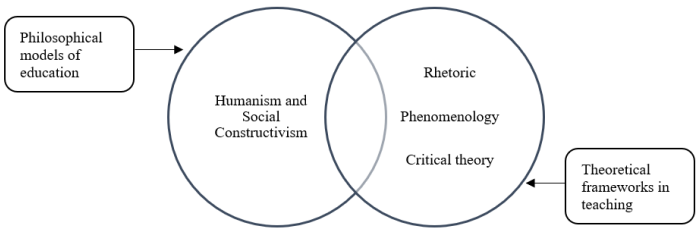

Figure 3. Relationship between the philosophical models of education and teaching frameworks

As a teacher, I contend that teaching is a discursive-communicative act. From a rhetorical point of view, I enter my classroom with the rhetorical intention to influence my students' thinking and alter their seemingly flawed perceptions about social, cultural or educational issues. I convey this intention by speaking my mind, using a compelling logic, listening to and interrogating my students' opinions, and building rapport with them through authentic and meaningful conversations. As teachers, we become successful in these intentions because we are strategic communicators in the classroom. We use the power of rhetoric to make and negotiate meaning. On the other hand, I am in constant dialogue with others around me and even with myself. I see to it that authentic and meaningful communication is in place through workshops, individual consultations, group conversations and introspection. I also invite students to think critically about issues that affect them. I ensure that students do not parrot what they read from books; rather, that they take a stand and make an informed judgment based on their interaction with texts. This way, their minds can be opened and their understanding expanded. Figure 3 illustrates the interrelationship between the humanistic and social constructivist paradigms and the theoretical frameworks that guide the teaching practices of learning advisors in JCUS.

It is important to theorise our teaching role as learning advisors because we perform a crucial function in higher education institutions – to help students accomplish learning and achieve success. Theorising our teaching role enables us to understand why we are doing what we are doing in a more profound and meaningful way. Therefore, reflecting on experience and interrogating our context led us to identify three key theoretical lenses in understanding our teaching role. These are: (1) the rhetorical lens, (2) the critical lens, and (3) the phenomenological lens.

I discuss each of these theoretical lenses below in conjunction to my personal circumstances in teaching and to my views as a communication educator influenced by Craig's (1999) traditions of communication theory.

The rhetorical lens

The study of rhetoric dates back to Ancient Greek sophists and runs through a long and varied history down to the present (Craig, 1999). Aristotle was a strong advocate of rhetoric. He even wrote a book about the power of rhetoric in public affairs. Aristotle argued that rhetoric is the faculty of discovering the possible means of persuasion in reference to any subject whatsoever. A more modern view of rhetoric comes from Kenneth Burke (1945) who defines it as the primary force of human life. Burke (1945) asserted that in our daily conversations, we are driven by motive or intention (why) to accomplish our goals in communication and to build strong authentic relationships with others.

Guided by the rhetorical lens and with the influence of the humanistic and constructivist paradigms, I view teaching as the practical art of discourse with the intention to persuade and alter other people's views about an idea, topic or stand (Campbell et al., 2015; Craig, 1999). I define discourse in the

Foucauldian sense which refers to a system of possibilities for the creation of knowledge (as cited in Saludadez, 2014). This means that learning advisors, or teachers in general, are actively involved in creating discourse with their students and colleagues when they discuss learning issues or engage in meaningful conversations with them. Inherent in these conversations is to explore possibilities of achieving understanding, negotiating and making meanings and contributing to knowledge.

When I encounter problems in my interactions with students, I view these problems as social exigencies that can be resolved through the artful use of discourse to persuade my students to believe in what I believe in – my fundamental teaching principles anchored in humanism and social constructivism that resonate among teachers in general. This artful resolution requires collective deliberation and judgment among teachers (Craig, 1999). For instance, when students perceive us (teachers in general) as "givers" or "feeders" of knowledge, our collective judgment is to change this flawed perception in order to correct their thinking. We collectively make a decision to resolve this social exigency which illustrates the rhetorical power of teaching. This collective decision is to enable students to understand that learning happens when we engage in collaboration and co-creation of knowledge.

In my seven years of teaching in JCUS, many students have asked me to correct their grammar mistakes in their essays, literature reviews and reports. I consider this a social exigency in teaching. To resolve this flawed thinking, I tried to be consistent in telling students that correcting their grammar mistakes is not my role. Rather, making them aware of their grammar mistakes and helping them avoid those mistakes in the future by showing models of better writing and by reviewing basic grammar rules are my roles. Being explicit in explaining my roles to them served as my rhetorical strategy for students to understand my teaching philosophy.

Reflecting on this practical experience and other related experiences with my interactions with students, I realised that the way I advise and teach students consists of three rhetorical acts: telling (imperatives), explaining, and appealing (Delante, 2019). Telling or imperatives include a language of commands represented by modals that signify necessity or importance such as "must", "should", "need to" and "going to" (e.g., You must use appropriate vocabulary for this economics essay.). We tell students what to do because we know what is good for their learning and the reason behind our commands. Explaining, on the other hand, involves clarifying, elaborating and emphasising an idea, issue or argument that arises in the interaction. When I tell my students what to do and when I explain things to them, my intent is for them to learn to think about an idea, issue or argument and arrive at a basic understanding of such. Appealing, on the other hand, is a higher form of a rhetorical practice. It is a step away from a focus on the academic task (e.g., assignment as object) to a focus on one's capacity to learn (e.g., self as subject). I know that I am using appeals when I ask something or make a request by targeting my students' logic, emotions, attitudes and values. For example, I am appealing to my students' sense of autonomy when I say, "I think you need to work harder. I know that university life is difficult, but this is about you and what you can do to have a meaningful journey in the university and achieve success. You must learn to direct your own sail."
I believe, learning advisors or teachers in general share these rhetorical acts. Collectively, we tell our students what to do, we explain things to them, and we appeal to their sense of reason, responsibility and autonomy because we want them to accomplish learning. If we experience a social exigency in our interaction with students such as a conflict of beliefs between how our students view teaching (e.g., teachers must provide us with knowledge) and how we view it (e.g., students must be actively engaged in the co-creation of knowledge), we perform these rhetorical acts because it is our role to alter our students' flawed perception about teaching and learning, to bring them from point 1 to point N of learning (Saludadez, 2014), and to open their minds by making them aware of the power of knowledge discovery and co-creation. Our rhetorical acts help us resolve the social exigencies that we experience in teaching.

The critical lens

Moving away from the sage-on-a-stage position, learning advisors perform the task of asking students those crucial questions that allow them to self-reflect, rather than keep feeding them with information or worse, thinking and writing for them. Discursive reflection is an important process in critical theory as it leads students to enhance their awareness about themselves and the world, and to discover their own strengths and power to achieve emancipation (Craig, 1999). As teachers, we utilise Socratic questioning (i.e., to clarify, to probe assumptions, to probe reason and evidence, to understand different viewpoints and perspectives, to probe implications and consequences and to question the question) because we want to raise the consciousness of our students about what they do and why they do what they do. Socratic questioning is reflective of critical theory.

As a teacher, I ask my students probing questions and implore them to learn and use the power of Socratic questioning because I want them to unmask those distorted reasons and question hegemonic ideology in the service of inequality, stereotyping, racism, patriarchy and injustice (Craig, 1999). Guided by the critical lens and informed by the humanistic and constructivist paradigms, I engage my students in discussions that enable them to articulate, to question, to comprehend and to reflect on those differing assumptions about how people view social issues related to gender, ethnicity, race, privilege, patriarchy, politics and power.

In one instance in my classroom, one female student came to me and confessed that she feels sad, weak and inferior because in her family, men rule, women follow. I saw it as a systematically distorted belief that serves patriarchal domination or masculinity, an ideology that still lingers in many cultures worldwide, particularly in the East. In response, I helped her realise that being in the university and pursuing a degree is an empowering and an emancipatory act. I reminded her that such an act of crafting her own journey in the university is her subtle way of resisting patriarchal ideology, promoting equality and embracing empowerment.

She was happy to have known that some people (including myself as her teacher) value her as a person, regardless of her gender and position in the socially-constructed hierarchy.

On a separate occasion, one male student with a physical disability came to me to discuss about how to deal with insecurities and anxieties. Not a psychologist by training, I offered him a piece of advice as a human being and a teacher with a wealth of experience. I was honest to tell him that almost every human being in the world has insecurities and anxieties. Having these means that we are human beings with various forms of imperfections – whether physically, socially and psychologically. However, having these insecurities and anxieties does not mean that we are incapable of achievement, fulfilment and empowerment. I told him, "A physical disability does not stop one from achieving his or her full potential as a human being". Also, I reminded him that "fears and anxieties can help us grow as human beings. They help us to be more mindful of ourselves and our capacity for compassion." He was happy with my advice.

To both of them, our conversations were insightful and eye opening, and I believe these types of conversations will help them raise consciousness about themselves, the society and the world. Guided by the critical lens in teaching and learning, I see myself as an instrument in raising awareness among students for them to fully appreciate who they are and what they are capable of doing, and deal with those distorted logics that pervade in society. Guided by the critical lens, I believe I can help my students reach their goals and achieve emancipation.

Table 1. How the Theoretical Lenses in Communication Theory View Teaching

Thereotical Lenses	View on Teaching
Rhetorical lens	Teaching is persuasion; teaching is a practical art of discourse
Critical lens	Teaching invites reflection and promotes awareness and emancipation
Phenomenological lens	Teaching is the experience of self in dialogue/interaction with Others

(Adapted from Craig, 1999).

The phenomenological lens

Another theoretical lens that is deeply embedded in my ways of doing as a teacher pertains to phenomenology. The tradition of phenomenology runs from the studies of Husserl to other famous thinkers such as Hans-Georg Gadamer and Carl Rogers (Craig, 1999). Guided by their principles of phenomenology and framed within the influence of humanistic and constructivist ideologies, I contend that, as a teacher, my ways of doing can be theorised as the experience of self in dialogue with Others. The phenomenological frame guides me to focus on my active consciousness as experienced from the first-person point of view, my own subjective point of view as a teacher. Therefore, I understand my role through my lived experiences guided by the question: What is the essence of teaching to me? Or, why am I teaching?

Central to the phenomenological framework is dialogue. In teaching and learning, teachers are involved in direct, unmediated dialogue with their students, with colleagues and with themselves. Through this, teachers and students can build rapport and authentic communication. This is made possible despite the presence of some difficult challenges such as the rise of advanced technology and computer games that seriously impede direct contact with students and pose a negative impact on teacher-student relationships.

However, a crucial problem arises when both parties (students and teachers) fail to sustain such rapport, genuine communication and authentic, supportive relationship through dialogue. To resolve this problem, we need to go back to the fundamental values that define who we are as teachers. In teaching, we must treat our students as persons, not as things. We must acknowledge that they have weaknesses and that they are facing difficult learning challenges. We must also acknowledge that they have unique strengths and abilities, not clean slates. We must respect their cultural differences and seek common ground. We must avoid creating those polarising and discriminating views about them, and we must learn to listen to them by promoting reciprocity and a non-dominating attitude in conversations (Craig, 1999).

To illustrate the phenomenological frame as one way of theorising my teaching role as a learning advisor, let me share a line of thought that kept haunting me for a decade now. This persistent self-questioning emerged as I succumbed into a series of deep reflection about my lived experiences as a teacher in a multicultural university in a foreign country. This abstraction helped me in answering the questions: What is the essence of my teaching role? What or who is the Other that is in dialogue with myself?

On the surface level, I am aware that I am in regular contact with students because they are the reason I was hired to do my teaching job in Singapore. I engage students in conversations because of essays that need feedback, literature reviews that need writing advice, business reports that require a basic understanding of report structures, or psychology theses that require an understanding of both qualitative and quantitative language and orientation. I consider them (students) as the immediate (human) Other in dialogue with myself.

Reflecting deeper, I encountered an underlying framework that represents the Other in dialogue with myself, in this case, an Other that emerged in nonhuman form. I realised that the Other can emerge in nonhuman form as explained by my doctoral supervisor (J. A. Saludadez, personal communication, June 2019) during our ad-hoc seminar in the Los Banos campus of the University of the Philippines Open University. At first, I thought that my persistent questioning about why I am doing what I'm doing was leading me to pay attention to my employment in a foreign country. I thought that the answer to why I'm doing what I'm doing is that I am in constant dialogue with Employment as the Other, that I should do my job well for my own security abroad, particularly my financial security. I realised that this is only surface level. In a deeper realm, I am doing what I'm doing not because I am employed to do so, and not because I badly need this employment in a foreign country and that

losing this job will lead me to unemployment, financial insecurity or depression. Rather, I am doing what I'm doing because of my passion to teach, to open the minds of my students, to alter their seemingly flawed perceptions about issues that matter to them, and to help them navigate the world and craft their own future. I realised that Passion is the deeper dimension of the nonhuman Other that is in constant dialogue with myself. And this has a profound link to my belief in humanistic and constructivist education and to my personal credo that teaching is a vocation and a noble profession, whoever we are, wherever we are, whoever we are teaching, and wherever we come from. Pinning down this deeper nonhuman Other helped me in answering the question: What is the essence of teaching?

Situating teaching practices within the three theoretical lenses

Table 2 shows how some of my teaching practices in teaching and learning can be positioned along the three theoretical lenses that guide me and my fellow teachers in performing our teaching roles. In doing this, we become more mindful of our roles and are circumspect of the theoretical positions we are taking in response to those unique challenges that we face in the classroom.

In a nutshell, teachers who would like to utilise debate as a pedagogical strategy in teaching can situate this practice within the rhetorical framework whereby the power of words and evidence matter in advancing an argument. When liberal thinking is encouraged in reasoning during class discussion, teachers can situate this practice within the critical lens whereby questioning or interrogation of one's opinions is encouraged in order to arrive at a more liberating or emancipating insight. For social learning activities (e.g., community immersion), teachers can position their pedagogy within the phenomenological frame in order to understand the interplay of identity and difference in cultivating authentic relationships through meaningful dialogues.

Table 2. Situating Teaching and Learning Practices within the Theoretical Lenses

Teaching and Learning Practice	Theoretical Lens	Rationale
Argumentation and debate	Rhetorical lens	Argumentation and debate is a teaching practice that invites students to use logical reasoning, empirical evidence and informed judgment. By using debate and argumentation as a teaching practice in classroom situations, decisions can be made based on who asserts a compelling judgment in conjunction to existing theories and principles, empirical evidence and expertise and who utilises the power of persuasion or strategic communication to assert a stand or advance an argument. Debate and argumentation rests along the rhetorical lens because it appeals to rhetorical metadiscursive commonplaces such as the power of words in debate, argumentation as an artistic and creative channel of communication, the collective judgment amongst team members about a social, educational, moral or cultural issue, the dichotomy between fact and opinion, and the value of informed judgment (Craig, 1999).
Liberal thought	Critical lens	The liberalist approach to democratising and reconstructing education states that to overcome the increasing divide in education, along with a whole new set of inequalities that mirror or supplement modern divides of class, gender, race, and education, is to restructure education so that all students have equal access to new technologies and new literacies, so that education is democratized, and the very learning process and relations between student and teacher is rethought (Wells, 2008; McGinn, 1996). The liberal paradigm invites more interactive and participatory forms of education such as collaborative learning, online learning and an understanding of cyber culture. It practices no privileging one or the other, rather, it promotes equal access to educational resources and knowledge repositories. It cultivates subjectivities that seek fairness and justice, more harmonious social relations, and transformed relationships with other peoples and cultures (Limage, 2001). These ideological assumptions of liberal thought in education move along the critical lens which appeals to the omnipresence of injustice and conflicts in society, the ways in which power and authority can overcome truth and reason, and the potential for discourse with others to produce a liberating insight. In order for social order to be based on genuine mutual understanding in opposition to strategic manipulation and oppressive conformity, it is necessary for teachers to invite students to articulate, question, and openly discuss their differing assumptions about the objective world, moral norms, and inner experience. For critical theorists, local practices and empirical outcomes of communication cannot be taken at face value but must be judged in light of reflexive analysis of the distortive effects of power and ideology in society (Craig, 1999).
Social learning	Phenomenological lens	Social learning (Bandura, 1963) posits that learning happens by observing others and by identifying that other people have unique differences from others as well. People's interaction with others affect the way they behave, and this enables them to create attitudes and values which can be biased towards other people. Social learning as an educational approach focuses on the value of lived experiences and dialogue. Learning through dialogue states that knowledge is created through transition, transformation and reflection on experience. Experience is the basis for people to create concepts which are then experimented and later pose an impact to decisions that people make (Kolb, 1984). Also, experience allows individuals to expand their awareness about themselves and to be mindful of the beliefs, attitudes and behaviour about other people they interact with. This teaching practice is situated within the phenomenological lens of teaching whereby teaching as a communicative act is viewed as the experience of self and others in dialogue. It explains the interplay of identity and difference in cultivating authentic relationships. To derive meaning about teaching, teachers examine their day-to-day experiences through authentic dialogue with students and with themselves. As Craig (1999) posits, "As we experience other's expression towards us, we also directly experience and learn our commonalities and differences, not only the other as the other to me, but myself as other to the other as well." (p. 138).

Conclusion

Learning advisors constitute a duality of self in higher education: as an academic (a teacher) and as a professional (e.g., creating learning resources and providing training to staff) (Foster, 2011). This duality of role helps in dispelling the stereotypes about learning advisors in general and affirms their crucial position in higher education. Crisscrossing the academic and professional domains which explains the multidisciplinary nature of their roles, learning advisors are tasked to help students accomplish learning, achieve success and optimise their full potential. Their crossing borders from the academic to the professional domains also benefits the teaching faculty of universities through staff training and development, technology enhancement and research collaborations that impact institutional policies and practice.

In JCUS, to establish our relevance to students and the University as a whole, we deem it important to embody a paradigmatic shift from the functionalist/instrumentalist (deficit) and behaviourist (habit forming and behaviour control) models of education to the humanistic (holistic development) (Bartram, 2009) and social constructivist models of education (Creswell & Creswell, 2018; Vygotsky, 1978). We deem it important to reduce, if not totally eliminate, the stigma that students experience when it comes to accomplishing learning by engaging them actively in meaningful conversations and creating those conditions that promote equality, equity, inner experience, curiosity, criticality, reflection and voice (Aloni, 2014; Craig, 1999). With the humanistic view of education, we believe that our students are not clean slates. They bring with them

unique abilities and creative talents into the teaching and learning situation that need to be unleashed. With the social constructivist paradigm, we believe that our students can learn through authentic and meaningful social interaction. Encouraging them to master necessary skills and learn from the more knowledgeable others through collaboration will make them emerge victorious in later life. In the same vein, helping them unleash their creativity and master relevant skills will enable them to achieve their full potential.

The shift to humanistic and social constructivist models of education helped us to become circumspect of the theoretical frameworks that drive our work with students – of what and why we are teaching them. We believe that these models are an anchor mooring our theoretical beliefs and practices in teaching. These include the rhetorical view, the critical view and the phenomenological view of teaching. The rhetorical view helps us to be mindful that teaching, as a rhetorical act, is a practical art of discourse. We view discourse from the Foucauldian sense which refers to a system of possibilities for the creation of knowledge. We embark on the use of our rhetorical acts in the classroom to help students accomplish learning. These rhetorical acts are driven by persuasion, language, logic and intention when working with students. The critical lens, on the other hand, reminds us about understanding teaching as a deeply reflective practice. Through discursive reflection, we become more mindful of our practices and we help our students raise their awareness, examine their conditions and question social issues such as inequality and injustice as ways to empower and emancipate themselves. Lastly, the phenomenological lens reminds us about the fact that teaching is an experience of self that is in constant dialogue with others. As teachers, we are in constant dialogue with our students and even with ourselves, including the nonhuman Other that we are deeply connected with such as our principles and the fundamental reasons we continue to teach, in this case, our Passion to make a difference in our students' lives.

Being conscious of the duality of our functions in the university, being mindful of our professional duties both for staff and student development, being circumspect of the paradigm shift that serves as our fuel toward learning accomplishment, being aware of our teaching practices (and remaining steadfast in situating these practices within the theoretical frameworks within which we view and embody our roles), and being reflective of our own situations in higher education, we will emerge victorious and invaluable in our students' learning experiences, their academic success and their careers in later life.

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University professors' perceptions of international student needs

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Abstract

The number of international students is increasing rapidly and impacting teaching and learning at colleges and universities (Anayah & Kuk, 2015). While many international students successfully complete their degrees, others face challenges due to a lack of academic, cultural and linguistic understanding. This study reports the results of a survey that examines the perspectives of 89 North American university professors regarding international students' linguistic and academic needs in preparation for university. The survey findings revealed that international students' limited English proficiency hinders them from succeeding at university. The results also show that international students need to develop a better understanding of American classroom culture.

Introduction

Matriculated international students are often stranded as they seek to earn high grades but lack the necessary academic, cultural, and linguistic skills to be successful at U.S. academic institutions. They encounter many challenges such as language barriers and cultural differences as they make the transition to a new academic life. In addition to these challenges, international students also face social pressure from their families and governments to complete their degrees and return to their home country. University professors might not be familiar with these linguistic, academic, and social struggles of international students, which creates a gap between students' needs and professors' expectations. Such a gap hampers international students from succeeding at U.S. universities.

For international students to overcome these challenges, universities and colleges need to understand the aforementioned obstacles to offer accurate and helpful support. To make this support possible, we must understand university professors' perceptions of international students' academic and linguistic needs. The purpose of this study was to collect baseline data to investigate the perceptions of university professors of international students' needs to inform English as a Second Language (ESL) curriculum, better meet international students' academic and linguistic needs, and support university faculty.

Review of literature

Professors and international students: addressing the perception gap

The number of international students in U.S. higher education has increased dramatically in the last twenty years (Wu et al., 2015). They struggle in the areas of academic knowledge, English language proficiency, and workload management (Flowerdew & Peacock, 2001; Myles & Cheng, 2003). These academic and linguistic barriers might preclude them from progressing successfully through university.

Some studies investigated professors' views on having international students in their classes. According to Barber and Morgan (1984), 87% of faculty reported that their academic expectations were the same for both domestic and international students. Jin and Schneider's (2019) findings revealed 76% of faculty reported that international students contributed to the diversity of the university, and 28% said that international students did better in their classes than other students. In response to the challenges faculty faced, the findings showed that 45% indicated international students had low language skills and 24% reported international students were not accustomed to the U.S. academic culture (Redden, 2018).

In a similar study by Fallon and Brown (1999), 87% of faculty indicated limited language proficiency of international students and 89% of faculty reported their positive experiences working with international students. Trice's (2003) survey showed that faculty thinks limited language skills are the major challenge facing international students. Similarly, in Unruh's (2015) study, student's lack of required language proficiency and faculty's unfamiliarity of diverse cultures continue to be challenging for faculty.

Challenges impacting international students' success

International students often struggle to adjust to U.S. university life due to language barriers (Galloway & Jenkins, 2005). Miscommunication or inability to communicate with American peers and professors affects students' academic success at university. Researchers have found that international students and professors struggle to communicate with each other (Teriu, 2012; Beoku-Betts, 2004). Teriu (2012) claimed that international students are inclined to pretend that they understand their American classmates at university when in fact they do not because of their low language proficiency. Also, international students might feel nervous when talking to their American classmates, which makes them unwilling to share their ideas in class (Lin & Scherz, 2014).

In addition to language barriers, unfamiliarity with the U.S. classroom culture is another obstacle that many international students face in American universities. While U.S. colleges and universities, for instance, value the critical analysis of academic work (Miekley, 2014), some international students might not be accustomed to reading critically, analyzing and evaluating ideas. Additionally, international students often find paraphrasing, quoting and citing difficult to learn. According to McDonnell (2004), quoting and paraphrasing according to U.S. standards are challenging skills to develop by English language learners even with provided training. This often results in varying forms of plagiarism, particularly many students are from cultures and backgrounds where copying information is an acceptable academic practice (McDonnell, 2004). Each culture has its own definition and understanding of what paraphrasing and plagiarism mean (Adiningrum & Kutieleh, 2011). This results in a lack of universal agreement on a definition of plagiarism. Thus, what is accepted in one culture may not be in another culture (Leask, 2006, Adiningrum & Kutieleh, 2011). That is, some cultures see copying others' work without referring to the original source as a sign of showing appreciation to the original author (Hyland, 2001). Hazlitt (1998) said that sharing homework and answers is a common practice for Mexican students; Korean students are encouraged to mimic and not produce; Japanese students value collaboration. Undoubtedly, these practices "impede an easy transition to acceptance of Western anti-plagiarism values and practices" (McDonnell, 2004, p.4).

In brief, the studies showed language and academic skills are demanding skills for many international students. Given the importance of research on understanding international students' linguistic and academic needs, conducting research on the perceptions of university professors on international students' needs would seem to be essential. Therefore, the results of this survey were used to add to our understanding of the linguistic and academic challenges international students face at university. Accordingly, this study aims

to examine the perceptions of university professors on international students in two areas: (1) students' language and academic needs at university, (2) professors' suggestions for assisting international students at university based on these perceptions.

Study design

Participants

For this study, professors across multiple departments at a U.S. university completed a survey to investigate the linguistic and academic needs of international students. Approximately 862 faculty members were surveyed at a university in the northwest region of the U.S. through a daily e-mailed university newsletter. Approximately 10% of the sample, or 89 respondents, completed the survey, using Qualtrics survey software. Respondents represented a variety of fields including agriculture, art, architecture, business, education, engineering, law, humanities, natural resources, and hard sciences. The majority of respondents in this research hailed from fields in the humanities (32%) and life sciences (20%), with 16% from business. In terms of teaching levels, 21% of respondents teach 100 level courses, 15% teach 200 level courses, 22% teach 300 level courses, 26% teach 400 level courses, and 17% teach 500 level courses.

The university faculty had previous experience teaching students with varying L1 backgrounds: 19% of respondents have taught Arabic speaking students, 25% have taught Chinese speakers, 9% Japanese, 10% Korean, 8% Portuguese, and 17% Spanish. A low percentage indicated teaching students with language backgrounds in Europe, Southeast Asia, Nepal, and India.

Data collection

In order to obtain in-depth information from the participants, we developed a survey questionnaire with closed-ended and open-ended questions. The survey included a 14-item, 6-point Likert-style questionnaire, ten quantitative closed-ended questions, and an open-response question. The questionnaire items included questions about the professors' teaching styles, assessment methods, and writing assignments as well as international students' language and academic needs. The participants were also asked about their views on how to better serve international students studying in American universities. The survey was open to collect responses for four weeks.

Data analysis

We collected data using a questionnaire. We used Qualtrics software to administer and analyze the closed-ended questions. Percentages of the responses of the closed-ended questions were presented as descriptive statistics. The open-ended responses were used to provide a deeper analysis of the quantitative data (Payant, 2016). The researchers selected illustrative quotes from the participants' open-ended responses to support the descriptive statistics and also to illustrate the participants' suggestions in regard to preparing non-native English speakers for academic and linguistic success at the university.

Results

We organized the results into two categories: (1) academic and language needs, and (2) participants' suggestions.

Section 1: academic and language needs of L2 learners

The participants were asked to identify the common academic and language skills they expect international students to utilize. The most common academic and language skills faculty expect students to understand were as follows: E-mail (25%), Skill Application (19%), Group Projects (19%), Peer Learning (17%), and Short Essay (14%) (see Table 1).

Table 1. Academic and language skills

Learning skills	Total percentage
e-mail	25%
skill application	19%
group projects	19%
peer learning	17%
short essay	14%

One participant reported that "Chinese students have a really hard time answering short essay questions on my exams. They can do numerical problems, but they cannot do writing almost at all." Another participant shared: "Please teach students writing and communication skills." There was evidence that some believed that international students have limited English writing and speaking skills that might hold students back from making progress in class.

Faculty also recommended additional learning skills for language learners to develop before matriculating to university. These included critical thinking (25%), note taking (15%), and content vocabulary (15%). One of the participants stated, "I often have to clarify certain words, so they can understand the question, which indicates they need to learn more vocabulary." One participant noted, "It would save a lot of effort if you taught people the benefits of studying in groups, of taking notes, or first recording lectures, and then transferring that to notes."

Participants also identified other academic and language needs of international students. Participants responded to questions about the academic challenges they observed teaching L2 learners. They indicated that international students have an inadequate understanding of the American classroom culture, which embraces regular class attendance, clarification questions for better comprehension, active student participation in class and group study, academic honesty, critical thinking and taking responsibility of their learning. For example, one participant remarked, "Teach them that it is considered a compliment to ask questions about what the teacher said, it is not disrespectful or a sign of weakness." Participants reported that although they

encourage international students to come to classes on a regular basis so that they can benefit from class discussions and materials, they do not usually do so: "They [the students] rarely attend classes and tend to show up near grading events with the expectation that the faculty will direct them personally step-by-step through the procedure."

Some participants shared how difficult it was for international students to take part in class discussions and how this could be a challenge to university faculty. One participant wrote: "One of the many challenges I notice with international students is lack of willingness to participate in the class. Unless they are asked to do so, many remain quiet throughout the class. Given the various cultural backgrounds they come from, I am sure it is hard for them at the beginning."

Participants also shared that L2 learners struggle with academic honesty, knowing the implications and understanding citation rules. One participant commented: "I provide notice in my syllabus and in the term paper guidelines as to the effect plagiarism will have on a student's grade in the course and reporting the incident to the Dean of Students. Yet, these students still plagiarized, which undermines the integrity of the academic institution."

The results also showed students' struggle to meet university expectations such as taking ownership of learning and thinking critically from a U.S. academic perspective. In addition, the faculty observed note-taking and critical thinking skills as other areas of challenge for L2 learners. L2 learners do not readily evaluate definitions, understand and solve, predict and analyze with logical reasoning. One participant argued: "students must be able to understand and follow spoken and written directions including those related to course requirements, understand and take notes from in-person and online lectures, understand, evaluate and solve applied problems."

Respondents identified another language need of L2 learners such as interpersonal communication skills by e-mail or in person. A participant noted, "often, students appear painfully shy. If students don't speak up, though, it's difficult to know if they are understanding the material," while another participant described the challenge they had in class as follows: "Many of my L2 students have poor speaking skills."

Section 2: participants' suggestions

Most participants suggest providing international students with training concerning American classroom expectations. The participants suggested discussing the differences and similarities between cultures. One of the participants suggested: "They [students] could benefit from detailed training on the educational culture at the college level in the U.S., e.g., how to correspond with the faculty, what is expected from them in and out of the classroom, how to engage in team projects, how to engage in classroom discussions, how much to study, their responsibilities as students, plagiarism, and misconduct, etc."

Other participant faculty highlighted the need to support international students by having them work with domestic or international students to help them adjust to American academic life. For instance, one of the participants wrote, "if there is native language speakers within the college to support the English-as-a-second-language speakers then the foreign students can begin work within their major sooner." Participants also expressed interest in collaborating with other departments and colleges to assist international students. One participant pointed out, "I am happy to initiate an encouragement workshop for them, or if you already have such activities, I would love to be a part of it."

Discussion and implications

The survey findings revealed a need for international students to improve their interpersonal communication skills, and to develop a better understanding of U.S. classroom culture and academic systems, academic conduct and course activity norms, which align with what previous studies found. One major academic and language challenge professors shared was international students' low level of verbal English proficiency. Faculty reported students struggle to understand lectures, class discussions, and announcements. We could infer that students' lack of experience in content areas could be due to the students' difficulty understanding professors' verbal communication. International students have most likely studied English in their home country or in intensive English programs that focus on teaching language through different content themes that do not necessarily relate to the students` field of study. Also, students might not have been exposed to professors with different accents, which might hinder international students from understanding the professors' verbal communication. According to Sewell (2005), students might not be able to communicate with others or understand materials because of accents they are not used to.

International learners' lack of academic and language skills could be attributed to their low English proficiency (Zarei & Haghgoo, 2012). Students' limited language proficiency could explain why international students tend to plagiarize. If a student cannot understand the reading text, there is no way for the student to paraphrase it and therefore the student finds plagiarism as a solution to meet class deadlines. Our findings confirm the literature, as faculty reported international students not performing well in class because of cultural differences and unfamiliarity with American classroom culture (Marambe et al., 2012).

The results of our study also fall in line with literature regarding English language learners and the U.S. academic value of critical thinking. Many international students come from cultures where sharing critical thought is not encouraged (Zarei & Haghgoo, 2012); thus, they might not feel comfortable using these skills in any academic setting. Also, some international students might pass to the university by taking standardized English exams that do not necessarily prepare them for university environments.

Our findings show that U.S. professors appear to be aware of

the challenges international students face. Their suggestions demonstrate they are conscious of solutions to support their international students in the classroom. However, the lack of support to the faculty might be an issue. The results of this survey could help open communication between faculty across university to find ways to support international students. Some of the participants in this study suggested and were willing to partake in workshops and training that address the language and academic needs of international students. These professional development activities might include workshops, focus groups, or discussion sessions that highlight the challenges and solutions professors face in teaching international students. Such professional development opportunities would prepare faculty to work with students with diverse cultural and educational backgrounds. Additionally, they would encourage university departments to reallocate their resources to meet the needs of international students and make necessary changes that help prepare international students for U.S. academic life.

Conclusion

This study sought to better understand the views of university professors on the needs of international students. The findings of this study can help universities reflect on and reevaluate the resources they have on campus to support the learning process of international students and to better assist students in adapting to American higher education norms and conventions.

The needs of students, as identified by faculty participants, were grouped under two common categories: linguistic and academic. It is clear that language proficiency and inadequate academic preparation both affect international students' success at university. Additionally, students' culture and educational background are factors that might affect international students' knowledge of the U.S. education system.

The challenges international students face need to be considered by U.S. colleges if they want to continue serving international students effectively (Wu et al., 2015). Students who are surrounded by a supportive environment are more satisfied with their university experience (Korobova & Starobin, 2015). To better meet students' academic needs, it would be accommodating to create groups outside the university boundaries to give international students the opportunity to interact with their American peers (Mamiseishvili, 2012). Another important factor to consider helping international students adapt to the new culture is to design intercultural courses (Myles & Cheng, 2003). Such courses facilitate communication between international students and their American peers and professors. Also, Sutherland-Smith (2005) urges universities to reassess the way they handle the issue of plagiarism and take into consideration where the students come from. By considering these resources, we believe this present study will help university faculty and those in higher education better serve their international students.

Limitation and future research

Our study presents a number of limitations. First, we conducted this study at only one medium-sized public university and received a low response rate from faculty, so we cannot generalize the results of this study to all fields of study or all universities and colleges. Second, we were not able to indicate distinctions between students who previously studied in intensive English versus those who met minimum language requirements through other means (i.e. standardized tests).

We recommend future research that has a larger participant pool from all departments and at multiple higher education institutions. A study could look at differing needs of English language learners within varying fields of study, or another study could review collaboration between intensive English programs and other academic departments. Also, researchers could compare how universities with differing resources and teaching practices impact the learning experience of international students. Another informative research could examine the role of intensive English programs (IEPs) in preparing international students for university.

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A dynamic systems theory model for reading motivation among English as a foreign language learners in China

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Abstract

English learning has been prevalent in China since the Reform and Opening-up Policy in the early 1980s. The number of English learners in China has increased tremendously over the years and the approach to learning English as a foreign language has also changed over time. However, most studies on reading motivation were conducted at one point in time rather than discussing it from a dynamic perspective. The article begins with a literature review, then discusses the relationships and interconnections between factors influencing reading motivation, adopting a Dynamic Systems Theory, to develop a conceptual model to study the reading motivation among English as a Foreign Language learners in China.

1. Introduction

A very common question and concern for many people anticipating a trip to China is whether the Chinese people's level of English is adequate for the visitor to be able to ask for directions, order food, and partake in other activities. This concern is irrelevant particularly in urban areas because the number of English learners in China is more than 400 million, which is approximately one third of the population in China (Bolton & Graddol, 2019). Since the Reform and Opening-up Policy in the early 1980s, English has been promoted in China at the governmental level, educational level and individual level for modernisation, internationalisation, competitiveness, as well as upward and outward mobility (He, 2017). The emphasis on English learning has expanded from the memorisation of grammar rules and vocabulary to more creative skills such as writing and speaking which are an important part of English education in China. Guangdong Province, for example, has started requiring all students to take the English speaking exam for the National College Entrance Examination as of 2010.

Currently, learning English as a Foreign Language (EFL) in China still relies strongly on written text materials, from primary school to university. Taking the English education from primary to senior high school in Heilongjiang province, for example, there are no listening and speaking classes, which is attributable to there being no corresponding assessments or evaluations in any English examinations. English Reading is still emphasised at tertiary level in China. This is because reading extensively is indispensable to learn a foreign language well (Dong, 2003) and the reading comprehension score accounts for the largest proportion (35%) in the College English Test Band 4 and 6 (CET-4/6) in China, which is in line with Andrews' (2001) finding that English reading is a fundamental ability to acquire literacy in a target language. Jiang (2008, p. 17) stated, when reviewing his three-year work in the Education Bureau of the Chinese Embassy in the U.S., that "my work experience is that the overseas students in our country do not show poorer English pronunciation, intonation, and speed but the English reading, the ability to read and retrieve the English material in particular, compared with those from Japan or Korea." Therefore, in recent years, to enhance the university students' ability of reading and writing, research articles in their disciplinary journals have become a subject of immense pedagogical interest at tertiary level in China (Cai, 2019).

Furthermore, cognitive factors such as working memory, prior knowledge, or reasoning ability could affect EFL learners' reading ability (Alloway & Gregory, 2013; Kane & Engle, 2002; Kendeou & van den Broek, 2007; Kintsch, 1998). Notwithstanding the importance of cognitive factors, Davis et al. (2018, p. 122) observe that "students who disengage from reading, however, may not lack ability to read but resist reading due to a lack of motivation". Studies revealed that reading motivation is correlated to various predictors of reading comprehension (Guthrie & Wigfield, 2000; Park, 2011; Schiefele et al., 2012; Unrau & Schlackman, 2006). In spite of these findings on the relationship between reading motivation and reading ability, previous studies on reading motivation have not discussed the comprehensive and dynamic aspects of second language reading motivation. Most studies on reading motivation have been conducted to uncover the nature of reading motivation, mostly using Gardner's (2001) social psychological framework. Research on reading motivation has, however, transitioned from the social psychological, cognitive-situated, or process-oriented perspectives to a social-dynamic one. Van Geert (2008, p. 183) states that Dynamic Systems Theory (DST) is not "a specific theory but it is a general view on change, change in complex systems, in particular, or, systems consisting of many interacting components, the properties of which can change over the course of time". Based on the shift in research focus, Dörnyei et al. (2016) have conducted research on motivation applying the DST. Yet, studies on Chinese EFL learners' reading motivation applying DST are very limited or have not been carried out. In addition, studies addressing Chinese EFL learners' reading motivation focused on uni-variate or multi-variate variables (Yuan, 2003) are inadequate in explaining the comprehensive interrelationships between different variables of reading motivation as well as the dynamic relationship of reading motivation and reading proficiency among Chinese EFL learners.

Consequently, this paper aims to discuss the complex and dynamic nature of Chinese EFL learners' reading motivation and conceptualise a research framework to explain the interrelationships between different variables influencing reading motivation and the dynamic process of Chinese EFL learners' reading motivation.

2. The Conceptual Dynamic Model of Chinese EFL Learners' Reading Motivation

2.1 Prior Studies on Chinese EFL Learners' Reading Motivation in China

Research on reading motivation among students has been carried out by some scholars in China. The studies and results can be found in the China National Knowledge Infrastructure (CNKI) database. CNKI is a key national information construction project under the lead of Tsinghua University. It is supported by the People's Republic of China (PRC) Ministry of Education, PRC Ministry of Science, Propaganda Department of the Communist Party of China and PRC General Administration of Press and Publication. CNKI has built a comprehensive China Integrated Knowledge Resources System, including journals, doctoral dissertations, masters' theses, proceedings, newspapers, yearbooks, statistical yearbooks, e-books, patents, standards, and publications.

There are 226 journal articles relevant to reading motivation which were published between 1 January 1990 and 31 December 2018 that can be retrieved from the CNKI database. Among these journal articles, 135 focused on the development of reading motivation in Chinese language learning. 55 journal articles employed a quantitative research method to study reading motivation and two journal articles employed a mixed research method through questionnaires and in-depth interviews. 34 journal articles discussed the relationship between reading motivation and reading competence and factors influencing reading motivation, and 91 journal articles researched reading motivation at a

static point.

Ying and Xu (2001) studied the choice of English reading materials from the perspective of reading motivation. They administered the questionnaire covering reading motivation, expectation, and the characteristics of the students' favourite reading materials to 63 students at Zhejiang University. The result showed that the choice of reading materials was aligned with the students' reading motivation and their learning needs. The preferred reading materials have the following characteristics: (1) language in the reading material should be applicable in daily life; (2) the topic itself should be interesting; 3) the reading materials should be narrative; and (4) the title of the material should be attractive and stimulate curiosity.

Meanwhile, Duanmu (2001) studied the relationship between mood and reading effectiveness from the perspective of applied psycholinguistics. He pointed out that reading motivation influences the reading method, which affects reading interaction. Then, the reading interaction influences the mood, which determines reading results and the realisation of reading purposes.

Yuan (2003) distinguished two types of reading motivation in the reading motivation model: enjoyable reading motivation and instrumental reading motivation. The study revealed that Chinese EFL learners have a strong disposition towards instrumental motivation, and enjoyable reading motivation significantly influences reading efficacy. The result is partially in line with the findings by Gholami et al. (2012) and Zheng (2010). Gholami et al. (2012) conducted an empirical research on motivation with the aim to investigate the dominant type of motivation among EFL students. They administered the motivation test (5-point Likert Scale format) to 95 final year Iranian male students in a high school in Malaysia. The results revealed that the dominant type of motivation among EFL learners in high school was instrumental motivation. Besides, high achievement students had mostly possessed both types of motivation and they were significantly outperformed compared to those who were instrumentally motivated. Meanwhile, Zheng (2010) conducted an empirical study to investigate motivation, anxiety, global awareness, and linguistic confidence, and their causal and correlational relationships with English test performance in the context of Chinese university students taking the College English Test Band Four (CET-4). Zheng (2010) employed a mixed approach through a questionnaire (927 participants) and in-depth interviews (12 participants) to examine the psychological factors that influence the students' language performance. The result indicated that the instrumental motivation was stronger than the integrative motivation among the respondents. The three categories of instrumental motivation are grade, further education, and career prospects. The students from the Arts School emphasised that their English proficiency could be valued by their future employers.

Zou and Zhao (2009) conducted a study on reading motivation among 69 non-English major second and third-year students at the Beijing Institute of Technology. A mixed research method including classroom observation, questionnaire, interview, and test was used in this study. The quantitative results showed that reading interest and attitudes were positively related and significantly influenced English reading. Furthermore, the intensity of reading motivation was positively affected by reading scores. On the other hand, the qualitative results of the in-depth interview revealed that reading interest could affect the choice of reading materials to a large extent and reading English materials could be beneficial to language learning and future career. The attitude towards reading activities was negative and some students even believed that they could get a better reading score by self-learning. This could be due to the information and communication technology (ICT) skills that students possess that enable them to search and access relevant online learning materials available in the social media.

Subsequently, Wang and Li (2016) administered the original Motivations for Reading Questionnaire (MRQ) to 320 second-year English major students at three universities in China. The study identified nine factors influencing reading motivation using exploratory factor analysis. These nine factors are reading efficacy, social reasons for reading, reading curiosity, reading involvement, reading word avoidance, reading compliance, reading for grades, reading challenge, and the importance of reading. These factors corresponded with the sections in the MRQ. Competition in reading and recognition in reading were incorporated into reading recognition-competition. Interestingly, integrative reading motivation and reading materials were two new factors identified in this study.

Meanwhile, Chinese EFL learners' reading motivation presented the variation in terms of demographic variables such as gender, discipline, and high/low reading proficiency. For instance, Xu (2011) administered a questionnaire covering instrumental and integrative reading motivation variables to 60 students majoring in English and 65 students in non-English majors at a university in Wuhan, China. The results showed that the reading motivation among non-English major students was instrumental. These students are motivated to learn English because they want to pass the CET-4/6 test, to obtain the diploma certificate, and to go abroad for further education. Their intensity of instrumental reading motivation was significantly different from that of integrative reading motivation. Conversely, the English major students showed strong integrative reading motivation to learn English which include reading interest and reading desire. Their intensity of integrative reading motivation was significantly different from that of instrumental reading motivation. In addition, the study also found that the intensity of integrative reading motivation among the English major students was higher than that of the non-English major students.

A study of English reading motivation, English reading achievement and gender among 156 first-year non-English major students in colleges was conducted by Wei (2011). The study used an MRQ and found that there was a significant difference between the reading score of the high-achiever group and that of the low-achiever group. In addition, the competence and efficacy beliefs for the high-achiever group was significantly higher than the low-achiever group. Interestingly, reading efficacy, reading achievement, and

social aspects for reading among female students were significantly higher than male students in this study.

Similarly, Gong and Liu (2012) conducted an empirical research on reading motivation among 66 English major students in college using an MRQ. The results showed that the high-achiever group demonstrated a higher intensity in reading motivation compared to the low-achiever group. The study also revealed that the dominant type of reading motivation was external reading motivation, followed by internal reading motivation, and efficacy beliefs for both high-achiever group and low-achiever group respectively.

Somehow, studies on Chinese EFL learners' reading motivation are still subject to some limitations. Firstly, the dynamic feature of reading motivation among Chinese EFL learners has not been discussed in detail. Most of the studies on Chinese EFL learners' reading motivation were the static and snapshot researches that could not uncover the dynamic and complex nature of reading motivation.

Secondly, the interrelationships between and among reading motivation variables and their reciprocal influence have not been explored in detail. The dynamic change of reading motivation is the result of the collective behaviour of all potential variables. However, prior studies only researched the influence of multi-variables on Chinese EFL learners' reading motivation respectively, not considering and explaining the complex and dynamic interrelationship between or among the multi-variables. In addition, prior studies using multi-variables ignored the dynamic development of those potential multi-variables over time and their dependence on foreign language learning context.

Thirdly, most studies were conducted using quantitative methods to research Chinese EFL learners' reading motivation, while very few scholars (Zou & Zhao, 2009) researched reading motivation from both the structuralism and poststructuralism perspectives.

2.2 Dynamic Systems Theory (DST)

Larsen-Freeman (1997) initiated the discussion on the characteristics of language as a complex adaptive system and identified the similarities between Dynamic Systems Theory (DST) and Second Language Acquisition Theory (SLA). Some researchers (e.g. de Bot et al., 2007; Dörnyei, 2009; Ellis & Larsen-Freeman, 2006; Larsen-Freeman & Cameron, 2008) point out that a system could be perceived as dynamic and complex if two or more factors in the system are interrelated with each other and bring about change over time. The ongoing interrelationships between and among variables in the system lead to unpredictable dynamic and complex behaviour in the system. As a result, Dynamic Systems Theory (DST) aims to explain the unpredictable collective behaviour among the interactive components in the system.

According to Larsen-Freeman and Cameron (2008), dynamic systems consist of a great number of subsystems and components that are interconnected with each other. The interconnectedness between the subsystems and components increases the complexity of the system. Besides, dynamic systems are systems that change over time (de Bot et al., 2007). Therefore, elements in the system are not static but they continuously evolve, including their subsystems and the corresponding components. In addition, dynamic systems are open which means that other elements are allowed to enter the system. It is also adaptive which means that changes in one field might cause changes in the whole system. Consequently, complex dynamic systems consist of elements or agents that interact with each other, resulting in self-organisation and the emergence of new patterns at different periods and levels.

To investigate the dynamic learning motivation of French language among students in Sweden, Henry (2016) administered an open-ended questionnaire to twenty-two first-year upper secondary students (twelve females and ten males) to list the issues that made the respondents more motivated and less motivated to study the French language. He further interviewed six participants (four females and two males) to get insights on learning motivation. The methods of double hermeneutic and interpretive phenomenological analysis were employed to analyse the transcripts. The major findings in his study were that the motivation towards learning French among all the six interviewed respondents differed from one lesson to the next. In addition, the intensity of learning behaviours among the respondents fluctuated during the lesson, and the attitudes towards whom the respondents chose to sit next to in class changed in every lesson.

The Dynamic Systems Theory may add new insights into the study of dynamic learning motivation. Some scholars such as Dörnyei and Ushioda (2011) and Larsen-Freeman and Cameron (2008) have put forward that researchers could shift the research perspective of learning motivation from the conventional linear and static investigation to the dynamic and complex investigation to uncover the interrelationships between and among the various elements of learning motivation.

2.3 Conceptualisation of Reading Motivation

A conceptual model to investigate the Chinese EFL learners' reading motivation from the dynamic systems theory perspective is presented in the following Figure 1.

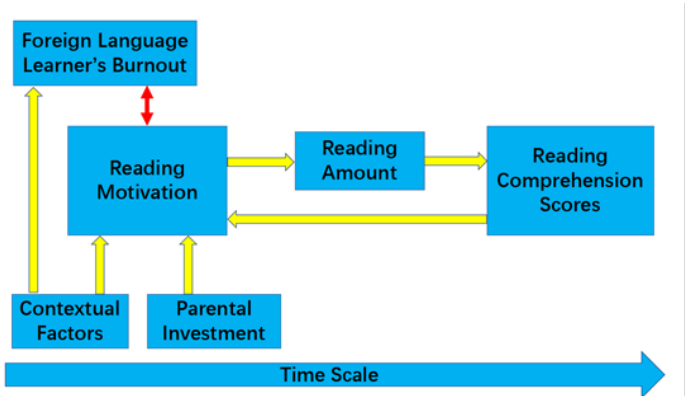

Figure 1: Dynamic systems of Chinese EFL learners' reading motivation.

The above conceptual model is developed to represent the complex, dynamic, adaptive properties of reading motivation among Chinese EFL learners based on Dynamic Systems Theory and previous studies on motivation and reading motivation.

First, reading motivation possesses the properties of motivation such as dynamism, complexity, nonlinearity, openness, and dependence. Previous studies on motivation using the DST (Dörnyei et al., 2016; Henry, 2016) enhance the conceptualisation of the proposed model in studying the reading motivation among EFL learners in China.

Second, studies on reading motivation discussed the interrelated relationships between variables such as motivation to read, the relationships between motivation to read and reading comprehension, and the mediation of reading amount between reading motivation and reading outcome. These interrelated relationships are incorporated in the conceptual model.

Third, foreign language learning burnout syndrome and reading motivation (Ehrman, 1996; Leaver et al., 2005) are included in the conceptual model to investigate the relationship between these two factors and further discuss reasons for the decrease of reading motivation over time. In addition, contextual factors and parental investment are added to the conceptual model to help analyse their individual and joint influence on reading motivation over time.

Fourth, the contextual factors are a part of the complex systems, therefore, teaching environment and social environment are included in the conceptual model to study the reading motivation among EFL learners in China.

Finally, parental investment is included in the conceptual model because it significantly influences reading behaviour and reading motivation (Norton, 1995; Liu, 2017).

3. Relationship between Factors in the Conceptualised Model of Reading Motivation

3.1 Reading Motivation and Reading Outcome

Reading motivation influences reading outcomes. Guthrie et al. (1999) and Schaffner et al. (2013) argued that reading motivation indirectly predicts English reading proficiency, which is mediated by the amount of reading. Baker and Wigfield (1999) used the Motivations for Reading Questionnaire (MRQ) invented by Wigfield and Guthrie (1997) and explored the correlation between reading outcome and all sub-categories of reading motivation. They found significant correlations between reading outcomes, though some intrinsic and extrinsic variables of reading motivation appeared only among white students and female students. The result suggested that reading outcomes could be predicted by reading motivation.

Meanwhile, Unrau and Schlackman (2006) found that grade level, gender, and composite scores of both intrinsic and extrinsic reading motivation were the predictors of students' reading comprehension. In addition, the direct influence of intrinsic and extrinsic reading motivation on reading outcome was exhibited among Asian students.

The study by Law (2008) on the relationships between extrinsic reading motivation, home literacy, parents' support, classroom instructional practices, and reading outcomes showed that extrinsic reading motivation and reading comprehension were not significantly related, but they were negatively and significantly related when home literacy, parents' support, and classroom instructional practices were added to the regression model. Nevertheless, Baker and Wigfield (1999), as well as Lau and Chan (2003), found positive relationships between extrinsic reading motivation and reading comprehension in their respective studies.

Schaffner et al. (2016) studied the reciprocal influence between intrinsic reading motivation and reading competence among students from academic track schools and non-academic track schools in Germany using a cross-lagged regression model. The study revealed that there was a significant cross-lagged effect between intrinsic reading motivation and reading competence for students from academic track schools but not for students from the non-academic school.

These studies reveal that intrinsic reading motivation is closely and positively related to reading comprehension. By contrast, extrinsic reading motivation is found to be either insignificantly or negatively related to reading competence. However, some scholars (Baker & Wigfield, 1999; Lau & Chan, 2003) found the positive relationships between extrinsic reading motivation and reading comprehension. The inconsistent research findings in terms of the relationship between extrinsic reading motivation and reading competence might be attributable to the snapshot investigation of reading motivation over time. As a consequence, it is necessary to conduct the longitudinal research to uncover the complex nature between extrinsic reading motivation and reading competence over time and re-verify the consistent findings of the relationship between intrinsic reading motivation and reading competence.

3.2 Reading Amount as the Mediator between Reading Motivation and Reading Comprehension

Guthrie et al. (1999) put forward the assumption that reading amount has an influence on reading comprehension because students could gain knowledge from frequent reading, thereby facilitating their reading comprehension. Besides, students could enhance their reading-related comprehension beliefs as they read more, which could, in turn, help them choose more challenging materials to read. In addition, reading amount could increase reading effectiveness such as speed and fluency of reading. The reading effectiveness could shoulder the burden of memory and make the reader comprehend the materials better by, for instance, identifying main ideas or drawing conclusions.

McElvany et al. (2008) conducted empirical research on the mediating role of the reading amount by adopting the cross-

lagged regression model. The result showed that intrinsic reading motivation has an indirect influence on reading comprehension, which is mediated by the reading amount. Reversely, the effect of reading comprehension on reading motivation was not mediated by the reading amount.

Becker et al. (2010) obtained different conclusions using the same data as McElvany et al. (2008) used in their study. Becker and team members focused on social recognition and instrumental goals and measured reading motivation among students in grade 4. The result showed that intrinsic reading motivation influences reading comprehension with the mediation effect of reading amount. Extrinsic reading motivation, on the other hand, has a significant negative direct impact on reading comprehension. These snapshot studies may not be sufficient to explain the mediating role of reading amount between extrinsic reading motivation and reading comprehension from a dynamic perspective. The mediating role of reading amount could be either positive or negative due to the dynamic changes between reading motivation and reading comprehension. Therefore, the assumption that the amount of reading mediates the relationship between intrinsic and extrinsic reading motivation and reading comprehension needs to be verified with more in-depth research.

3.3 Foreign Language Learning Burnout and its Influence on Dynamic Learning Motivation

Freudenberger (1974) was one of the scholars who described and analysed the burnout syndrome. Paine (1982) pointed out that burnout was closely related to job stress and he adopted the concept of burnout stress syndrome to refer to this psychological status. Some scholars (Schaufeli et al., 2002; Slivar, 2001) in the domains of psychology and education argued that the concept of burnout stress syndrome could also be applied to the study of learning processes. Pines and Kafry (1980) and Meier and Schmeck (1985) further put forward that burnout referred to the learners' energy exhaustion due to long-term course load, gradual enthusiasm loss in academic activities, indifference and behavioural alienation towards classmates, and negative attitudes towards academic activities because of poor test scores. Subsequently, many scholars (Balogun et al., 1996; Gold et al., 1989; Schaufeli et al., 2002) in different countries confirmed the existence of burnout phenomenon during the learning process.

Some scholars (Ehrman, 1996; Leaver et al., 2005) have also researched the burnout syndrome in foreign language learning. Ehrman (1996) researched the burnout syndrome among the foreign language learners at Foreign Service Institute (FSI) and discovered that many foreign language learners experienced the explicit burnout syndrome when they learned the third language and their intrinsic motivation would decrease. Felder and Henriques (1995) highlighted that the burnout syndrome would appear when the teaching style used by the teachers was continuously inconsistent with the learning style of the learners.

Yang (2015) put forward four hypotheses to study the relationship between foreign language learning burnout and foreign language learning motivation. These hypotheses are: (1) the negative change of foreign language learning motivation is related to foreign language learning burnout; (2) foreign language learning burnout is negatively related to motivational intensity; (3) the attitude towards foreign language learning environment will affect the formation and development of foreign language learning burnout; (4) foreign language learning outcome has limited predictive influence on foreign language learning burnout. A mixed method research was used in the study and the results showed that foreign language learning burnout has three dimensions: exhaustion, cynicism, and decreased professional self-efficacy. Furthermore, foreign language learning burnout has dynamic characteristics where it rises and falls along with the variation of time and environmental factors. Lastly, there is a negative correlation between foreign language learning burnout and foreign language learning motivation.

As a consequence, the complexity and dynamism of foreign language learning burnout are in accordance with the characteristics of Dynamic Systems Theory. It is appropriate to consider the dynamic influence of foreign language learning burnout on the change of reading motivation over time.

3.4 Second Language Investment and its Influence on Dynamic Learning Motivation

Norton (1995) put forward the definition of second language investment. Norton (1995) argued that the conceptualisation of motivation was an individual psychological trait, neglecting the interaction between learners and language learning context. He put forward that "the notion of investment conceives of the language learner, not as ahistorical and unidimensional, but as having a complex social history and multiple desires" (p. 9). Individuals made an investment in learning a second language, "they do so with the understanding that they will acquire a wider range of symbolic and material resources, which will in turn increase the value of their cultural capital" (p. 17).

Some Chinese scholars (Liu, 2017; Wang, 2004) conducted empirical studies to investigate the potential influence of investment on learning motivation. For instance, Wang (2004) studied the attitudes of investment in English learning among postgraduate students in China. He administered the questionnaire to 35 participants (28 males and 7 females with age range from 21 to 31) at Nanjing University of Aeronautics and Astronautics. The results indicated that the participants recognise that foreign language learning is an investment. They invested more time in learning English instead of other courses in their own major. They have a strong desire to continue investing more time in learning English however they lack effective learning strategies.

Meanwhile, Liu (2017) conducted an empirical research on learning motivation from the social class perspective. He administered a questionnaire of second language investment and motivation to 1542 students in a high school and also their parents in the city of Shenyang, Beijing, and Nanjing in China. 16 students and their parents took part

in the in-depth interview. The results showed that parental investment in their children's language learning is more instrumentally oriented such as recognising English as an effective communicative tool than culturally oriented such as the enhancement of individual quality through English learning, multiple perspectives of reflecting on issues, and the interests towards foreign cultures. The study further identified four dimensions of parental investment. They are relation investment, knowledge investment, affection investment, and economic investment. The notion of parental investment has a direct influence on parents' investment behaviour and meanwhile an indirect influence on students' motivation to learn English. However, interestingly, parental investment behaviour has a direct effect on students' motivation to learn English.

As a result, the variation of parental investment (e.g. the shift of parental involvement methods) could influence their children's learning motivation either positively or negatively over time. The dynamic and complex feature of parental investment is in accordance with the notions of Dynamic Systems Theory which could contribute to the dynamic change of reading motivation over time.

3.5 Relationship between Reading Motivation and Contextual Factors

According to the Dynamic Systems Theory, the contextual elements are also a segment of dynamic systems with a vital influence on motivation. The contextual elements for reading motivation include the teaching environment and the social environment.

The teaching environment consists of elements such as the teacher, classmates, teaching materials, teaching methods, and strategies. The teaching environment itself is dynamic and it has a direct influence on learners' cognitive factors such as learning motivation or anxiety. Whereas the social environment contains the political, economic, and cultural environments, which are dynamic in nature and could affect the motivation of learning. As a result, the process of learning is constantly affected by the dynamic changing environment. Therefore, learners' motivation is constantly affected by various contextual elements in the environment, and they are continuously responding to active and inactive feedback from the learning context and adapting themselves to it (Davis & Sumara, 2006).

4. Conclusion

English learning is growing fast in China. It is more prevalent with the impact of globalisation and the diffusion of new technology. Dynamic changes in the external environment and the fluctuation of interest, intention, behaviour, attitude, and motivation on learners over time could influence reading motivation immensely among Chinese EFL learners. In order to explore the relationships among these internal as well as external factors influencing reading motivation, it is inevitable to develop a comprehensive and holistic conceptual model to study the reading motivation of Chinese EFL learners from a dynamic systems perspective. Theoretically, the conceptual model uncovers the dynamic nature of reading motivation, the interrelationships between or among reading motivation components and the complex and dynamic influence of potential variables on reading motivation. It gives new insights into the investigation of reading motivation, which could overcome the limitations in prior studies. Furthermore, the conceptual model keeps pace with contemporary trends in examining issues in Second Language Acquisition by adopting the DST approach (Ellis & Larsen-Freeman, 2006).

Practically, the interrelationships between and among reading motivation variables and the reciprocal influence between reading motivation and other potential variables should be taken into consideration when designing second language reading curricula and instructional materials, which could improve the teachers' ability to perform more efficient interventions. Likewise, students could be equipped with knowledge about their English reading, thereby helping them to adjust and coordinate different reading motivation variables in order to improve their reading efficiency, which could enhance their reading achievements by focusing on some principal factors.

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What are best practices to teach "hands-on" skills in a blended environment?

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Abstract

Despite the proliferation of online teaching and learning in physical therapy education, there is a gap that describes best practices used to teach "hands-on" skills. The purpose of this study was to discover the resources used, current and emerging instructional methods, and a list of best practices for physical therapy educators. A national survey and personal interviews gathered information from faculty who taught orthopedic subject matter. The findings suggest faculty used an assortment of resources and instructional methods in a variety of ways. According to the literature and current teaching practices, a blended learning approach is the recommended method to teach orthopedic "hands-on" skills. The data generated a list of best practices, which consisted of a tangible list of pre-class activities and face-to-face instructional methods. Additional research can help faculty make informed decisions based on evidence, feasibility, and availability of technologies. This study serves as a baseline in today's instructional climate and will evolve as educators continue to seek novel approaches in the technological space within physical therapy education.

1. Introduction

Health care is changing, and so should the growing skill sets of clinicians. By the year 2020, the American Physical Therapy Association (APTA) envisions all physical therapists (PTs) will have a doctor of physical therapy degrees (APTA, 2016). The advancement of the profession to the doctoral level encourages autonomous practice, the use of evidence in making clinical decisions, and supports professionalism in PTs' interactions with others (APTA, 2016).

Online programs proliferate in all areas of study to meet the ongoing demands for doctoral education. In a 2018 report from the Babson Research Group, distance education enrollments increased for the fourteenth consecutive year (Seaman et al., 2018). The presence of online degrees in healthcare is on the rise. Many education programs in athletic training, occupational therapy, nursing, and physical therapy offer a combination of online and face-to-face (F2F) instruction to obtain a bachelor's, master's or doctoral degree (All-Star Directories, 2016; AOTA, 2016; APTA, 2016; CAATE, 2016). No accredited online entry-level athletic trainer (AT), occupational therapist (OT), or physical therapy education programs exist in the United States (AOTA, 2016; APTA, 2016; CAATE, 2016). However, it may only be a matter of time before these healthcare programs transition to a fully online format.

As PT education programs transitioned from the master's degree to the doctoral degree (APTA, 2016), additional academic courses increased workload necessary to meet the professional rigor necessary to achieve the new criteria. These changes led to increased demands of physical therapy education students, which included increased costs of tuition, transportation, and living expenses. Additional stress is often placed on students to work during the education experience to subsidize their academic agenda. Today's students require an efficient strategy to balance personal finances, work obligations, and school commitments. Online learning can support "on-demand" learning, student satisfaction, flexibility of learning, and better work-life balance.

Questions exist regarding the appropriate methods to teach "hands-on" skills online in PT education (Blackinton, 2013; Boucher et al., 2013; Thomas et al., 2011). Traditional methods include F2F instruction in a classroom environment. In the last several years, many PT education programs have embraced technology to teach gross anatomy, orthopedics, and clinical skills (Green & Whitburn, 2016; Hurst, 2016; Smith et al., 2011). A recent systematic review by Macnik et al. (2015) summarized the physical therapy literature related to technologies used in physical therapy education. Websites and discussion boards were the most common technologies used, followed by video podcasts, wikis, and blogging (Macnik et al., 2015). Five studies supported the use of websites to improve lab psychomotor skills (Macnik et al., 2015). In addition, several of the studies suggested less time to perform a required task. One study suggested more time to learn; two found no difference in time but fewer costs associated with website simulations (Macnik et al., 2015). The authors provided a curricular map, which detailed technology used in PT education. However, the authors did not specify how to change an existing curriculum.

Despite the popularity of online teaching and learning, there is a gap in the literature that describes best practices to teach "hands-on" skills. The purpose of this study was to discover the available resources, instructional methods to teach "hands-on" skills, and how faculty combined them to teach orthopedic "hands-on" lab content.

The research addressed the following questions:

1. What are the resources used to deliver orthopedic "hands-on" skills?
2. What are the current instructional methods used to teach orthopedic "hands-on" skills in an online environment? How do faculty combine instructional methods and resources to deliver "hands-on" content online?
3. What are the recommended best practices to teach orthopedic "hands-on" skills for the physical therapy profession in an online environment?

2. Literature review & theoretical framework

2.1 Historical perspective

Early research supported the use of CD-ROMs to teach PT musculoskeletal psychomotor skills (Ford et al., 2005; Smith et al., 2006). Almost a decade later, the proliferation of the Internet (Macnik et al., 2015) led to computer-assisted technologies within physical agents and professional issues in PT education (Adams, 2013; Dal Bello-Haas et al., 2013). Technological changes coupled with challenges for high-quality, cost-effective education encouraged educators to find alternative approaches to teach "hands-on" orthopaedic special tests and intervention skills (Boucher et al., 2013). Specific reasons cited in the literature for the promotion of teaching PT skills online include flexibility, location, shortage of practitioners, classroom space, the ability to review and repeat, and personalization of learning (Adams, 2013, Cooper & Higgens, 2015; Green & Whitburn, 2016; Hurst, 2016; Elmer et al., 2016; Van Doom & Van Doom, 2014; Van Duijn et al., 2014). Within the physical therapy profession, the majority of educational programs reported the use of computer-assisted learning (Baumgartner, 2012). No authors reported a quantifiable percentage of course content taught online verses in a F2F environment (Greenberger & Dispensa, 2015). Within the body of literature, there is a gap in terms of describing best practices to teach "hands-on" psychomotor skills in a blended format.

2.2 Flipped classroom models

Flipped classroom models are a recent innovation in higher education. Flipped learning requires active student engagement to learn the material in advance of class time (Berrett, 2012). In contrast to blended learning, flipped classrooms use online instruction to enhance F2F instruction without decreasing F2F time (Lazinski, 2017). Class time challenges students to solve problems, interact, and apply

what they learn to new contexts (Berrett, 2012). Furthermore, the learning process continues after the designated class time ends with post-class assignments and experiences. Persky and McLaughlin (2017) published a review of evidence-based best practices used in the design of flipped classrooms. Recommendations provided guidelines for educators in the development of pre-class assignments, in-class activities, and after-class work.

In the physical therapy literature, the use of flipped classrooms to teach orthopedic "hands-on" skills continues to grow. Boucher et al. (2013) leveraged technology to flip a PT education musculoskeletal classroom. Gaida et al. (2016) reported similar findings of student satisfaction to teach assessment of the lumbar spine and vestibular system in a flipped classroom. Students reported video instruction allowed more control over the learning process, the ability to self-pace, and promoted a deeper understanding of the content (Gaida et al., 2016). Deprey (2018) conducted a retrospective analysis over three consecutive years that described student performance on unit examinations using a traditional, partially flipped, or fully flipped classroom. Students who received the fully flipped classroom approach outscored students in the partially flipped or traditional instructional methods with a medium effect size of 0.76 (Deprey, 2018).

2.3 Blended Models

Blended models are another mode of instruction, which incorporates the use of technology within the instructional design. Blended models differ from flipped classrooms. In a true blended learning model, online activities replace F2F activities (Lazinski, 2017).

However, variations of blended learning models appear across institutions (United States Department of Education, 2019). Van Duijn et al. (2014) compared student performance in cervical spine evaluation and treatment skills after using online video clips versus F2F methods for instruction. The authors reported improved student performance after receiving both modes of instruction (Van Duijn, 2014). Cooper et al. (2017) evaluated the effectiveness of short online video clips (55-188 seconds) to teach peripheral joint mobilization over a semester. Formative assessments scored the students individually and in groups using five criteria: Motivation, safety, exercise, timing, and progression (Cooper et al., 2017). Researchers analyzed the difference between the overall mean average scored obtained individually and in the groups. In the groups, the effect size was moderate (0.68) and small (0.40) for individuals (Cooper et al., 2017). Scores in the experimental group surpassed the control group in every week except one. When the groups changed positions, an interesting "cross-over" effect occurred. The subjects later used information learned by the experimental group when in the control group. The authors concluded the use of instructional videos helped students individually and in groups when learning rehabilitation skills (Cooper et al., 2017). Furthermore, the instructional design supported a self-directed approach to student learning. Greenberger and Dispensa (2015) described the use of video podcasts to teach orthopedic special tests to augment learning in lieu of traditional F2F demonstrations. The authors concluded a live demonstration was comparable to video podcasts to teach orthopedic "hands-on" skills.

Recent research shows student performance with the use of blended instruction compares equally to F2F instruction (Boucher et al., 2013, Van Duijn et al., 2014; Copper & Higgens, 2015; Greenberger & Dispensa, 2015; McCutcheon et al., 2014). Inconsistencies in study design within the physical therapy literature prevent meta-analysis from determining specific protocols or numerical measures in student performance (Boucher et al., 2013; Adams, 2013; Van Duijn et al., 2014; Cooper & Higgens, 2015; Moore & Smith, 2012). In addition to non-uniform practices, faculty may oppose blended instruction. Misconceptions such as an isolated work environment, lack of academic rigor, and courses directed by technology may negatively influence faculty's decisions to adopt blending learning strategies (Blackinton, 2013).

As PT education programs make decisions to move clinical content online, recommendations for best practices could help faculty determine appropriate resources and instructional methods to teach orthopedic "hands-on" skills, which could lead to better student outcomes.

2.4 Theoretical Framework

The theoretical framework that supports this research comes from three fields of study that favor blended pedagogy to teach psychomotor skills in physical therapy: Theory of instructional design, adult learning theory, and social constructivism. The fields connect and work together. Their interdependency influences the teacher, shapes the student, and creates the environment (See Figure 1).

Richard Clark's theory of instructional design states the course design is more important than the medium used. He describes media as "mere vehicles that deliver instruction but do not influence student achievement any more than a truck that delivers our groceries causes changes in nutrition" (Clark, 1983, p.445). So, for educators, the intention in course design can help create cost-effective and supportive strategies for student success.

In addition to the selection of appropriate instructional strategies, adult learning principles help students succeed in the online environment. Malcolm Knowles described student characteristics necessary for adult learning: Experience, self-directedness, readiness to learn, autonomy, and intrinsic motivation (Knowles, 1973).

Lastly, Lev Vygotsky's theory of social constructivism helps create a learning environment that supports collaboration and connectivism (Vygotsky, 1978). Through individual cognitive processes and social interactions with others, the potential for learning is greater under social constructivism. Collaboration can support teamwork, problem-solving, and enhances the understanding of information over time. Connectivism can help students create meaning through the experiences and networks shared with each other (Schneider, n.d).

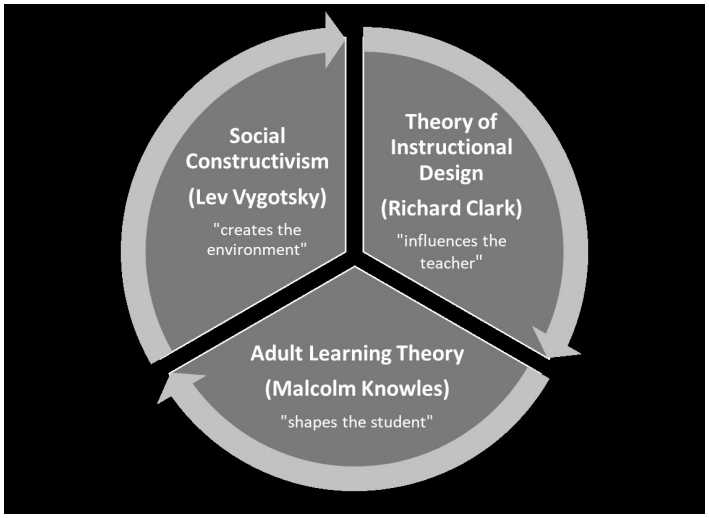

Figure 1. The relationship between the teacher, student, and environment in an online environment.

3. Methodology

The study used a mixed methodology that included both quantitative and qualitative design, as this was the deemed best approach to answer the primary research questions of the study. The researcher used a basic interpretive study in order to discover and understand best practices to teach "hands-on" orthopedic skills. Due to the nascent nature of teaching orthopedic "hands-on" skills in a physical therapy online environment, this approach best addressed an area in development within the profession. In addition, the research questions gathered information related to the resources used, methods of instruction, and faculty perceptions to determine recommendations for PT educators.

3.1 Instrument Development

The researcher developed the survey instrument and interview questions from the literature review and a previous co-authored pilot study. The survey consisted of 14 questions of three types: closed-ended, open-ended, and Likert questions. Questions requested the participants to identify the curricular format, program resources, instructional methods, and how faculty combined resources with instruction. The interviews consisted of 12 structured, yet open-ended questions related to the "how" and "what" of "hands-on" instruction in an online environment. The consensus among content experts (n = 3) established content validity and verified the questions acceptable for dissemination. A copy of the survey instrument and interview questions are in the Appendix.

3.2 Subjects

The researcher used purposeful sampling to select participants for the study. In order to capture an overall opinion from the physical therapy profession at large, the APTA's website provided a method to seek out PT education programs within the United States for the survey instrument. Collection of individual PT education program chairs' emails helped create a database of names and emails. Due to the lack of publication of individual orthopedic faculty member's contact information, email correspondences to PT education program chairs requested forwarding of the survey instrument to faculty assigned to teach orthopedic course content for completion. Authors from the literature and correspondence with peer colleagues from other institutions helped identify prospective candidates for the interviews. In addition, peer-reviewed sources (published literature, professional presentations, and faculty teaching in online PT education programs) helped identify subjects that use online instructional methods for the interviews. A minimum of one published research study or one national presentation on the topic of online teaching and learning in orthopedic PT practice qualified the individual to participate. In addition, faculty assigned to teach one or more courses related to orthopedic content qualified for the interviews. Because of the small sample size, the selection of interview participants depended upon faculty availability and willingness to participate.

3.3 Procedure

An emailed cover letter included a link to the survey and video from the researcher, which explained the purpose and implied consent procedures for participation. The survey launched using Survey Monkey (Survey Monkey Inc., Palto Alto, CA) September 2018, to PT education program chairs (n = 247) with a request to forward the survey to orthopedic PT faculty within their respective programs. In order to increase the response rate, a second email launched two weeks later in order to capture non-responders. The survey remained open for late responders until October 2018. An emailed cover letter helped recruit subjects for the interviews. The researcher selected GoToMeeting.com or Zoom.com and a digital handheld recorder to record the remote interviews. Interview subjects provided informed consent. Each interview ranged between 40 and 60 minutes in duration. The Institutional Review Boards at the University of Findlay and Hanover College approved the study.

3.4 Data Analysis

Microsoft Excel software (Microsoft Corporation, Redmond, VA) assisted in the descriptive statistical analysis and visual representation of data in the survey instrument. Chi-square analysis helped determine potential differences among the respondent's replies. Data analysis of the interviews used an integrative approach and an a-priori list developed from the pilot study. Following transcription of the interviews, MAXQDA software (VERBI software GmbH, Berlin, Germany) helped code and identify themes among the participants' narrative responses.

4. Analysis and Discussion

4.1 Results

Of the 247 email invitations sent, 72 faculty members (survey respondents) answered the survey (response rate = 29%).

Additionally, four faculty members (interview subjects) participated in the interviews. The majority (62.5%) of survey respondents reported a traditional "in-person" curricular format, while less than half (37.5%) used a blended format. The percentages of the orthopedic curriculum taught online varied from 0% of the content to as high as 76-99%. (See Figure 2). All interview subjects (n = 4) used blended instructional methods.

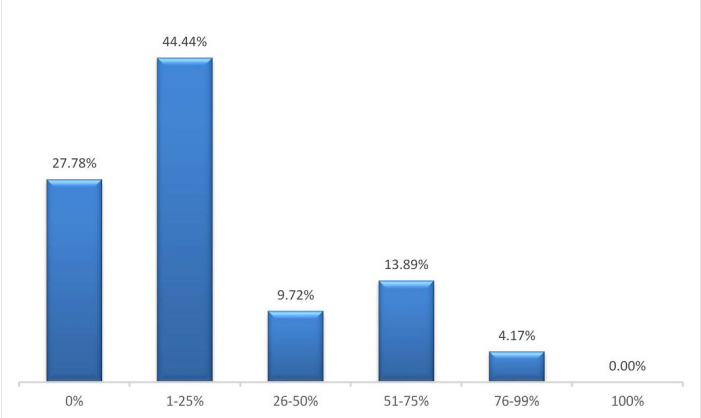

Figure 2. Percentage of the orthopedic curriculum taught by respondents in an online format.

4.2 Traditional and Online Resources

Textbooks were the most common traditional resource (80.5%, n = 72) used among the survey respondents and interview subjects (n = 4) followed reported lab manuals (75.0%), overhead video projectors (61.1%), smartboards (9.7%) and other resources (35.0%) such as apps, lab handouts, models, whiteboards, lectures, and live demonstrations (See Figure 3).

Figure 4 summarizes the most common online resources used in delivering orthopedic "hands-on" content. The most common online resource used was live or prerecorded videos (88.7%, n = 71) followed by the use of prerecorded lectures (63.4%), professional websites (36.7%), student interactive platforms (Quizlet, Kahoot, Poll Anywhere, 31.0%), discussion boards (20.0%) and podcasts (8.4%). Chi-square analysis revealed no statistically significant differences ($p<0.001$) among the traditional and online resources.

Videos were highly utilized to deliver orthopedic "hands-on" content, either live or pre-recorded, and helped augment course content for both faculty and students. Faculty created videos or used pre-fabricated online videos to teach orthopedic content, to serve as a student resource, and for assessment of students' skills. Table 1 illustrates survey respondents and interview subjects' reported use of pre-recorded video resources.

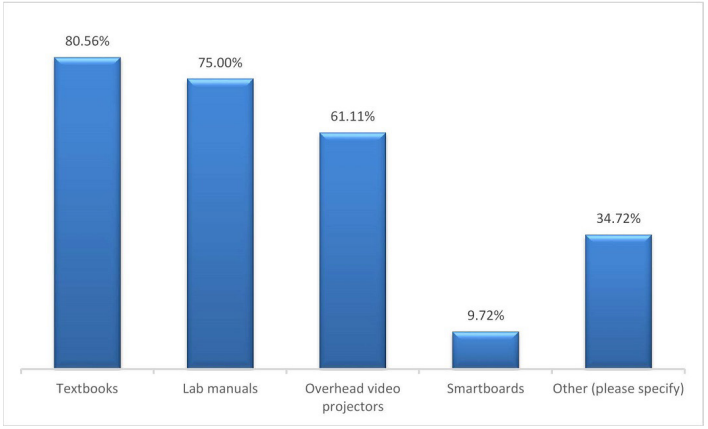

Figure 3. Traditional resources used by the respondents to deliver orthopedic "hands-on" content to respondents in an online format.

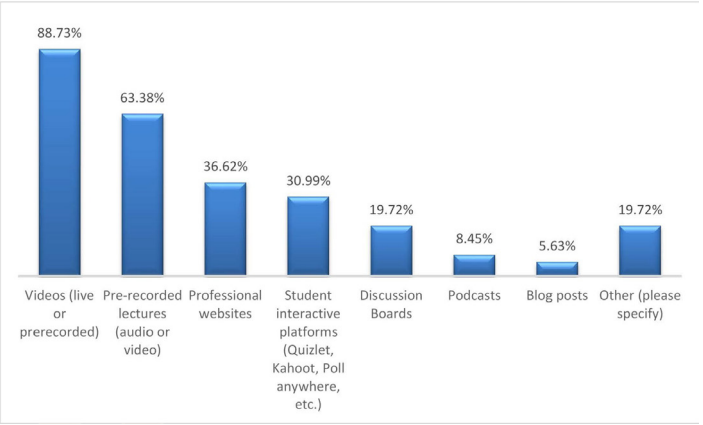

Figure 4. Common online resources used by respondents to deliver orthopedic "hands-on" content.

Table 1

Faculty's Use of Pre-recorded Video Resources

Instruction	"I record video demonstrations for students to practice, provide written instructions and pictures of how to perform skills, and provide web videos as examples for students to see a positive test or pathology." "I use videos to initially introduce 'hands-on' content and then have standard demonstration/practice in lab sessions."
Student Resources	"Videos were a helpful resource for students to go back to and review in the future."
Skills Assessment	"[Students] create their own videos, and then they post them into Canvas for me to view and…for their classmates to view. I give feedback in a very public forum so that they can learn from each other."

4.3 Instructional Methods

The majority of survey respondents (95.8%, n = 72) and interview subjects (n = 4) believed training of "hands-on" skills required F2F instruction. As one subject said, "We use demonstration and practice, as the students have to use their hands to do hands-on-skills." Another subject echoed with similar comments, with the use of F2F lab time for a demonstration of techniques, instructor feedback, and time for students to practice skills. In short, as one survey respondent stated, "Hands-on" means "hands-on." All lab activities are done in person." In addition to F2F instruction, videos (80.6%) and the flipped classroom (51.4%) were

other common methods used for "hands-on" instruction of orthopedic skills in order to prepare students for the lab. (See Figure 5). Less common were flipped classrooms (51.4%), voice-over PowerPoint lectures (14.0%), CD-ROMs (15.3%), and professionally (14.0%) or self-made (8.3%) podcasts.Chi-square analysis revealed no statistically significant differences ($p<0.001$) among the instructional methods.

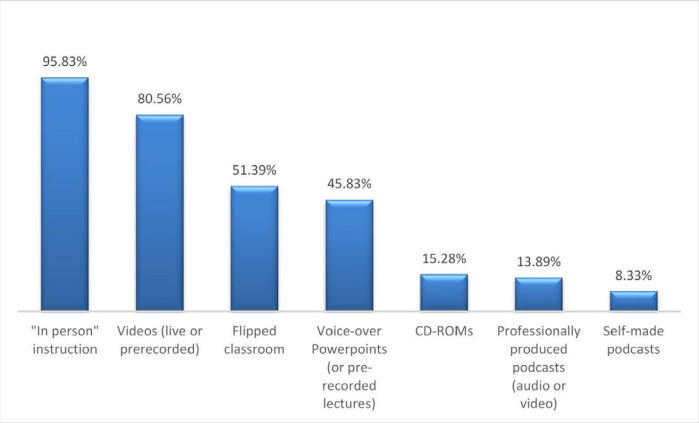

Figure 5. Respondants' reported common instructional methods used to teach orthopedic "hands-on" content.

4.4 How Faculty Combined Instructional Methods and Resources

Survey respondents and interview subjects reported the use of textbooks as valuable resources for instruction to provide background information, fill in educational gaps, or as a future reference. Pre-recorded lectures (20 minutes to 1-2 hours in length) viewed by students before the lab helped save time for "hands-on" practice. Video demonstration of orthopedic techniques was available for all students to view before F2F lab time. The use of formative low-stakes assessments prior to lab helped evaluate students' knowledge and skills. The approach to student feedback before F2F time varied. Some faculty provided feedback, while others did not. Faculty used online synchronous class sessions in different ways. A common use of online synchronous sessions was for weekly lectures, office hours, or for student questions.

Despite the varied pre-class activities among the interview subjects, the overall intent appeared to prepare students for F2F lab time for "hands-on" instruction. F2F lab time consisted of "hands-on" training. Faculty overwhelmingly agreed F2F lab time was an important element in the development of "hands-on" skills. Faculty found F2F time important for demonstration, facilitation of group discussion, and the opportunity for students to work through case scenarios with peers.

4.5 Traditional and Online Resource Selection and Use

In this study, textbooks were the most common traditional resource used by faculty. Textbooks offer the ability to review the course content, clarify information, and augment lecture and lab materials for students. In the literature, many studies report a similar value of textbooks in a blended environment (Boucher et al., 2013; Elmer et al., 2016; Gaida et al., 2016). Although the majority of survey respondents and interview subjects reported favorable use of textbooks, not all survey respondents felt this way. In some cases, perhaps faculty perceived online textbook resources as cumbersome or difficult to navigate. In addition, textbook use may look different in a blended environment due to disparities in students' learning preferences. Students can locate unknown information quickly on the Internet. Alternative resources such as phone apps, websites, or online videos may make it more desirable for students to access information. Faculty need to consider other options for future learners, which can teach students information literacy and critical appraisal of information obtained on the Internet.

The use of video resources in this study resonated with sources in the existing literature. Boucher et al. (2013) required students to view pre-recorded lectures before the lab. Moore and Smith (2012) created video podcasts for student acquisition of transfer and gait training skills. Thomas et al. (2011) used a computer program to help students identify anatomical structures. Van Duijn et al. (2014) created short video clips as a resource for students to learn cervical "hands-on" skills. Consequently, findings from this research and in the literature revealed an assortment of resources used in a variety of ways.

4.6 Current instructional methods

Instructional methods varied among faculty. By far, survey respondents favored traditional F2F instructional methods over online instructional methods to teach orthopedic "hands-on" skills. Within PT education, traditional instruction entails F2F instruction, demonstration, and practice. Other strategies used to teach and practice skills consist of case scenarios, role-plays, and peer practice within the confines of the classroom. Most faculty can relate to familiar instructional strategies due to past experiences as a student. Feedback consists of "in-person" constructive criticism and positive reinforcement. Due to the "hands-on" nature of a "hands-on" profession, safe practice is another important reason for F2F instruction. Interview subjects were more willing to experiment with online instructional methods if simple and efficient. Most faculty have access to a cell phone, video camera, or a tablet that can produce "homemade" videos. However, some faculty have less time available and require students to purchase website subscriptions with professionally produced videos at their disposal.

Adoption of videos to augment traditional instructional methods appear in the literature. Van Dujin et al. (2014) blended traditional and video instruction to teach special tests of the cervical spine. Adams (2013) used CD-ROMS in combination with a traditional lecture to teach modalities within a PT education program. Greenberger and Dispensa (2015) reported the use of videos to help teach orthopedic special tests, goniometry, manual muscle testing. While evidence supports the use of instructional videos in the literature, what does the literature reveal about student achievement?

As early as 2005, Ford et al. (2005) reported psychomotor skill

acquisition with the use of videos to learn musculoskeletal special tests exceeded that of textbook instruction. Studies compared to F2F instruction of orthopedic "hands-on" skills to the use of video instruction showed equal student performance and outcomes (Adams, 2013; Van Duijn et al., 2014; Cooper & Higgens, 2015; Moore & Smith, 2012). The flipped classroom was another reported instructional method used to teach orthopedic "hands-on" skills. Video instructional strategies may contribute to the flipped classroom student experience. In the current study, faculty reported the use of a flipped classroom for clinical reasoning skills, active learning culture, flexible environment, and support for the teacher as a learning resource.

4.7 Combining Instructional Methods and Resources

In addition to traditional F2F instruction, video instruction, and the flipped classroom approach, faculty used a combination of instructional methods and resources to deliver orthopedic course content. Combining multiple forms of media with instructional methods equated to the reports in the literature. Marques de Silva et al. (2012) reported the use of multiple resources (figure, videos, and graphic animations) along with interactive components (discussion boards, online tests, and links to other websites) as an effective strategy to teach bronchial hygiene to physical therapy students. Boucher et al. (2013) reported similar multiple strategies and resources (pre-class activities, in-class lab, and post-class assignments) in the flipped classroom approach.

Based on the literature and the findings of this research, faculty reported many ways to teach orthopedic "hands-on" skills in an online environment. Most faculty favored an eclectic approach, similar to the habits of PTs working in the profession at large. PTs in clinical practice teach patients with a variety of instructional strategies and resources to treat body function/structure, activity limitations, and participation restrictions. Teaching may include F2F demonstrations, recommendations for web-based educational programs, instructional home program videos, or a combination of resources based on the PTs' clinical experience. Therefore, the eclectic approach to patient care may translate into the academic environment. On the other hand, perhaps faculty enjoy the flexibility and autonomy to experiment, which enhances personal gratification in the teaching experience. Regardless of motivational factors, as technology continues to evolve, PTs will likely prefer a variety of instructional strategies and resources.

4.8 Recommended Best Practices

The synthesis of the survey responses and interviews created a tangible list of strategies, divided into pre-class activities and F2F instruction used to teach "hands-on" content. The findings suggest a blended instructional approach to teach orthopedic "hands-on" skills. In addition, the data suggested unique characteristics among faculty who taught "hands-on" skills in an online environment.

Pre-class activities with a variety of traditional and online resources helped prepare students for F2F lab time. Textbooks offered a preview of the course content and a student resource for future reference. Faculty delivered lecture content in various formats: Pre-recorded/posted online, in real-time through the use of synchronous sessions, or in a F2F classroom environment that ranged from 20 minutes to 2 hours. Videos were popular among survey respondents and interview subjects and used in a variety of ways. Some faculty used videos to introduce concepts and aid with instruction, while other faculty used videos to simulate the clinical environment. Others reported videos helped in the assessment of student skills, peer feedback, and self-reflection. Polling software and online cases helped promote active learning in an online environment. Formative assessments helped prepare students for "hands-on" lab time.

Both survey respondents and interview subjects strongly supported F2F instruction in the development of "hands-on" skills. Many faculty reported the necessity of practice with individualized feedback from the instructor. The F2F time allowed time to answer student questions and "apply" information rather than "show" techniques. Some faculty spent F2F time for a demonstration of "hands-on" skills while others used little F2F time for a demonstration. Instead, case scenarios and group discussions helped to promote deeper learning and application of pre-class information. F2F instruction helped develop clinical reasoning skills through fictitious patients or real-world examples from the faculty's clinical experiences. Figure 6 illustrates the recommended best practices of pre-class activities and F2F instructional strategies.

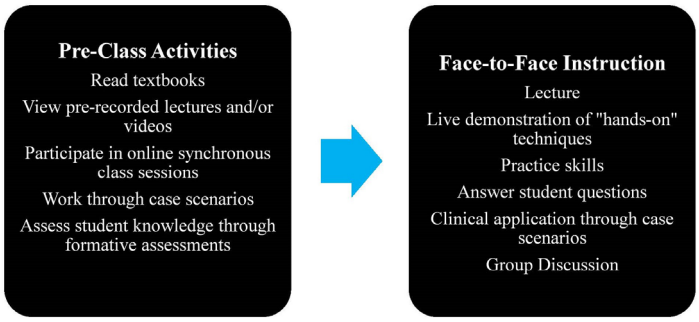

Figure 6. Recommended best practices to teach orthopedic "hands-on" skills.

In addition to the list of best practices, one unexpected finding of this research was the unique characteristics and underlying attitudes of the interview subjects and a small minority of survey respondents, which appeared to create a culture of flexibility, open-mindedness, and willingness to experiment. Faculty appeared open to experiment with trial and error, help from a mentor, or by the exploration of the literature.

5. Conclusions and Recommendations

5.1 Conclusions

Blended learning is an emerging concept in PT education. As supported by the theoretical frameworks of instructional

design (Clark, 1983), adult learning theory (Knowles, 1973), and social constructivism (Vygotsky, 1978), blended learning requires the involvement of the teacher, student ,and environment. The three elements of the theoretical framework are interdependent and must work together for a successful student educational experience.

A gap exists in the literature, which describes best practices used to teach orthopedic "hands-on" skills. The results of this study showed PT educators favored an eclectic approach to teach orthopedic "hands-on" skills. The flipped classroom was a popular method used to engage students. Videos used as an instructional strategy and resource had the potential to enhance the learning experience for both faculty and students. A blended learning approach is the recommended best practice to teach orthopedic "hands-on" skills based on current teaching practices. Faculty who taught in blended environments appeared to adapt an underlying culture of open-mindedness, willingness to experiment, and flexibility. This study serves as a baseline in today's instructional climate and will evolve as educators continue to seek novel approaches in the technological space within PT education.

Best practices reveal a combination of pre-class activities using traditional and online resources and F2F instructional methods as preferences of faculty assigned to teach orthopedic "hands-on" content. The list of best practices was similar to strategies found in the literature (Boucher et al, 2013; Greenberger & Dispensa, 2015; Van Duijn, 2014).

When conducting a blended PT course, educators may want to consider student readiness with online technologies. The use of a student readiness survey early in the curriculum can determine technological knowledge gaps that may require additional training or attention. If faculty need assistance in instructional design, training opportunities are available through organizations such as Quality Matters and The Online Learning Consortium. For help with video production, hosting a synchronous class session, or orientation to technologically enhanced resources, faculty can work closely with the institution's information technologists or teaching and learning specialists. Lastly, exercise patience when trialing blended teaching strategies. Faculty may want to consider changing one or two classes before blending an entire course.

One limitation of this study was the small sample size. Generalization of the results to the population of PT educators may not reflect the opinions of all faculty assigned to teach the orthopedic curriculum, nor represent a broad perspective within the profession. Future research in flipped classrooms and blended approaches can improve the student learning experience. Additional research that evaluates clinical performance skills and licensure passage rates can help advance best practices and proper allocation of resources.

As reported in this study, faculty members have the responsibility for the creation of an active learning environment in order to leverage the best of F2F instruction and online resources. Faculty expect students to participate in the learning process. Future graduate students will need to continue to balance personal responsibilities and will rely on technology to enhance their learning experiences. As technology continues to advance and shape the physical therapy profession, educators should maintain an entrepreneurial attitude towards life-long learning. Some of the best ideas may come from risk-takers and innovative thinkers in PT education.

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7. Appendix

Survey Instrument

1. **Which Learning Management System (LMS) do you use?**

☐Blackboard
☐Canvas
☐Desire to Learn
☐Moodle
☐Sakai
☐Other (please specify:_____)

2. **To what extent do you agree with the statement?**
"The LMS meets my needs to deliver orthopedic "hands-on" content".

☐Strongly agree
☐Agree
☐Neither Agree nor Disagree
☐Disagree
☐Strongly Disagree

3. **How would you describe the curriculum format used to deliver orthopedic "hands-on" course content?**

❑Traditional face-to-face Instruction
❑Complete Online Instruction
❑Blended Instruction (combination of in person and online instruction)
❑Other (please specify): ___

4. **What percentage of your orthopedic curriculum is taught in an online format?**

❑0% ❑1-25% ❑26-50% ❑51-75% ❑76-99% ❑100%

5. **Which of the following traditional resources do you use to deliver orthopedic "hands-on" content? Mark all that apply.**

❑Textbooks
❑Lab manuals
❑Overhead video projectors
❑Smartboards
❑Other (please specify): ___

6. **To what extent do you agree with the following statement?**
"Textbooks provide online teaching resources that are useful."

☐Strongly agree ☐Agree ☐Neither Agree nor Disagree ☐Disagree ☐Strongly Disagree

7. **Which of the following online resources do you use to deliver orthopedic "hands-on" content? Mark all that apply.**

❑Discussion boards
❑Blog Postings
❑Podcasts (audio or video)
❑Wikis
❑Pre-recorded lectures (audio or video)
❑Live Streaming Videos (YouTube or Vimeo)
❑Student Interactive Platforms (Quizlet Live, Kahoot, PollAnywhere, etc.)
❑Other (please specify): ___

8. **How do you use traditional and/or online resources to deliver "hands-on" content?**

Please elaborate: _____

9. **Which instructional method/s do you currently use to teach orthopedic "hands-on" content? Mark all that apply.**

❑CD-ROMs
❑Face-to-face instruction
❑Flipped classrooms
❑Websites
❑Self-made podcasts (audio or video)
❑Professionally produced podcasts (audio or video)
❑Live streaming videos (such as YouTube or Vimeo)

10. **If you use the Flipped Classroom to teach orthopedic "hands-on" content, why do you use this approach? Mark All That Apply.**

❑Promotes flexible learning environment
❑Establishes an active learning culture
❑Allows class time for clinical reasoning skills
❑Supports teacher as classroom resource
❑Promotes intentional teaching in person instruction verses student independent exploration
❑I do not use the Flipped Classroom approach

11. **What are the some of the new or emerging teaching techniques that you use to teach orthopedic "hands-on" content?**
Please elaborate:_____

12. **How did you acquire the skill set to deliver orthopedic "hands-on" skills in an online or blended format? Mark All That Apply.**

❑Self-taught Methods
❑Researched the Literature
❑Mentorship from Peer Colleagues
❑University Training
❑Continuing Education Courses
❑Other (please specify): ___

13. **What do you perceive as some of the benefits of teaching "hands-on" skills in an online environment? Mark All that Apply.**

❑Flexibility of learning (Time/Place)
❑Ability to review and repeat
❑Facilitates active learning
❑Increased student motivation
❑Increased student participation and preparedness
❑Increased communication between student and teacher
❑Deeper understanding of course content
❑Improved examination scores
❑Increased class time for application of concepts
❑Personalization of learning
❑Classroom space limitations
❑Increased student satisfaction
❑Increased teacher satisfaction
❑Other (please specify): _____

14. **What do you perceive as the challenges of teaching "hands-on" skills in an online environment? Mark All That Apply.**

❑Higher student workloads
❑Higher teacher workloads
❑Decreased student participation and preparedness
❑Student frustration with an active learning approach
❑Communication gaps between student and teacher
❑Decreased examination scores
❑Increased potential for cheating
❑Lack of release time for instructional preparation
❑Differences in student learning styles
❑Intellectual property or copyright issues
❑Lack of available technology
❑Lack of technology support
❑Other (please specify): _____

Interview Questions

1. Which Learning Management System do you use?
2. Does the Learning Management System meet or not meet your needs to deliver "hands-on" PT content? Why or why not?
3. How would you describe the curriculum format used to deliver course content (traditional, in person, blended)?
4. Which traditional resources do you use to deliver orthopedic "hands-on" content?
5. Which online resources do you use to deliver orthopedic "hands-on" content?
6. How do you combine traditional and online resources to distribute course content?
7. How do you currently teach orthopedic lab content (Videos, flipped classroom, websites)? Can you give me an example of one of your labs?
8. How did you acquire skills to deliver orthopedic lab content online?
9. How do you blend the use of online resources with your instructional methods to deliver "hands-on" content? Can you provide specific examples? (areas may include: palpation,
posture assessment, goniometry, manual muscle testing, repeated movement testing, muscle length tests, joint play/mobilizations, spinal manipulation, special tests)
10. Do you have any new/emerging instructional methods that you would like to share?
11. Which type of "hands-on" content do you choose not to put online? Why?
12. What do you perceive as some of the benefits and challenges in online teaching and learning? Why?

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Competence-based frameworks in nursing – a concept analysis

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Abstract

Nursing is a competence-based profession, and clinical competence has been widely discussed within the nursing literature over the past three decades due to growing public demand for professional accountability. However, the concept remains nebulous and defined differently by healthcare researchers. This paper presents a concept analysis which reviews the different competence-based frameworks and its application within the nursing literature. The analysis reveals flaws in the existing assessment methods used by current nursing regulatory bodies for their licensure system and proposes a modified Miller's model for utilisation in nursing education.

1. Introduction

Nursing is a competence-based profession, and clinical competence has been widely discussed within both clinical and nursing literature over the past three decades due to public demand for professional bodies to ensure safe and high-quality care (Cant et al., 2013). As a result, professional regulatory bodies have implemented competence-based frameworks and mechanisms, such as licensure and credentialing, to evaluate the clinical competence of graduating nursing students to ensure that they have demonstrated the necessary work and professional attributes before being granted the licence to work as registered nurses in the country (Cant et al., 2013). Despite the proliferation of literature on clinical competence, the concept remains somewhat nebulous and contradictory within the nursing literature, presenting a significant challenge for one to achieve a universal consensus on its definition and operationalisation (Fida et al., 2016).

2. Methodology

This concept paper seeks to present a review of the different competence-based frameworks and its application within the nursing literature. We adapted Walker and Avant's (2011) concept analysis approach as follows: (1) identify the antecedents, attributes, and consequences of nursing competence; and (2) present a typology of cases illustrating the competence-based frameworks used for professional licensure by nursing regulatory bodies. Walker and Avant's approach was chosen because it offers a pragmatic and logical method to explore the current development, understanding and operationalising of the concept of which a variety of theories and models exist. At the end of the concept analysis, we synthesised the relevant competence-based theories and models to propose a model of utilisation for nursing education.

3. Results

A total of five electronic databases (CINAHL, PubMed, Scopus, Medline, and PsycINFO) were searched for relevant papers, and this search was conducted using a combination of exact keywords on the title and abstract. The search terms employed in this review were: 'competenc*', 'nurs*', and 'medic*'. In addition, a hand search of the reference lists and bibliographies of included papers were conducted to search for additional studies not located through electronic databases, such as the websites for nursing regulatory bodies. A total of 39 papers was retrieved for the purpose of this study. The decision-making process and the search results at each step of the course are depicted in the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) diagram (see Figure 1).

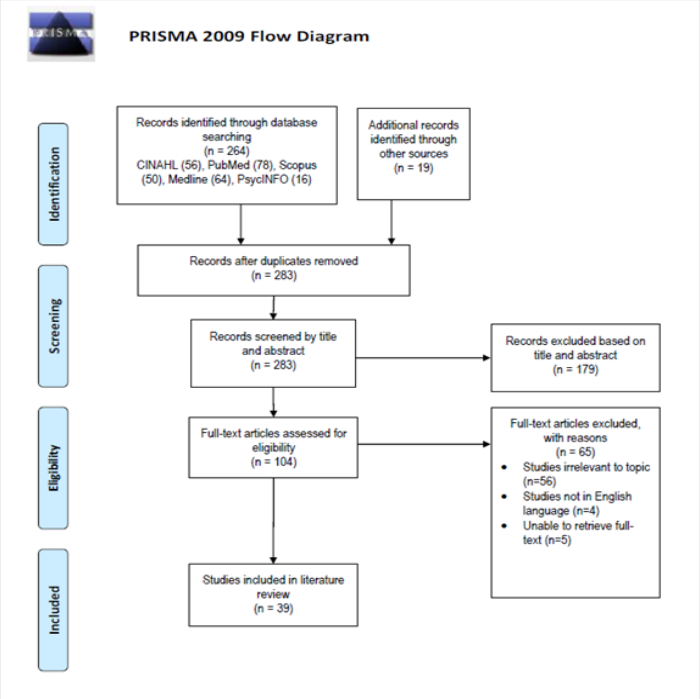

Figure 1. PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) diagram depicting literature search strategies and articles retrieval.

3.1 Antecedents, Attributes, and Consequences of Clinical Competence

3.1.1 Antecedents – the Establishment of a Competence-based Framework for Nursing Licensure

Walker and Avant (2011) define antecedents as events that precede the occurrence of the concept. Within the literature on nursing competence, an individual must first identify the issues which warrant the establishment of the competence-based frameworks for nursing licensure. Two global trends were pivotal to the growing demand for competence-based frameworks within the nursing field.

The first trend lies in nursing education when the nursing profession witnessed a transfer of nursing education from traditional hospital-based nursing schools to universities and tertiary colleges, also known collectively as higher education institutions (HEIs) during the late twentieth century (Hickerson et al., 2016). With the establishment of nursing education at the HEIs, it is assumed that these HEIs could afford greater resources, a wider knowledge repository and a greater element of self-regulated learning, thereby hastening the professional development of the nursing profession (Hickerson et al., 2016). However, this same shift in nursing education has created a gap between nursing practice and nursing education, whereby nursing students nowadays have fewer clinical attachment opportunities and exposure to acquire the necessary competence before graduation (Chen et al., 2014). As a result, Candela and Bowles (2008) reported that many nurse graduates in the U.S. felt unprepared for real clinical practice upon entering the workforce, while Hickerson et al. (2016) reported employers' concerns on the nurse graduates' calibre these days. These employers complained that the graduates were

"unfit for practice" despite having successfully completed the nursing programmes (Hickerson et al., 2016). Similarly, in the United Kingdom (UK), nurse graduates have complained that they had encountered difficulties during their transition to actual clinical workplace, resulting in many of them being disillusioned with their practice (Monaghan, 2015). Several researchers have cautioned that incompetent nurses could pose greater risks to patient safety and other colleagues' work, as well as incur higher medical errors and healthcare costs for the organisations (Chen et al. 2014; Hickerson et al., 2016).

The second trend pivotal to the proliferation of competence-based frameworks lies with the nursing regulatory bodies and healthcare institutions. Due to concerns on the widening theory-to-practice gap, government bodies and healthcare organisations have instituted licensure systems on many professions, such as medicine, law, and nursing (Dent & Harden, 2013; Institute of Medicine, 2011). In this regard, competence-based frameworks are being used by professional regulatory bodies to guide curriculum, define standards in practice, and establish licensing and certification mechanisms, which are used to judge whether an individual has achieved the necessary ability to practice (Oermann & Gaberson, 2014). Individuals wanting to work in government-regulated occupations, such as medicine and nursing, must first demonstrate that they have mastered the necessary skills and knowledge associated with the job scope and then apply for professional registration with the relevant regulatory bodies before they could practice locally (Dent & Harden, 2013).

3.1.2 Attributes of Competence

McClelland, an American organisational psychologist, popularised the term competence during the 1970s by criticising traditional assessments, which focused heavily on intellectual attainment, rather than work-related competence (Cowan et al., 2007). Since then, there has been considerable interest in the conceptual definition of competence and the operationalisation of its measurement. Unlike clinical biodata which are highly quantifiable, clinical competence is an abstract construct which comprises different attributes, making it difficult to operationalise and measure. Based on the contributions by several researchers (Cowan et al., 2007; Fida et al., 2016; Fukada, 2018; Garside & Nhemachena, 2012; Pijl-Zieber et al., 2014; Potgieter & Van der Merwe, 2002; Smith, 2012; Valloze, 2009), we have outlined the three main approaches in the conceptualisation of competence within the nursing literature (Table 1).

a) Behaviourist Approach

The first approach is a behaviourist approach, which focuses on discrete skills associated with individual task completion (Fukada, 2018; Potgieter & Van der Merwe, 2002; Smith, 2012). The behaviourist approach defines competence as competency, which comprises three domains, knowledge, skills and attitudes (KSA; Smith, 2012). A popular competency model, which embraces the behaviourist approach, is the Iceberg Model by Spencer and Spencer (2008). The Iceberg Model defines five main competencies or underlying characteristics as the basic features for performance at work. These five competencies are *skills, knowledge, traits, self-concept, and motives*, which are classified into either visible or hidden competencies. They use the iceberg analogy to depict their model, stating that the bulk of individual performance is hidden under the waterline and only a small portion, the tip, is visible and readily observed and measured. The Iceberg Model reflects a behaviourist approach and postulates that visible competencies, such as knowledge and skills, can be easily operationalised and assessed by existing assessment methods, such as checklist and theory tests. However, the 'submerged' attributes are innate characteristics, which are not easily observed. Hence, researchers would need to develop new assessment methods to measure these constructs effectively.

b) Holistic Approach

The second approach is a holistic/generic approach, which regards competence as a broad and interrelated set of one's overall abilities and competency, which enables a practitioner to fulfil one's work. The holistic approach seeks to cluster the individual competence attributes into several broad competence statements which are regarded as essential for effective work performance and could be applicable across diverse workplace settings (Garside & Nhemachena, 2012). This approach was popular within the clinical literature because it does not simply view competence as a mere construct of a KSA domain alone, but includes broader attributes of an individual, such as motives, personal factors and experiences (Pijl-Zieber et al., 2014). Lenburg's (1999) Competency Outcomes and Performance Assessment (COPA) model is an example of a holistic approach to the conceptualisation of competence. The COPA model outlines eight core domains which identify the types of attributes nurses should be demonstrating within the actual workplace setting – *assessment and intervention skills, communication skills, critical thinking skills, human caring and relationship skills, management skills, leadership skills, teaching skills, and knowledge integration skills*. However, Potgieter and Van der Merwe (2002) stated that the holistic approach disregards the contextual variations in different workplace settings and simply assumes that these domains are applicable across all workplace situations.

c) Normative Approach

The third approach is a normative approach. It shares similar views with the second, generic approach by viewing competence as attributes and ability of an individual worker to combine all work competencies to perform one's role effectively. However, it also focuses on how these general attributes are contextualised to specific work environments or circumstances (Garside & Nhemachena, 2012). The normative approach views *competence* as a competence-performance continuum which changes over time in one's course of work. These competencies are divided into different levels to differentiate superior from average performance (Potgieter & Van der Merwe, 2002). An illustration of a theory which adopts the normative

approach is Benner et al.'s (2009) '*novice-to-expert*' theory which is a five-stage proficiency development process that a nurse would undergo to achieve competence/expertise – *novice, advanced beginner, competent, proficient, and expert*. Benner's theory has advanced the field of nursing education, and many nurse researchers have built on her theory to develop competence-based assessment instruments such as the *Nurse Competence Scale and Self-Evaluated Core Competencies Scale* (Yanhua & Watson, 2011).

Approach Category	Conceptualisation of competence	Methods / Instruments	Advantages	Disadvantages
Behaviourist	• Competence defined as *knowledge, skills,* and *attitudes* (KSA) domains • Used interchangeably with the term "competency"	Checklists	• Focus on demonstration of skills or tasks • Easy to operationalise and measure construct	• Reductionist • Disregard other important components of competence (e.g. communications, motivation, and critical thinking)
Holistic	• Broad clusters of general attributes essential for work performance	Performance-based tools (e.g. Multisource 360º feedback)	• Focus on individual attributes which are highly relevant to effective work performance • Encompass a wide repertoire of attributes • Applicable across diverse settings	• Hard to measure construct • Measurement instruments highly subjective and qualitative in nature • Need for assessor to observe over extended period to obtain accurate and fair evaluation
Normative	• Applications of general attributes to the specific workplace setting • Differentiation of different levels of performance along a continuum	Global rating scales	• Encompass a wide repertoire of attributes • Views competence as a developing concept • Relevant to workplace outcomes	• Hard to measure compared to behaviourist approach • Newly-developed instruments require validation and might be limited in terms of generalisation

Table 1: Three main approaches to competence conceptualisation (sources: Cowan et al., 2007; Fida et al., 2016; Fukada, 2018; Garside & Nhemachena, 2012; Pijl-Zieber et al., 2014; Potgieter & Van der Merwe, 2002; Smith, 2012; Valloze, 2009).

3.1.3 Consequences

Consequences are events that occur as a result of a concept and can often stimulate new ideas or avenues for research pertaining to certain concepts (Walker & Avant, 2011). In our case, considerable interest has been generated in developing different methods to assess clinical competence. The purposes of assessment are many and varied, e.g. for academic progression, licensure with a professional body, professional certifications or career and professional development (Oermann & Gaberson, 2014). Based on the clinical education works by several authors (Boursicot et al., 2011; Dent & Harden, 2013; Norcini et al., 2011; Oermann & Gaberson, 2014; Reinert, 2013; Schuwirth & Van Der Vleuten, 2019; Yanhua & Watson, 2011), we have synthesised and presented a list of assessment methods currently used in clinical education (Table 2).

3.2 Typology of Cases Illustrating the Different Types of Competence-Based Frameworks Used for Nursing Education and Licensure.

Using Walker and Avant's (2011) case typology, this section illustrates the three types of competence-based frameworks which are adopted by the nursing regulatory bodies around the world to evaluate nurse graduates' clinical competence for professional licensure. Walker and Avant's (2011) case typology illustrates the different categories of actual phenomena, that by their existence or presence, demonstrate the occurrence of the concept itself – *contrary, borderline*, and *model* cases.

S/No.	Assessment methods	Domains	Nature of standard
Traditional assessment methods			
1.	Written examination ▪ Multiple-choice questions (MCQs) ▪ Short-answer questions (SAQs) / Essay questions ▪ Written assignments	Knowledge (includes critical thinking)	Objective
2.	Oral examination / Viva voce ▪ Presentation ▪ Projects	Knowledge (includes critical thinking)	Subjective
3.	Practical skills examination ▪ Usually involves checklist	Skills	Objective / Subjective
Contemporary competence-based assessment methods			
4.	Simulation	Knowledge, skills & attitudes	Subjective
5.	Portfolio	Knowledge, skills & attitudes	Subjective
6.	Clinical observations ▪ Mini-CEX (mini-clinical evaluation exercise) ▪ Directly observed procedures ▪ Performance review report (self-assessment or tutor) ▪ Student logbook	Knowledge, skills & attitudes	Subjective / Objective
7.	Objective structured clinical examination	Knowledge, skills & attitudes	Objective

Table 2: Assessment methods used in Clinical Education (sources: Boursicot et al., 2011; Dent & Harden, 2013; Norcini et al., 2011; Oermann & Gaberson, 2014; Reinert, 2013; Schuwirth & Van Der Vleuten, 2019; Yanhua & Watson, 2011).

3.2.1 A Contrary Case

A contrary case is one in which none of the defining attributes are met or a case that is "not the concept" (Walker & Avant, 2011). The first nursing regulatory framework illustrates a contrary case, which involves merely a verification of educational qualifications as proof of successful completion of an approved nursing programme. This system of verification of a nurse graduate's competence is common in the UK and Singapore, where there is no national licensure examination. The professional regulatory bodies from these two countries adopt the assumption that a graduate is competent once he or she has successfully completed an approved nursing programme (Nursing & Midwifery Council, 2015; Singapore Nursing Board, 2016). Bradshaw and Merriman (2008) have criticised this laisse-faire approach, which delegates the responsibilities of evaluating graduating students' clinical competence to the nursing schools. They observed the wide variations in assessment standards among the nursing schools and cautioned that this system has produced many "knowledgeable" nurses, that were, however, found to be "unfit for practice" or had difficulties adjusting to the real workplace setting (Bradshaw & Merriman, 2008).

3.2.2 A Borderline Case

A borderline case is an example of a case in which some, but not all, defining attributes of the concept are demonstrated (Walker & Avant, 2011). Borderline cases are inconsistent in some way with one or more of the defining attributes of

the concept. One example of a borderline case is the U.S. nursing regulatory framework, which involves implementing a national licensure examination to verify clinical competence for nurse graduates (National Council of State Boards of Nursing, 2016). A graduate from a nationally-approved nursing school is required to pass the National Council Licensure Examination-Registered Nurse (NCLEX-RN), a theory-based examination, before he or she can register with the state nursing boards (National Council of State Boards of Nursing, 2016) (Figure 1). New Zealand and Malaysia have also chosen to implement a national licensure theory examination to assess their nursing graduates' clinical competence (Nursing Council of New Zealand, 2012; Nursing Division Malaysia, 2015).

Another example of a borderline case is the Australian nursing regulatory framework, which requires a submission of a professional work portfolio as proof of the attainment of clinical competence (Australian Nursing and Midwifery Accreditation Council (ANMAC), 2012). The ANMAC has mandated that all Australian nursing schools implement a competence-based assessment system, requiring every nursing student to document and compile one's attainment of nursing competencies in accordance with the ANMAC nursing competency standards in a professional portfolio (Australian Nursing and Midwifery Accreditation Council, 2012). In order to qualify as registered nurses in Australia, applicants must submit a professional portfolio as proof of acquisition of clinical competence prior to registration with the body (Nursing and Midwifery Board of Australia, 2010) (Figure 2).

The borderline cases illustrate several flaws in the existing assessment methods used by current nursing regulatory bodies for their licensure. Critics viewed the use of theory-based examination as reductionist because it mainly assesses the cognitive domain of competence, while a portfolio is subjected to inconsistency in presentation structure and examiners' grading, making it difficult for assessment standardisation and objectivity (Bradshaw & Merriman, 2008; Miller & Archer, 2010).

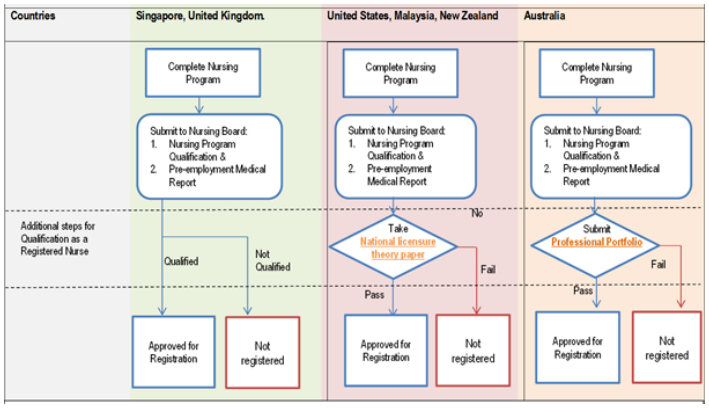

Figure 2. Three Main Approaches to Competence-Based Frameworks for Nursing Licensure.

3.2.3 A Model Case

A model case provides an example of the concept that demonstrates all defining attributes of the concept, or a pure exemplar (Walker & Avant, 2011). Unfortunately, the previous two cases illustrate the inadequacies in the existing competence-based frameworks used by the nursing regulatory bodies to measure clinical competence in a holistic, consistent, and objective manner. Clinical competence requires not only a foundation of medical knowledge, but also the application of clinical skills and professional attributes to the actual workplace setting (Van der Vleuten & Schuwirth, 2005). The model cases can be inferred from the licensure frameworks used by the medical regulatory bodies, such as the U.S. Medical Licensing Examination (USMLE) and Canadian Medical Licensing Examination. These bodies have incorporated the objective structured clinical examination (OSCE), one of the contemporary assessment methods, to evaluate clinical skills for their medical graduates for licensure purposes (Miller & Archer, 2010). The original 16-station OSCE design was developed by Dr. Ronald Harden in Scotland in 1975 as an objective and standardised method to evaluate different components of clinical competence required of medical graduates (Dent & Harden, 2013). Since its introduction in 1975, the OSCE has gained widespread popularity, and it has been utilised extensively by medical and nursing education in over 50 countries (Patrício et al., 2013; Goh et al., 2019). In recent years, the OSCE has also been extended to postgraduate schools to evaluate candidates enrolled in medical specialisation programmes, such as paediatrics, psychiatry, and obstetrics and gynaecology (Goh et al., 2019; Patrício et al., 2013).

4. Discussion

This paper sought to explore the concept of competence within the nursing field. A literature review revealed a lack of consensus on the conceptualisation of competence among nursing scholars (Garside & Nhemachena, 2012). Smith (2012) argued that any attempt to unify the '*competence*' term could be futile and potentially add to the confusion due to the heterogeneity in nursing workplace settings and practices. Instead, he suggested that any attempt to conceptualise the term should be substantiated by the underpinning theoretical approach used. This paper has contributed to the literature by classifying the different approaches into three main categories based on their commonalities in the theoretical lenses and assumptions. We found that most nursing scholars and regulators have chosen either one of the three approaches as the basis for their competence-based frameworks (Fahy et al., 2011).

Our concept analysis has also explored the different types of competence-based frameworks used by nursing regulatory bodies for professional licensure. Based on the case examples, we highlighted the inadequacies in the theory examination or portfolio currently used by nursing regulatory bodies to evaluate clinical competence (Bradshaw & Merriman, 2008; Miller & Archer, 2010). It is well-documented that traditional forms of assessment, such as written tests, assignments, or oral questioning alone, have failed to adequately capture clinical competence (Dent & Harden, 2013). A critical review of the literature reveals an urgent need for the nursing regulatory bodies worldwide to reconsider the issue of

robustness in their licensure examinations and implement an appropriate competence-based assessment method to evaluate their nurse graduates' fitness for practice.

4.1 Miller's Pyramid of Clinical Competence

Competence-based models and theories, therefore, provide a theoretical framework or basis for researchers and practitioners to build and establish sector-specific competence and assessment framework for the different professions and occupations (Modi et al., 2015). In nursing, several models which are commonly used within the literature, include Lenburg's Competency Outcome Performance Assessment (COPA) Model (Lenburg et al., 2011), Miller's (1990) pyramid of competence, Spencer and Spencer's (2008) Iceberg Model, and Patricia Benner's 'novice-to-expert' theory (Benner et al., 2009). Among the different competence-based models, Miller's (1990) pyramid of clinical competence has made important contributions to the literature on competence-based assessment and was used extensively by researchers.

In 1990, Miller published a journal article in medical education to propose a four-level pyramid framework to guide competence-based assessment for medical education (Miller, 1990). Miller designated the four levels as '*knows*', '*knows how*', '*shows how*', and '*does*'. The lowest level of measurement – '*knows*', which measures knowledge, is usually assessed using two common formats of cognitive testing, such as multiple-choice questions (MCQs) and short answer questions (SAQs). The second level – '*knows how*', which measures the application of knowledge, is assessed using skills tests, case presentations, and written essays (Dent & Harden, 2013). The third level – '*shows how*', which measures the clinical competence, is assessed using direct observation of the performance of clinical tasks within a simulated work environment. The fourth level – '*does*', measures work performance, whether the individual can function independently within the real clinical workplace (Dent & Harden, 2013). This level is assessed using multiple assessment methods, such as mini-clinical evaluation exercise (mini-CEX) and 360-degree feedback, within the actual workplace context over an extended period.

4.2 Proposed Modified Miller's Model for Utilisation in Nursing Education

As Miller has not revised his model since 1990 to account for the influences of covert attributes and workplace circumstances on competence and work performance, this paper proposed a modified Miller's model for utilisation in nursing education based on our concept analysis (Figure 3). First, the model has inverted the Miller's pyramid to illustrate the complexity and need in measuring an increasing number of attributes, which form the composite of higher competence levels as one moves towards evaluating workplace performance. Additionally, the model has presented the individual attributes which form the different competence levels within the pyramid. Several researchers have advocated the perspectives of *workplace performance* and *competence* as composite constructs, which comprise of multiple attributes and are unique to each profession and workplace setting (Boursicot et al., 2011; Norcini et al., 2011; Reinert, 2013; Schuwirth & Van der Vleuten, 2019). Based on Figure 3, competence is a composite construct of three competency domains: knowledge, skills, and professional attributes while work performance is a highly complex construct, which is influenced not only by competence alone, but also workplace settings (environment, mentor, workplace standards and outcomes etc.), and individual factors (work motivations and personal values). For example, OSCE should be utilised if an institution wanted to evaluate if a final-year graduating nursing student is clinically ready to graduate from the nursing programme. It is hoped that this modified model will allow the continuation of the use of the available assessment tools with added clarity about the context or environment in which the competence and performance are being assessed.

Second, the proposed model adopts a normative approach by regarding competence as part of a learning or development continuum, rather than an end-point construct. Recent evidences have suggested work performance and competence as evolving and dynamic concepts, which could make their measurement highly complex and difficult for evaluation (Boursicot et al., 2011; Khan & Ramachandran, 2012). Additionally, existing assessment methods were reported to be limited in capturing the entire construct of competence over extended periods (Norcini et al., 2011). Therefore, Schuwirth and Van der Vleuten (2019) advocate the use of a programmatic approach involving multiple assessment methods, assessors and prolonged evaluation duration to determine if performance standards are met or not. For example, MCQ grades could be triangulated with an OSCE performance to draw meaningful conclusions on the examinee's progress in a domain of performance. It is hoped that the flexibility in the modified model will allow future researchers to combine existing assessment methods or develop a new tool to adequately capture all composite attributes for the intended competence level.

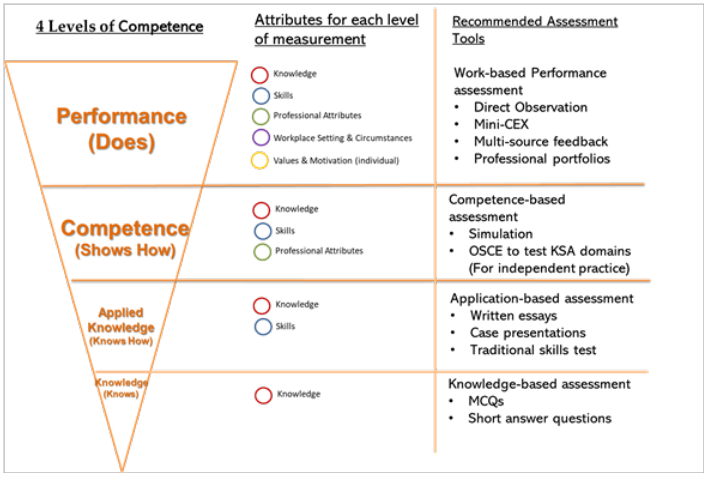

Figure 3: Proposed Model for Competence-based Assessment Framework for Nursing Education in Singapore (sources: Miller's (1990) Pyramid of Clinical Competence; Spencer and Spencer's (2008) Iceberg Model).
Note: OSCE = Objective structured clinical examination; Mini-CEX = mini clinical evaluation exam; KSA = knowledge, skills, attitudes; MCQs = multiple-choice questions.

5. Conclusion

In conclusion, this paper explored the antecedents, attributes, and consequences of competence. Although the concept remains nebulous, the approaches to its conceptualisation can be categorised into three main approaches – behaviourist, holistic and normative. The concept analysis highlights the need for nursing regulatory bodies to reconsider the issue of robustness in their licensure examinations and we propose a modified Miller's model as an appropriate framework for nursing education in Singapore. In this model, clinical competence is viewed as a composite construct which should integrate the individual's KSA with other factors, such as one's traits (values and motivation) and workplace circumstances. As the concept varies according to specific workplace settings, this concept remains dynamic and would require the validation and operationalisation using an appropriate approach.

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Dialogue and studio space: the architectural design studio as the setting for continuous reflection

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Abstract

Teaching and learning in the design studio aims to continuously offer the learner opportunities to relate their individual experience to the discourses shaping the professional field through an iterative process of inquiries, reflection and actions. This paper highlights the role of level-specific dialogue in the provision of design studio teaching at the early stages of the student's journey toward professionalisation.

It will be suggested that the Problem-Based Learning model enshrined in the idea of studio teaching alone does not facilitate for a sufficiently refined and truly reflective learning experience. By looking at a range of publications on the reflective practitioner, I hope to focus the discussion on the diachronic nature of dialogue in the disciplinary context of architectural education.

The discussion of a number of case studies from the First Year provision at the CASS School of Architecture will illustrate a participatory approach to the dialogical scaffolding of early learning experiences and the assessment of generated outcomes as the conceptual framework of dialogical learning in the design studio. It will be argued that sustaining a dialogical process, based on multi-voiced provision, can contribute to the continuity of the learning experience at advanced levels of undergraduate studies, while critically addressing concerns raised about traditional studio teaching practices.

1. Introduction

The discipline-specificity of acquired competencies the Situated Learning concept evokes is particularly relevant to architecture, given that architectural education in the UK is subject to validation by professional bodies; more specifically the Royal Institute of British Architects (RIBA) and ARB (Architects Registration Board). Each school of architecture has to periodically demonstrate its compliance to the curricular framework set by these external professional bodies. The validation of a course by the RIBA aims to ensure that the academic journey students undergo at the institution in question is framed by the curricular standards and contents that lead to adequate professional skills required for achieving the status of chartered membership of the RIBA upon graduating with validated qualifications. The learning experience enabling the production of 'design studio projects' is thereby regarded as central to the acquisition of discipline-specific knowledge and skills. In practical terms, the RIBA validation criteria stipulate that a validated school of architecture is required to demonstrate that at least 50% of all assessed work at any level of study is undertaken as design studio projects. Yet, despite such a clearly defined frame for the application of theory, the term domain of interest can no longer be uncritically adopted. On closer inspection, a set of problems emerges, which puts studio teaching in an apprenticeship model at the heart of a wider debate on the scope of HE. These will be shown to critically impact on the importance of dialogue as an integral part of studio teaching provision on undergraduate courses.

In this context, the focus of this paper is a learning experience that encourages and promotes reflection and, in its later stages, dialogue. It will be illustrated that, unless qualities of a social practice are actively pursued by the adaptation to experience-centered forms of problem-setting, provision of formative feedback, and accompanied by the promotion of self and peer-to-peer assessment at different stages and at different levels of learning, the opportunities to develop a reflective learning provision can be compromised.

I will revisit the ideal model of the studio as the realm for reflection-in-action (Schön, 1985), and the teaching principles design teaching can engender with regard to reflection and dialogue. In a second step, I will use the discipline-specificity of formative feedback devices as a vehicle to discuss the different stages learners and facilitators undergo on the challenging journey of defining themselves in the context of architectural education within today's landscape of HE in the United Kingdom.

2. The design studio as the stage for reflective learning

2.1 Whose interest? The design studio and the domain of interest.

The architectural design studio, sometimes referred to as a mock-office, can be taken as the almost literal illustration, or physical analogy, of a domain of interest where a community of practice can build competency through the acquisition of soft skills, as well as the development of discipline-specific literacy (Lave & Wenger, 1991). For architecture students, the studio experience resamples an apprentice workshop: the studio as physical, as well as a social space, dedicated to the common pursuit of investigating design through informal modes of exchanging developing insights, drawn from experimentation on a trial and error basis, and individually advancing the refinement of hard skills such as drawing, making and modeling. In each scenario, the exchange between novice and advanced learners that occurs in the shared space (often unsupervised by a facilitator) can be instrumental to the dynamic development of competency that the social learning model suggests. The studio culture, defined by all participants as a mode of interaction around a discipline-specific subject, mimics the informal modes of acquiring, appropriating and sharing of knowledge of every-day social interactions.

Even if we want to accept the apprenticeship model as a suitable analogy, we need to start asking more fundamental questions about the very notion of Situated Learning with regard to the political premise we encounter in the contemporary climate of educational practice in architecture schools around the UK. The studio must hereby be regarded as part of a wider context; as sitting within the scope of an architecture curriculum embedded in an institutional framework of Higher Education. This conversation is particularly timely as the term 'studio' is used more loosely today, given the drive toward a teaching and learning provision that is based on digital interfaces. The wide use of computer aided design (CAD) tools has impacted greatly on the way institutions evaluate the spatial needs of architectural learners. In a period of great expansion of courses and cooperative recruitment strategies that impact on the provision of learning spaces, it is important to draw out the socio-political aspect of learning about architecture in the physical studio space.

The wider perspective on the principles of acquiring knowledge can serve as an introduction to the argument in defense of physical learning spaces for architects. Barnett establishes his critical distinction between knowledge and knowing (a process conducive to the learners' experience of epistemic becoming), by pointing out the importance of a curriculum that reflects principles of personal development, and encourages the formation of epistemic virtue (Barnett, 2009; Brady & Pritchard, 2003). Barnett's argument is driven by the concern that conventional means of education, based on a one-directional delivery of knowledge as a set of predetermined certainties might undermine the scope of HE to aid the development of learners for whom knowing is an act of engagement in a process of becoming. Taking the aspect of becoming as the yard stick of development, one could argue for a distinction to be made between receiving teaching input based on an individual learning experience that is potentially isolated from the community of inquiry of the studio space, and the dialogical feedback students give while working alongside each other in a workshop-like studio setting.

Barnett posits that the provision of knowledge alone does not sufficiently prepare for the complexity of a 'real world' (or professional) environment outside academia. This 'real

world' is in fact itself subject to an increasing complexity (Schön, 1985, p. 15) and demands preparedness, one might argue, for life-long engagement with learning that challenges traditionally assumed boundaries to professional practice as set out by regulatory bodies external to HE. Beyond the externally determined framework of learning objectives – i.e. those set by professional bodies such as the RIBA – a deeper engagement with learning as a process of becoming has to be regarded as a pedagogical imperative for today's architectural learners. The latter can be linked to a social experience, for which a stage needs to be provided. The rudimentary knowledge conducive to becoming an architectural learner is unlikely to be covered in individual feedback, which focuses on the representation of design ideas. The transferable skills of teamwork competency and dialogical problem-solving contribute just as prominently to the development of professional skills (as in the preparedness of continuously acquiring professional knowledge) as do the hard skills simulated on the computer screen. In this context the social aspect of learning to become an architectural professional can however not (yet) be simulated virtually. For the time being the physical studio space plays a critical role in the prospect of developing towards becoming and architect, in the sense of Barnett's proposition.

How does this problem of professional knowledge (Schön, 1985) translate to the present investigation? As one prominent critic puts it: "The regulation of architectural knowledge is directly prescribed by professional architectural practice through its statutory mechanism, the ARB" (Rhowbotham, 2012, n.p.). For the purpose of the current investigation, the very idea of a 'regulated domain' in the context of UK education will call for a distinction to be made between reflection in a teacher-centered mode of teaching (as envisioned by Schön), and the intentions framed by a dialogical approach to learning (Wells,1999). A more detailed evaluation of the nuance of each approach can offer a better appreciation of what being an architect might imply for the learner whose knowledge of the domain advances through the social process of communicative interaction. The role of the teacher as a facilitator, even participant in dialogue, hereby becomes instrumental (Webster, 2004).

It must be noted that without a physical space in which the traditional modus operandi of architectural education can be challenged, the opportunity to advance the pedagogical ambitions of dialogical teaching might be compromised altogether.

The wider impact of dialogical learning in a design studio setting must extend to all forms of assessment, not all of which rely on the voice of the teacher. Without fundamentally undermining the principles of a community of practice and the teacher-centered expert/apprenticeship model, the emphasis on dialogue – the naturally occurring type of learning within a Learning Community (Flecha, 2000) – can enable a shared social experience where embedded, discipline-specific power relations can be subject to questioning, that takes place in the design studio.

2.2 Reflection as the basis for dialogue: adapting the problem-based learning paradigm.

In Donald Schön's (1985, 1987) theoretical appraisal of the architectural design studio, the term of Reflection-in-Action plays a central role. Briefly outlined, the concept is concerned with the nature of the discourse sustained between teacher (coach) and student in the context of problem-based learning in the studio as the setting that 'provides a venue for students to engage in conversation, dialogues and collaboration related to open-ended problems and encourages speculative exploration.' (Roberts, 2004). However, throughout his writing Schön highlights the potential problems traditional modes of transferring 'professional knowledge' to learners can cause in the field of architecture (Schön, 1987, p. 43). He recognises the valid critique to the potentially disempowering position of learners in the face of an extensive breadth of knowledge which the teacher engenders, spanning from science to artistry (Schön, 1987, p. 7). More specifically, in discussing the dilemma of relevance (Schön, 1985, p. 15), he returns to the problem of uncertainty, following John Dewey's epistemic paradigm, with regard to the relation between education and the professional field outside academia.

Over the years, critical emphasis has been laid on the discontinuous nature in Schön's model. Notably the critique often emerges from fields external to the domain of architecture. Bleakley (1999) puts forward the concept of Reflection-as-Action to be a more suitable concept for the process of attaining experimental knowledge from exercising certain practice-based, artistic processes. More recent studies (Hébert, 2015) focus on the inconsistencies in the concept of reflection in Schön's development of Dewey's Rationalist- reflective model towards a more immediate, experiential quality of knowing (Experimental-intuitive model). In the context of this paper, it is important to establish how the pedagogical principles of dialogical learning – which asks of both, learners and facilitators to cooperate in a discursive mode of critical reflection as a mode of learner empowerment – can inform a revision to the traditional dynamics between teacher and learner observed by Schön, without undermining the objective of initiating the learner to modes of disciplinary literacy required for professional practice.

Rather than using Schön's Reflection-as-Action model uncritically as a general framework for problem-based learning that allows for the primacy to the somewhat mythicised artistry of the teacher, one can observe from the outset of its introduction that its adaptation in operational studio teaching has required discipline-specific interpretation and refinement (see Concept-Test Model, Ledewitz, 1985, p4). A meaningful process of dialogical learning in the architectural design studio can be thereby derived from the specific modes of representation of knowledge the student of architecture engages with in her work.

Why is a distinction from the broader field of creative practice necessary? Everyone who has studied architecture in an art school will recognise the problem. Unlike other disciplines, architecture studies rarely produce the thing-itself (i.e. painting, sculpture etc.), but a representation

of 'projects'. Seeking solutions for large-scale problems, architecture students employ a certain degree of abstraction in objects-as-representation (i.e. architectural scale models, scale drawings, etc), from which often follows a divorce of media and product. Unlike in the other departments of the art school, any architectural proposition (unless built at full scale and using industrial building materials) tends to be a provisional representation of an idea of a project rather than the object itself. The preliminary detachment by the divorce of media and product of the representation of knowledge in the scale model of the projected building from the thing itself (the fully realised building) is instrumental to a discourse on qualitative aspects, that fosters the development of knowledge of the conceptual interrelation between formal, functional and spatial principles of architecture propositions. By these means, the production of objects-as-representation offers a platform for dialogue where learner and tutor engage with the projected object as a 'conversation piece' that facilitates for a discipline-specific investigation. In the process they can frame a discourse around architectural knowledge that extends beyond the formal acquisition of hard skills by touching on collaborative and discursive modes of design thinking. Deriving from the more traditional master-apprentice model, which foregrounds the disparity of experience between teacher and learner, dialogical teaching provision emphasises empowerment of the latter in the process of acquiring disciplinary insights based on scaffolded reflection. With relation to the design process, this process continuously acknowledges the provisional nature of representation (or simulation) and underpins the learner's iterative induction into the professional artistry of architecture by means of a discursive, co-authored process of inquiry, centered on the design process itself, rather than its outcome (see section 3).

The basic building stones of dialogue, it seems, are easily aligned with different stages of an architectural design process. Ledewitz (1985, p. 5) elaborating on Schön, emphasises the multiple design cycles which add critical perspective to the progress of learning, by enabling an iteration of 'testing' (possibly at different scales), 'each cycle represent(ing) the designer's best effort to solve a problem in terms of what he or she understands at that point.' Ledewitz explores methods of design teaching that mimic the process of design iterations in the professional office. Reflection is here described as independent learning through an action (experience), indicative for a design process that involves rational reflection. The design analogy allows for a cross-disciplinary comparison with other domains of practice, which seem to work on the similar principles of representation (rather than expression, which is more commonly identified as the aim of purely artistic practice and processes), and where similar studio teaching experiences seem to be valid. A cross-disciplinary perspective can aid the adaptation of a wider theoretical framework around dialogical pedagogy to the discipline specific setting. There is no need for architecture to idiosyncratically invent its own theory, as it is often implied by literature from within the field. Specifically, accepting the duality of architectural learning between an art and a craft, as described by Schön, does not have to stand in the way of adopting a wider view on how the design process can be described as a learning process, without the need to give primacy to mimicry of office-like processes over the learner's formative experience as becoming. Let us consider this quote, which introduces the iterative process of learning as the basis of a holistic dialogical exchange between learner and facilitator:

> "It [learning] must operate as an iterative dialogue;
> Which must be discursive, adaptive, iterative and reflective;
> And which must operate at the level of descriptions of the topic;
> And at the level of actions within related tasks" (Laurillard, 2002, p. 86).

Even though Laurillard's Conversational Framework model was not developed with the design studio domain in mind, Lee's (2006) adaptation of the teaching tool for the experimental learning in a design environment opens up a meaningful theoretical potential for process-based teaching and learning. For the purpose of this paper, the division of discursive or interactive levels established by Laurillard (see diagram below) invites distinction of academic and experiential knowledge (Lee, 2004), with the aim to diversify the modes of reflection teacher and learners engage in.

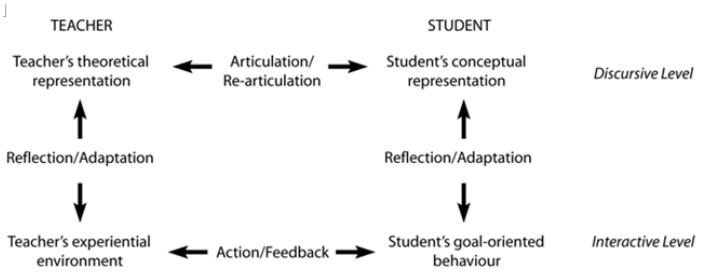

Figure 1: The Conversational Framework for the learning process
Source: Laurillard et al., 2000, reproduced in Lee, 2006.

Lee's original interpretation of reflection in a Conversational Framework highlights also self-assessment devices, such as written exercises at different stages of the design process (Lee, 2006, p. 18). The written component embodies the rationalist-reflective model described by Dewey, with the additional aspect of actively aiming to empower learners to record their own voice in the process of dialogue (Odgers, 2001). Writing is here not to be classified exclusively as an effective vehicle for self-assessment. As creative practice, it moreover fosters the social constructivist aspects of learning, by allowing learners to voice their existing knowledge and experience in the context of the encounter with the disciplinary domain. The opening of the domain to interpretation allows not only the learner, but also the facilitator to engage in a continuous process of reflection by means of dialogical principles.

In order to fully live up to the potential of an iterative dialogue, it is important to look specifically at the way problem-based learning tasks are set, bearing in mind the aim to underpin the above mentioned learning experience in the studio, in order to encourage modes of dialogue relevant to the development of the architectural learner.

3. Dialogue towards a preparedness for Higher Education

3.1 Process first: attempts on a dialogue around 'creativity' in the provision of First Year studio teaching.

For Schön, the paradox upon entering design education consists in the demand on the student who "cannot at first understand what he needs to learn, can learn only by educating himself, and can educate himself only by beginning to do what he does not yet understand" (Schön 1983, p. 93).

Tracey and Hutchinson (2016, p. 92) introduce the benefit of reflective writing for "students, particularly when they are novices in a field, may benefit from scaffolding to guide the reflective process, including prompts that encourage them to draw connections between course content and personal experience."

In the First Year of study, the process of learning through designing, i.e. a continuous questioning of the brief through the production of a series of experimental responses, can be aligned with a concept of 'creativity', where "the pedagogic goal is (…) not externally judged 'success' but individual growth, progress towards the ultimate aim of learner-independence. Thus, self-actualization is prioritized over subject-knowledge" (Dineen et al., 2005).

An example from personal practice experience can aid the illustration of this point. The widely popular diagnostic 'Beyond the Object' project (similar projects are run in other institutions), typically runs for the first month of design studies, when learners freshly enter the Higher Education environment. In the context of the current discussion, the exercise can serve us an example of how an open-ended exercise, where no 'right solution' exists, can facilitate for the encounter with the problem of 'thinking architecturally' (Schön, 1985). The project brief asks of novice students to find an object (don't buy it, don't steal it) and investigate its 'essence' through drawing, disassembling, re-assembling, change of scale and function, play with its spatial and material principles (reflective experimentation). In broader terms the fuzzy description of the problem is aimed to help learners to critically understand creativity as a process of iterative experiments, rather than a one-off 'idea'. Further, the brief can provoke an early form of dialogue with the learning facilitator (design tutor), who supervises a group of individual projects over the course of the first month. Here the first verbal foundations are laid for the development of subject-specific, disciplinary literacy concerned with modes and conventions of representation, the preoccupation with spatial principles and the foregrounding of experience as a central theme of spatial proposition.

After running the project for some time, we realised the formative significance of this first encounter with design teaching for the relationship between learner and teacher. The expectation of learners are often directed at the tutor as an 'expert', whose wisdom, expertise and sensitivity will add quality to their problem-solving process. It became important to us to change this dynamic of expectation from the start, and set up a student-centered framework in order to flip the 'creative responsibility' into the court of the student. From the very first day students come in with a found object, they are asked to write a reflective apologia of not more (or less) than 200 words: 'Describe the object without naming it'. The emphasis is given on three questions: how is the object made? How is it used? Why is it interesting to you?

Using the 200-word framework, students are encouraged to write in any style they like, including non-academic styles such as poems, rap lyrics, song, first-person narrative, object-point-of-view, etc. The choice of representation of their ideas and interest is thereby with the learner, who aims to communicate their central ideas. Strictly in keeping with the principles of evaluating the success of such communication by measures applied by Buchanan (1992) to designing for wicked problems, learners make their first practical experience between the evaluation of propositions by criteria of it works /it does not yet work, rather than wrong/right. What is initially played out in the text-based exercise can later be translated to other types of representation. Without being overly conscious of the significance of their first 'creative manifesto' the students effectively re-write and customise the generic project brief by introducing individual perceptions of knowing, or what is already known or has been experienced. All subsequent discussions with the design tutors are based on the students 'authorship' over the project, to which the acquisition of hard skills will serve as an extension (or translation) of their creative practice of writing into a discipline-specific set of visual communication. The transition becomes the fundamental problem learners will iteratively address throughout all projects in their First Year.

3.2 Multiple- voices, towards a critical reflection of work in progress.

Central to the tutor's work in First Year remains the scaffolding aspect whereby learners are helped in the process of finding their own voice within the domain of architecture. Webster (2004) suggests that deep and transformative student learning can be aided by adapting McLaren's concept of the tutor as 'liminal servant' (McLaren, 1999), who consciously attempts to overcome the ritualistic modes of schooling, by perusing a student-centered perspective on communication in tutorials. (I should add that the terminology of 'servant' seems desperately unsuitable in the age of the privatisation of HE and its repackaging as a 'service'.) While Webster's valid points on the problematic dynamic of the one-to-one tutorial are certainly not to be dismissed (Webster, 2004), an attempt to mediate a dialogical process can be exemplified in a multi-voiced delivery of design teaching already practiced in some schools of architecture.

At the CASS School of Architecture, a whole-year provision of studio teaching (of a cohort of about 100 students per year) is in place of the first year of study. Learners are initiated into the course and subsequently supervised by two groups of design tutors on different days of the week. One day is run on the basis of a skilling workshop (hard skills) with emphasis of conceptual representation techniques. A

second day provides individual conversation where generic stages of learning are applied to individual projects through conversations with a 'personal tutor'. In addition, tutors providing in individual sessions are rotated for each new project (total of four projects a year). In effect, students are expected to engage in an iterative dialogue with a variety of conversation partners, where the constant factor is the record they sustain through their design work. This reflective record of their process makes up their individual portfolio of work. The aim of the portfolio is to document in a visual representation, aligned with professional standards, a record of the increasingly independent reflective process the student encounters in a variety of dialogues throughout the year.

A specific example to illustrate the process is the group-work project 'Making Furniture', which asks of our student to collaborate with the skilled makers in other departments of the CASS (Jewelry, Guitar-making, Textiles, Ceramic etc.) in addressing a problem-based learning exercise. The learning focuses on the acquisition and development of soft skills, as well as interdisciplinary knowledge exchange. In essence, the brief asks a team of students to collaborate with a specific maker, in order to conceptualise and build a piece of site-specific 'furniture' that is fitted in a specific place in the urban landscape (site). The furniture piece is at full scale, and the qualitative challenge is to 'translate' the essential means of making from a non-architectural scale, to one that corresponds to the scale that mediates between the human body and the urban setting.

The process of dialogue can encourage a more nuanced notion of knowing, whereby knowledge is not exclusively received passively from a central 'expert authority' (the design tutor), but constructed and negotiated through the evaluation of a multitude of viewpoints, including those of peers. Consistent with the problem-based learning paradigm, the 'advice' (or formative feedback) the group receives from tutors, technicians and so on, through a series of constructive conversations, is directed at pointing at possible ways of addressing the problems at hand independent of 'right or wrong' value judgments. This experience mirrors to some extent the feedback structure of the 'Beyond the object' project, but now includes an exchange that introduces the value of a peer-to-peer discourse on the aims, context and formal language of the project. The soft skill of teamwork, central to the inherently social design process in the discipline domain is therefore exercised. The ultimate meaning-making, in this case framed as designing through making, plays out on the experiential plane, through the physical construction of a conceptual 'furniture piece' in the school's workshops.

The project comes closest to Bleakley's (1999) description of Reflection as Action. It should be noted that, in terms of cognitive development, the experiential learning in the workshop can foster the advancement of discipline-specific modes of action, in relation to the independent knower concept posited by Baxter Magolda (1996) and others. She summarises that students (see Hettich, 1998, p. 57): 'learn independently; learn by using others; learn by direct action, learn by acting assertively; and learn by thinking for themselves.'

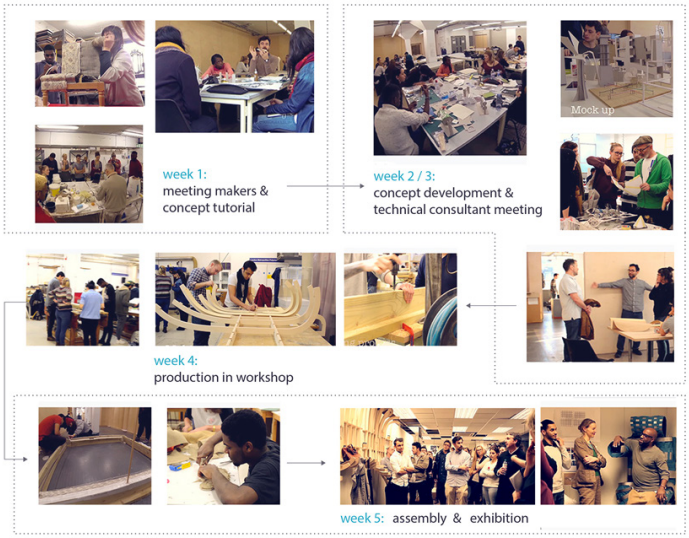

Figure 2: Stages of the design process for the 'Making Furniture' project
Source: the images are a series of stills taken from the short film 'Making It' that was made to document the process. The full version under: *CASS: Making It*. Accessed 11 May 2020. https://www.youtube.com/watch?v=X0On16XtewY.

Architectural schools which have strong workshop provision, supported by highly trained technicians (as London Met historically has been able to sustain), therefore have a proverbial 'ace up their sleeve' when it comes to implementing a pedagogical framework that encourages the continuous development of independent learning at all level of study (see Figure 2).

3.3 Assessing Dialogues: the portfolio review of the whole-year cohort.

Championing a dialogical approach to learning and teaching places the same demand of iterative reflection on the team of facilitators and on the individual tutor, as it is expected from the learners. The assessment of such projects offers another opportunity for dialogue, which challenges the teachers to critically evaluate the results of their teaching practice. The critical alignment of the principles of pedagogy around the student-centered paradigm of 'creativity' (Dineen et al., 2005) and becoming within the context of a regulated professional domain is sustained in the assessment of the First Year portfolio. The tutor uses the portfolio as a prop to 're-tell' the story of the learning process that the individual student has undertaken throughout the year. While the assessment of hard skills, such as representation through drawing, model making and a command of different scales is central to the decision made on pass or fail grades, excellence of work is attributed to portfolios which visually evidence a process of iterative experimentation indicative of a preparedness for future deep learning at degree level.

The summative assessment process offers an opportunity for the establishment of an environment were iterative reflection is normalised as a means of responding to logistic and curricular challenges, which often reflect in the overall quality of the result produced by any cohort. The final

assessment format also gives the tutors and course leaders the opportunity to reflect on their teaching practice by discussing the process the students undergo in First Year with their peers in a continuation of dialogical practice. The curricular 'certainties' handed down over years of delivering First Year studio teaching are thereby themselves subject to continuous questioning; an iterative work in process informed by the changing needs of diverse cohorts of students. In this context, the characteristic flexibility of the whole-year cohort model is evident: the large number of students who share a learning experience will not only effectively support each other by setting a variety of examples of diverse modes of 'good practice'. The larger sample of comparable results at the assessment point also allows a deeper reading of the aspect of the curriculum that works in pedagogy terms, as measured against the evidenced advancement of the cohort's disciplinary knowledge.

4. Continuous dialogue: the start of a discussion

4.1 Pedagogy and the market: the architectural studio in the age of multi-lateral competition.

The 'vertical studio' describes a delivery model where 2nd and 3rd year students are taught side-by-side in studio units (up to 25 students), which are run by architectural professionals who are contracted for teaching on a year-by-year basis. The architects (re-)enter the realm of academia with a specific research project, often aligned with their professional practice. These projects are pitched to both degree levels at the beginning of the academic year, which choose which aspect of practice they (the practitioners) want to dedicate a year of their study towards. Studio units compete with each other for students.

The studio system has been popular with many institutions in the U.K. since the early 1980's, when it was initially 'imported' from the US. A 'school-specific style' (aesthetic) of inquiry and representation, a school identity of other sorts, might be seen as the distinguishing commercial aspect of the studio system when it comes to devising an institutional brand. In the light of the current economic–political context of Higher Education in the U.K., the Situated Learning paradigm (even in the form described in the first chapter) is potentially negotiated against the treatment of the studio system as a marketing tool for student recruitment (Fraser, 2014). One can start to trace the outline of a conflict of interest that has been subject to much debate within the architectural field in recent years: what exactly is the relationship between architectural pedagogy and market forces of the Higher Education industry (Rhowbotham, 2012)?

4.2 Vertical studios, crits and the relevance of dialogue.

Many architecture practitioners teaching in HE are outstanding in their field of professional practice and have, in many cases, a lot 'to teach' to students in the format described by Schön almost four decades ago. The idea of being a good teacher, Webster suggests, is for many of these part-time educators therefore informed by their private recollection of good teaching which they received as a student, or by observed methods to which they subjectively attribute an implicit truth about teaching design (Webster, 2004). Webster observes that an explicit theoretical pedagogy plays a diminished role in the self-perception of many teachers of studio units, often based on a (not altogether ungrounded) assumption that an over-theorising of the design process can lead to reductive teaching. Yet, while the awareness of how students learn (see Biggs, 2011; Iyer, 2015) is often lacking, few will want to describe themselves neither as the 'hegemonic overlord' described by critical pedagogy, nor as cog in the marketing machinery of their parent institution (I use the hyperbole here for dramatic effect). While discipline-specific, empathetically phrased literature on architectural teaching styles exists (Moore, 2001), the discourse or critical encounter with the architectural professional, as a teacher remains broadly an academic pursuit of researchers outside of the studio systems. The unquestioned establishment of teaching methods and the manner of passing on architectural knowledge has come under fierce criticism by sociologists, who identify a tendency in the modus operandi associated by Pierre Bourdieu with a self-validating field of cultural production, rather than a profession (see Stevens, 2002; Jones, 2011). In the social context of the discipline described by Jones (2009), dialogue can be seen as a means of shedding off social constructs through active modes of critical communication (Freire, 1996).

The most prominent single item of evaluating a learner's cognitive and skill-based advancement of knowledge, the 'building project', forms the centerpiece of the assessment in the later stages of First Year, as well as throughout the 'vertical studios' at degree level. It is important to acknowledge the different expectations placed on the students within different frameworks of studio teaching delivery. These do not simply reflect level-specific advancement of knowledge in terms of the domain, but often also the fulfillment of agendas within the 'private' agenda set by individual studio conveyors (often referred to as professional preoccupation of the studio master). The portfolio is thereby casually described as resulting from the specific studio, which embodies qualities the student can evidence to have internalised in her work. In the context of the current discussion, we will only be able to sketch out where the problem might lie for a student transitioning from a whole-year experience to one framed by the vertical studio perspective on educating for architectural practice.

For the formative assessment of building projects, design juries (or crits) are the predominant method. The crit has been extensively deconstructed by researchers (Oh et al., 2013) and richly rendered in Webster's Foucauldian perspective (Webster, 2006). In our context, the focus is on the potential of the crit event to encounter and overturn the perceived limitations this formative feedback format seems to engender. The achievement of excellence – in terms of the product of much design teaching at degree level (and beyond) – widely rests on the development of the capacity to take advantage of creative freedom. Starting with the First Year curriculum, the development aims towards a more discipline-characteristic application of creative thinking

processes, whereby subject-knowledge (such as building technology, historical precedence etc.) become more important in the assessment of the learner's advancement. Counter to this commonly applied formula for tracking a student's progress towards independence and ultimately employability, research suggest that from 11 key indicators most often used in studio assessment in architecture (de la Harpe & Peterson, 2008) the product (i.e. the building proposal) ranks first, followed by process and nine other criteria, including reflective practice in ninth place. The lowest ranked indicator is the student's perspective (person). (Notably the study claims that 'person' ranks fourth in the assessment in Fine Art practice). The obliviousness described by Webster in architectural design teaching on how students learn seems here to be validated by research that indicates a neglect of the personal perspective of "classroom practice including thoughts, feelings when displaying work for critical response" (de la Harpe & Peterson, 2008) and that the format has been described as 'emotionally flawed' (Chadwick & Crotch, 2007).

5. For further discussion: Stages of dialogue

5.1. Preparing learners for continuous dialogues.

This paper has focused on methods of scaffolding dialogue in the early stages of an undergraduate course in architecture, which peruses a widening access agenda. The specificity of this context has shaped the interpretation of the literature on reflective learning. Level-specificity and division of the learning experience between whole-year and vertical studio provision have further impacted on the framing of the problem, as each might contribute different expectations on the learner's ability to raise to the challenges of dialogue. The long-established concept of the reflective practitioner turned teacher framed by the concept of 'Socrates in the studio' (Till, 1996) gives primacy to the modes of dialogue between the studio facilitator and the cohort of students, which ultimately enable the learner to outgrow the need for instruction. Following a progressive trajectory of empowerment of the learner toward an independence that enables her to cope and respond positively to the increasingly complex demands of the architectural profession outside university, Till and other commentators speak of the independence of the learner in terms of professional agency. Resulting from the refinement of the discourses first exercised through the reflective teaching methodologies in the studio setting, more recent critiques of the architectural field have led to a comprehensive revision of the possibilities of architectural practice itself (Awan et al., 2011). The ability of learners to partake in critical dialogues concerning their becoming a professional architect has become a central theme of the architectural discourse on education.

The question addressed in this paper is how to define dialogical learning in a widening access scenario, in order to facilitate for the novice learner's preparedness to engage with and benefit from the ever more complex demands and possibilities of reflective practice, by providing curricular entry points towards participation in the sophisticated cultural introspection of the professional field of today. In other words, how can the novice learner who does not come equipped with the cultural capital, or the personal confidence to engage in dialogical learning, come to recognise her potential agency in shaping her educational experience and feel empowered to sustain the level of dialogue offered by contemporary discourses in the design studio? The case study of the First Year project described above aimed to outline the curricular processes conducive to the attainment of insights in how personal experience, from any background, can be seen as formative to the construction of disciplinary literacy in the field of architecture through a staged, multi-voiced and level-specific induction into professional dialogue. In this process, the role of the studio facilitator has been described as just one of many voices within the cultural environment of architecture education that can offer a formative experience of reflective dialogue. Workshop technicians, makers from other creative fields and not lastly their student peers can all be seen to facilitate for meaningful opportunities for questioning assumptions, learning and unlearning about what it means to be an empowered student of architecture. (Still more voices are joining the dialogical choir as learners progress towards a 'social' understanding of architectural practice). While the curriculum that leads to professional qualification is set by the school of architecture and the principal reference point for the attainment of professional knowledge remains the studio tutor, the nature of the dialogues architecture students encounter in Higher Education are wide-ranging and diverse. Consequently, agency is seen as virtue, constructed in many settings and co-authored by many voices. The task of the studio tutor is to accept and promote the many other voices that enter and shape the studio experience. The studio space is but the central hub where these experiences can be subject to a reflective process that trains learners to build further insights en route to the practitioners they choose to become. The focal point of the dialogical learning experience is the physical setting of the studio which offers continuity through all stages of the learner's development. In the specific context described in the paper the aim is to coherently guide the student's journey toward a professional agency by offering opportunities for reflective, multi-voiced dialogue across the different teaching provision of whole-year and vertical studio delivery of studio teaching.

5.2 Easy steps toward continuity of dialogue in 'vertical' studio settings.

Dialogue has been described here as a reflective process of scaffolding the emerging student voice in the process of becoming an independent learner. In my view, the format of the crit is not the problem; they too can contribute to the here declared aimed process at any level of study. Simple adjustments can point the way to a more dialogical framework to critting (i.e. the process of formative assessment of work at crit events). Along with the general outlines suggested by research for good assessment approaches (Rust, 2002 quoted in de la Harpe & Peterson, 2008), which also account for opportunities for slow learning, discipline-specific modes of formative assessment have been suggested by researchers on the basis of dialogical learning (Utaberta et al., 2013). None of these models fundamentally undermine the professional discourse architectural teachers aim to establish. They can however start to frame an approach to

fostering a more critically engaged participation from both sides, allowing the practitioner/facilitator to re-establish the premise of her dialogical teaching practice.

The professional modus operandi of architectural practice can itself greatly contribute to the shaping of a dialogical teaching framework in HE. The lessons learned from public consultation experiences in practice – where practitioners engage in a dialogue with the public in order to facilitate for review of their proposed interventions in the urban realm – also can be highly effective in the design studio: To educate toward an empathetic mode of representation means to 'level the playing field' between feedback giver and feedback receiver. Building on the practice experience of architects, a model-only review is used in the first building design crit students undergo in their First Year at the CASS School of Architecture. There are no plans, but only sections and models, so to reduce the potential of abstraction at these early stages of the design process. In general, physical models have proven to be better conversation pieces, allowing for an open exchange of ideas that reduces the primacy of one-directional commentary (which is often the case with representative drawings, which as a medium are often subject to the qualitative attribute of 'style'). Here the opportunity arises to involve workshop staff and makers from other disciplines in the design review. Other than diluting the architectural focus, these additions to the dialogical choir can foreground the aspects of making and the qualitative aspects of experience in dealing with materials that could be conducive to a wider view on the consequences of the proposed schemes. By the nature of their involvements with students across all levels, workshop technicians form a continuous relation with learners throughout their education. The quality of the object-as-representation in terms of its made quality can aid a more independent learning process that ultimately contributes to raising the level of the discourse leading to the advancement of disciplinary literacy in the design studio. In terms of assessing the reflection process of the design review, First Year students are encouraged to complete the written comments they receive by the expert panel by adding their own reflective evaluation of the discussion. Questions include: what is the strongest aspect of your work? What is it you think you should do next? These comments form the basis of a potential teaching contract, the personal tutor can return to after the crit event, for further development of the project. This simple device of dialogic feedback replicates earlier reflective exercises and can be conducive to a coherent, student-centered learning experience. In addition, following Baxter Magolda's suggestion to recruit senior students to co-assess the work of their peers at earlier stages of education, one can start to re-describe that crit panels as events of a more empathic nature; one which re-introduces the multi-voiced principle when students receive advise from fellow learners. It should not be forgotten that, if the studio tradition is to continue, future teaching practitioners are sharing the studio space with current ones, on both sides of the panel.

The pedagogical grounding of studio teaching in problem-based learning is unquestioned. Yet a critical review of the deeper pedagogy, relating to the learning experience students encounter in situated-learning environments at degree level where vertical studios operate, is called for. Even if the future brings about a complete revision of architectural education (Froud & Harris, 2015; Hunter, 2012), the current model still lends itself to a set of transferable principles of radical education through the employment of teaching and learning methods that can unlock the status quo of power relation within and outside institutions of Higher Education, and can contribute to a student-centered approach to becoming an architect. At the beginning of this journey, the novice learner needs to be provided with the level-specific set of opportunities to perform the acquisition of reflective tools that are instrumental for iterative leaps into criticality, independence and agency. To scaffold these first tentative steps towards immersed and empowered studentship is not the task of a single teacher or studio master. A wider curricular concern for a collective, critical culture of reflective learning can however set the stage for dialogue as a means of continuously challenging design studio practice in Higher Education and beyond.

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"As human beings, we cannot not learn". An interview with Professor George Siemens on connectivism, MOOCs and learning analytics

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Abstract

George Siemens is a globally-known higher-education expert who created the first Massive Open Online Course (MOOC) ever, together with Stephen Downes. He is Professor and Executive Director of the Learning Innovation and Networked Knowledge Research Lab at University of Texas, Arlington. In addition, he co-leads the development of the Centre for Change and Complexity in Learning (C3L) at University of South Australia. He has served as Principal Investigator on grants funded by the Bill & Melinda Gates Foundation and the Soros Foundation (to name but a few) and is the founding President of the Society for Learning Analytics Research.

In this wide-ranging interview, George Siemens reconstructs his personal history as a lifelong learner and discusses his work, specifically on Connectivism, Massive Open Online Courses (MOOCs), and Learning Analytics. One of the leading thinkers in deepening our understanding on the impacts of technology on higher education and learning, George Siemens shares his personal experience of the utilitarian schooling system in his childhood which inspired him to have different perspectives on the interactions between education and technology, thus leading to his concept of Connectivism as well as his creation of MOOCs. He gives some insights on his seminal book, *Knowing Knowledge*, and elaborates on his perception of "knowledge" as well as the interactions of the four critical traits (diversity, autonomy, interactivity, and openness) in connective knowledge networks. Learning analytics is another focus for Siemens, and this relatively new, but quickly expanding, field can provide insights on the flow of information such as social activities, engagement patterns and a range of other factors that facilitate the quality of the learning experience for students. Siemens further emphasizes the cultural aspects of best practices of teaching and learning and also assessment in higher education. Siemens gives a preview of his future work which will focus on how human and artificial cognition may influence knowledge processes and their impacts on society.

Figure 1: George Siemens (Nardelli, n.d.).

Jürgen Rudolph (JR): I just wanted to say you've been an absolute inspiration to me. Also, personally, because you may remember, it's perhaps seven years ago that I interviewed you for my M.Ed. thesis. You were also very kind in connecting me with Dave Cormier and Stephen Downes, and thanks to you, I interviewed both of them, and Stephen Downes even contributed an article to the *Journal of Applied Learning and Teaching* (Downes, 2018). So, I'm extremely thrilled to conduct this conversation with you today.

George Siemens (GS): Thank you! I'm glad to see there's some background data interactions that we've had in the past so I look forward to the chat.

JR: Could we please start off by asking you a kind of biographical question when it comes to your own personal learning journey? I read in this article by Kolowich (2014) that you grew up in Mexico and that you are from a Mennonite background. Would you mind telling me a little bit about your educational journey as a learner from Mexico to Canada and of course, eventually becoming extremely famous for being the first person to conduct a Massive Open Online Course (MOOC), and being highly influential when it comes to MOOCs.

GS: I was born in Mexico in a small community that was just outside of a city. And the city, or the environment itself at least, was very much a farming community. The focus of the region emphasized heavy reliance on community by virtue of being in a small group and a small cohort of people. There's a lot of interdependence that happens, and it's a kind of interdependence that is interesting, in our age of the current Covid pandemic. You begin to realise that you can act and do a number of things that focus on self-sufficiency. But at the end of the day, we live in systems, we exist in systems, and we are impacted by them. And when we have a breakdown in a system, it has a potentially significant impact, like many systems are experiencing right now.

I just say that by way of background. So, you're always acutely aware in these kinds of small agricultural communities of the nature of your relationships and reliance on one another. You can't make it long without that community and without that network. When I was reasonably young, still, my parents opted to emigrate to Canada. I was maybe five, six years old. And so, I still recall very much living in the farming community in Mexico, and I certainly recall the trip into Canada and getting started with the school system.
What was unique about the Canadian school system compared to what I had been used to in Mexico, was that the schooling in the community I was in in Mexico was very much a utilitarian relationship, which meant it wasn't about the pursuit of knowledge. It really focused on giving people the ability to read and the ability to do basic maths, and it was almost an extension of the church in regard that it was focused on helping. You just did learn enough so you could function, but there was no sort of existential reflection on man's relationship to the universe or the role of humanity in relation to other species. The education was utilitarian.

When you're doing a reflection in reverse, you add meaning to it that wasn't there when you went through it the first time. But certainly, coming to Canada and seeing a very different emphasis in the school system, and much more of a focus on how you think and critical thinking, and the list goes on – as well as at that stage, greater use of technology in the school system – had a pretty significant impact on how I started to see the affordances or the performance capability of those environments.

I started off early on in a range of different sectors, just working, and eventually got into the restaurant industry. And then, over time, I made the shift to a completely different environment out in Winnipeg when I started at a university or school system, a college called Red River College. And that's when I first started in late 1990s, exploring how technology impacts learning. And as a result of that cycle, I ended up working through a Master's degree, and a few years later began a PhD. At that point, I'd shifted to University of Manitoba, and the most of the time or effort in that regard was spent around just trying to understand how and why does technology produce these uneven impacts on the learning experience: the same group of students, the same group of individuals have access to a similar tool set and yet one group of teachers will create a very rich, robust learning environment, and another group will really just treat technology as an agent, if you will. That just replaces what was done in the classroom in the past.

JR: I am quite an admirer of your book *Knowing Knowledge* (Siemens, 2006). I teach Knowledge Management for an Australian university, Murdoch University. I browsed through your book a couple of years ago, but recently I revisited it, and I was really amazed by its depth. It's a very unusual book, I mean this in the best sense of the word. Perhaps we can discuss some of the things in the book. So of course, the book is obviously related to your philosophical approach, which is Connectivism. I think just now when you were sharing your own biographical journey through different institutions and different work experiences and so on, you already highlighted this also in regard to the current virus pandemic that is affecting everybody around the world now. So, you coined this term 'connectivism'. And I think you define it as the process of creating networks. I also watched one of your video lectures where you talk a lot about systems, and systems include machines and people and also hybrids of it. And these connective knowledge networks possess four traits which are diversity, autonomy, interactivity, and openness. I also very much like your Einstein quote, "whoever undertakes to set himself up as a judge of truth and knowledge is shipwrecked by the laughter of the gods" (cited in Siemens, 2006, p. ix). So, could you tell us more

about your concept of knowledge and what it means for your own continual and lifelong learning, and also for the continual learning of your students? And the world overall?

Figure 2: George Siemens in the noughties (Williams, 2008).

GS: A great set of interconnected questions. Initially, the focus of that book was an intent to try and communicate just the sloppiness whereby which we generally understand what knowledge is, and some of the ambiguity that's there. We often like to have very nicely structured, compact definitions. But the reality of it is that there can be a lot of factors that come into play whether or not we learned something. And it seemed that rather than a view that learning is this process where we know and understand something based on having undergone a reasonably rigid experience of instruction and learning and testing, it is the reality that as human beings, we cannot not learn. For literally, that's the point of our brain. And it's busy, aggressively, actively, continually forming connections.

As human beings, we cannot not learn. For literally, that's the point of our brain. And it's busy, aggressively, actively, continually forming connections.

And so, as a result of that sort of experience and recognizing at that point, I was actively involved in a series of conversations with individuals globally. I was already doing quite a bit of traveling for conference presentations, and as a result of that experience, it became quite clear that the way that knowledge was understood seemed a bit of a fool's errand. To try and make sense of knowledge, especially if you look at the historical definitions that go back to Plato's view, it's 'justified true belief' and the thousands of philosophers that have tried to articulate what is knowledge.

I was trying to provide a series of ways of looking at what 'knowledge' might be in the kind of information climate that we exist in today. And by that, I mean, a global network, it's distributed, everybody has a voice, not even experts and non-experts, in some ways, we are given equal platform. So that's partially what we're seeing, say in the US environment now politically, where the vetting process has some value, to have an idea before an idea is broadly made available, that it needs to have been confirmed or verified and so on. So, we were starting to see at these very early stages just the freedom of access, the freedom of sharing your ideas.

From the lens of today, we'd probably focus a little bit more not on that freedom per se, but we would focus more on what are the implications of that freedom that we didn't anticipate. I think there's a view that it's inherently good if everyone can communicate their experiences, their beliefs, their views. What we are finding, though, is while it may be inherently good, not all actors have inherently good motivations. And so suddenly, people who throw out perspectives and ideas that have sort of destabilizing interests, such as foreign actors, possibly being involved in an economy, could be quite significantly negative.

That's from the lens of today. But at the time, it was really just recognizing that all knowledge is essentially a type of recombination from knowledge that has been developed in the past in many cases. And even when someone discovers something new, even that discovery by and large shares the DNA of systems that have existed before. So really, the point being made was that we live in this deeply interconnected system. And when somebody like Steve Jobs, for example, makes an iPhone, he's given credit for making the iPhone. But the reality is, the innovation of the iPhone rested on thousands of individual innovations that had been created in telecommunications, in user design in a range of other topics. So, the broad perspective then is to just say, this is what we're talking about when we mean networked or connected learning or connective knowledge. It's that all these pieces develop, not necessarily simultaneously, but quite often what we're doing is going through a process of, for lack of a better word, combinatorial creativity, which I've heard being described as this process where we create by connecting things that already exist.

All knowledge is essentially a type of recombination from knowledge that has been developed in the past... we live in this deeply interconnected system.

That in some ways is a very good form of creativity to promote, say, to our students when they're involved in our courses, that they can begin advancing ideas and concepts really at the youngest ages. They don't need to be an expert until they begin to join the communication or the creation pipeline. The way that Maria Popova talks about combinatorial creativity, we can get started at really any point and begin to remake new worlds (see e.g. Brainpickings, n.d.).

JR: You were already talking about the notorious difficulty of defining knowledge and I sympathize with the difficulty, or even impossibility, of capturing knowledge just in a couple of words. In your book, *Knowing Knowledge*, you differentiate five types of knowledge, which are, knowing about, knowing to do, knowing to be, knowing where, and knowing to transform (Siemens, 2006). In the knowledge management literature, because of Gilbert Ryle (Ryle, 2009), and Polanyi (1996) and so on, we often talk about tacit and explicit knowledge. So, I am under the impression

that 'explicit knowledge' should be roughly equivalent to 'knowing about' in your sense, and 'knowing to do' is 'tacit knowledge', and we could also talk about 'know who', and 'know why and care why' which is part of a so-called professional knowledge hierarchy. In your book – and this would, of course, relate to your approach of connectivism – you say that in the current 21st century environment, some very important forms of knowledge actually are 'know where' and also 'know who' (Siemens, 2006, p. 32). So, perhaps you can just comment on how your scheme fits into the more traditional, conventional picture of how knowledge management approaches this.

GS: It's a great question because at the core, it relates to: what do the technologies that we have access to, enable us to do that differentiates what was possible in the past? And what I mean by that is when you're dealing with a process of managing knowledge, where publication costs are very high, and you need to have a degree of wealth or access to be brilliant with your ideas in order to get some recognition – that kind of an environment produces the types of traditional publishing experiences that we've seen.

So, you'll see that with Encyclopaedia Britannica at the time, which was the definitive source for this kind of aggregated information about topics. In an era of Encyclopaedia Britannica, the kinds of knowledge that you really need is to take the knowledge that's in the Encyclopaedia and understand it, make sense of it and come to know it in some meaningful way. But if you're in an environment where everyone has the ability to contribute, you produce a different set of affordances, to use Gibson's (1979) language, but you produce a different set of opportunities for individuals. So, it's no longer: if we know the knowledge that I need is in an Encyclopaedia Britannica, or if it's in an academic article, then we just need to find that academic article.

I'll go back to Covid just because it's topical, but in the past, I've used SARS as an example. When the example of SARS first came out, it was a novel kind of an output, meaning people were unsure of what it was, networks of academics didn't know how to understand it yet. And so, as a group of people you had to go through, for lack of a better word, a sustained period of negotiation to understand what is it? How do we treat it? What are the implications? So that's the kind of knowledge actions that are different from if you just have the answer already, and you just need to find the answer because you know, it exists. And I would argue, more and more of the challenges that we face as a society fit into that environment, they fit into this space of 'the answer doesn't exist', and we need to collaboratively discover it.

When you need to collaboratively discover something that's uncertain or unknown, then you have to spend a lot more effort on the architecting of the network in such a way that the network can connect with each other, meaning people need to be able to discover each other. More recently, we found a key knowledge activity and today's age is also about being able to ensure that this information doesn't come in navigating disinformation, navigating abundance, and the list goes on. So, to get to your question, really, in a broad way, it's to say that the kinds of knowledge that exist in a society are going to be heavily related to the kind of opportunities that exist for members of society to engage in knowledge-related work. And as a result of that kind of an output, we need different skills today, because we don't have the same guidelines or approaches that we might have had 10, 15, well, maybe 30, 40 years ago, where we just needed to find the person who knew the answer to the problem that we're asking. So, I think, today, it's about: are you able to not just access a distributed network of expertise, but do you have the skills to navigate contradictory opinions, false information? Do you have the ability to exhibit like I said earlier, combinatorial creativity when you're taking multiple sources and to be able to create something different? As we get more and more into the space of AI in the learning process, then we also need to look more at what is the essence of being human in that kind of setting and what are the implications of that, and the list goes on. So, it's really the knowledge practices that changed the most when you get into a world of global connectivity and global access to all kinds of information.

The kinds of knowledge that exist in a society are going to be heavily related to the kind of opportunities that exist for members of society to engage in knowledge-related work.

JR: That's a great comment. So, we were talking about the definition of knowledge earlier. When I discuss the concept with my students, I always tell them if you just want to have a very catchy and an easy to remember definition, it's 'actionable information', because it's just two words and everybody gets the idea. So, we are surrounded by that unbelievable amount of data and then we try to create some structure which perhaps we can call information. But then there's the question what's the difference between information and knowledge? And perhaps it's the usefulness that we can do something meaningful with this.

Now for my last question that very directly refers to your book (Siemens, 2006). You basically say 'doing is more important than knowing', that knowing is kind of incomplete if there's no action item. This is in the final part of the book, you talk about the Connectivism Development Cycle that includes five domains. Part of this is the personal knowledge plan. This is part of the third domain on page 134, which is the adaptive knowledge and learning cycle. Could you elaborate because it sounds really great? At the same time, organizations are quite adverse to change. I'm curious what are your experiences with this? And, of course I'd be very curious to find out more about personal knowledge plans because it sounds extremely useful and important, because earlier you were saying – at least that's how I interpreted it – we are surrounded by a lot of nonsense. When we go on the internet, there's an unbelievable amount of half-truths and 'fake news', to use the term. And President Donald J. Trump has been saying that the mainstream media are fake news and the enemy of the people (Smith, 2019). So, it's quite interesting. And I think managing our knowledge has probably never been this important as it is now. So how do your models help with that on an individual basis and also on an organizational basis?

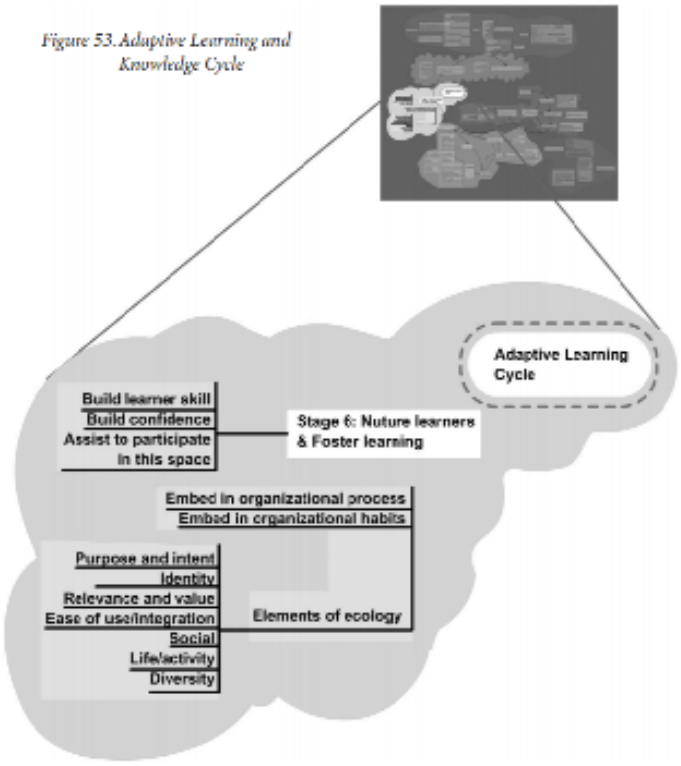

Figure 3: The Adaptive Learning Cycle (Siemens, 2006, p. 135).

GS: The difficulty with especially that section around the development cycles with learning and knowledge and connectivism is that, if you have to change the entire system in order to sort of produce the impact or the output that you want to produce, it takes a lot longer. And that means that people who are perhaps even somewhat in agreement with what you're saying, you're fighting against a system.

And so, one that I still feel is that the text does not amount so much to a theory of learning or a theory of knowledge specifically, because the context matters so much. It determines which elements are salient in a particular set of courses. So just as an example, let's say, I'm a student that's going to university and I come from a low socio-economic background: the way I'm taught, and the type of information that I come in contact with, is not necessarily the things that will make the most impact in my academic success. A lot of it will have to do with my background and a range of things that are related to my background. And so, context matters a lot, but we don't really have a meaningful theory of context in a way that we can sort of make sense of it. Because it is so sloppy and messy and there's so many variations of what context could be or what it could actually end up looking like. So, I think that was one of the angles, I was trying to just emphasize the definitional challenges of doing knowledge work in this regard. For learning, there are a lot of really complex integrated pieces there, and determining the right context for assessment evaluation is what almost matters more than anything else.

We've started almost all of our teaching and learning practices in formal education from a perspective of 'I know what you need to know'. So usually, when you begin developing a new course, you might have a group of academics that will come together with the learning designer. You'll pull together the course material, might bring in expert panels from industry to make sure that you've got the topics properly covered, and then that's what ends up sort of becoming your main curriculum or your outputs. The difficulty with that is, like I've already said, the context may matter a lot for the individual student, it matters for the different personalities that are involved in taking that particular course or the content. As a result, the way that you promote knowledge is to put greater emphasis on the individual, greater responsibility.

So, you can't expect an algorithm to identify all sources of false information. But if you begin to train individual students or individual members of society to make sense of information, then you may have a better outcome of solving that particular problem. The emphasis then of personal knowledge, and personal knowledge management, and personal knowledge plans, is that you begin to recognize that the way that you interact, and the networks that you're a part of, are critical to your overall development or the sophistication of your understanding of a particular subject area.

That's where the emphasis starts to become much more significantly oriented toward: what it is an individual is doing, the capabilities that an individual has, and how we've developed an individual's skill sets to navigate these kinds of complex digital landscape where you do have intentionally false information being shared by actors who have a particular outcome that isn't about overall student success or student quality of learning and so on.

JR: When it comes to these plans, the personal knowledge plans, I guess they could be short term. So, let's say I want to learn how to use certain software, then that could be part of my multi-year learning plan. So, do you have something like a vision of yourself or the person who is creating that plan? Or is it forever in flux? Do you create a record of this?

GS: Well, so it is forever in flux, obviously, especially now that we're seeing a lot more attention being paid to this idea of reskilling. The labour market changes, new skills are required. So even that is part of it. Rather than necessarily a discrete or even a static plan. I think the point is to recognize that there are very specific kinds of needs that people have in their general experience of learning. That often requires that we are willing to develop our skills such as self-regulation, we're able to develop sort of a goal orientation mindset to the kind of curriculum that we want to interact with or that we want to connect with.

So, it's really about strongly promoting the view that we are untethered from the constraints that we've perhaps had in the past. If you have a topic area that doesn't make a lot of sense to you, you can go online and find a series of YouTube or related lectures, open online courses that have done similar work, and the list goes on. So, the focus then becomes much more around the parts of the learning experience, that we as individuals are able to control ourselves and the kinds of attributes that are going to enable us to be effective. So what I mean with that is it's not that we have a discrete plan of learning that's constant all the time, but instead that we have some attributes that promote goal orientation that

promote our ability to track our progress toward a goal that help us become effective in a range of work environments or work settings. Based on the things that we do, rather than waiting on a broad set of guidelines from an expert, or even us having planned and done everything in advance, if that makes sense.

JR: That makes sense. So, for instance, many universities come up with graduate attributes. So, for instance, they would say, we want our graduates to be critically reflective and creative. I think these are very good attributes that would also be probably in line with what you're saying, that we are able to critically evaluate information. So, we don't believe everything and we can sort of differentiate what is, to use that tricky word, 'scientific', and what needs to be triangulated or contested and maybe verified?

GS: Absolutely. This is precisely what you need to do in terms of being able to develop the skill sets and the mindsets that you could call metacognitive processes. There are other terms that can be used to describe them, especially today we're seeing a significant rise in the use of words that relate to soft skills. You know, World Economic Forum has put together a document that says these are the kinds of attributes that people need to be successful, and there's a range. They're typically not listed as being the key criteria of what you learn in a university program, they focus more on what you become as a result of the university program: in your ability to collaborate with others, work with others, identify false information, the ability to receive feedback, provide feedback, the ability to think in a range of different ways, communicate with a range of different audiences. Those are all the kinds of approaches and skills that are needed. This isn't to say that content knowledge or traditional academic knowledge is not needed. It's just to say that it's a much different world than it used to be. And there's a range of interconnected skill sets that you need to have in order to be successful in this kind of an environment today,

JR: Absolutely. I very much like the term metacognition. So, I think that that is probably the one word that encompasses a lot of the thoughts. So, if we know how to learn and if we know how to know, I think that would help a lot.

GS: Absolutely.

JR: My next question is, of course, very much related. I'm really amazed at all the things that you do because I also read that the National Institute of Education (NIE) in Singapore hosted you as the 14th CJ Koh Professor in October 2019 (NIE, 2019), and currently you are in Australia. And you're in Texas. It's wonderful talking to you because you have all these experiences, the different continents with different types of learners. And there's a cultural element of course, which would make some difference. So, what's your view on how can education systems encourage more creativity, innovation and connectivism? There have of course been - for instance, in the 1970s - some alternative approaches like Paulo Freire, *The pedagogy of the oppressed*, and Ivan Illich with his *Deschooling society*, and things like that. And when I last had the honour to interview you, we were also talking about disruptive innovation (Rudolph, 2014). And I remember that you don't like that word because it doesn't really translate all that well to education. Do you see any disruptions in higher education that we should all sort of prepare for?

GS: There's always the trends that are immediate, and then the ones that run a longer cycle. So, the ones that run a longer cycle, we've seen them coming for decades. They're the growing use of technology, the digitization of society, those we've seen coming for a long period of time. There's now, for example, a lot of universities that are closing, in terms of moving exclusively online with their students for the short term because of the pandemic that's confronting society. But that produces for all of us a very challenging kind of an environment where we have the longer-term trajectory of technology development and adoption, which is disconnected from the education system. If we didn't have universities for teaching purposes, those technologies would have still been adopted, right?

We often appropriate those tools into the university sector. The use of mobile phones increases in societies, we bring mobile phones into our classrooms. We at least experiment with them, and so on. Then there's the ones that we develop distinctly within our university settings. And this is something where people like Paulo Freire and Ivan Illich and others really emphasize that these systems that we're a part of, they're not neutral, they sometimes favour certain people at the expense of other people. And if we want to really make an impact on society, we need to evaluate the systems that we're a part of, and it's an important element of it. The same holds true if we want to see how technology is biased, especially with the growth of AI and other tool sets, how they may identify certain races or certain nationalities for unfair discrimination, even though it might not have been intentionally built in. It's the impact that it has.

So that is from the university sector, what is the trend coming? There are really a lot of emphases. Now I would say that takes a far more serious stance on how we are going to do a better job of making the kinds of knowledge systems that matter to all members of society, the traditional voices that have been sort of marginalized, in some cases intentionally, in other cases, just as a by-product of how society evolves. So, what I mean from that lens, then, is to get to your question around what emerging, what innovations matter and so on. Equity and fairness and access for all people to the university sector is a critical angle.

Technologically, the move to digitization has been going on for decades, and it's still ongoing. But with Covid right now, it's accelerating the adoption really quickly. So, you have the longer-term trend, and then all of a sudden, you have this very rapid acceleration. That's not really due to the maturing of technology. But it's forcing a cultural shift in our society. And that's certainly one of the bigger challenges. There's a lot of additional things happening. I'm sure you're aware of all the buzzwords because you're in the education field as well, everything from blockchain to the growing influence of AI to a list of other tools or technologies or concerns that are coming up on the horizon. So those are still certainly there.

The bulk of our challenges right now aren't technological, the way that they may have been in the past. I think the bulk of our challenges right now are much more centred on the cultural aspects. How do we evaluate the things within our current system of higher education that we want to preserve in the context of the society that we're a part of? So that's why we're seeing such a big attention to, to non-knowledge-based facts. We're talking about the environment, the climate within our university, we're talking about the people who have access to higher degrees of learning and so on, because that's a broader reflection of society. And obviously, universities don't exist in a vacuum, we reflect at some level what's going on in society. In the U.S. context, we've had a range of end-user-led social movements, whether it's Black Lives Matters, or whether it's things like #MeToo. What it's doing is, it's drawing attention to the fact that there are systems, there are parts of the system, that work for certain people, and certain races, in many cases certain genders even, that don't necessarily work for others, and now there is a concerted effort to try and recalibrate that.

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So that's what I mean when I say the technology trend is ongoing, long-term. We've had Covid push it up higher. But the current thing that's most significant that we're facing is the cultural shifts to realign the university toward fairness and equity and so on, toward all members, and that's going to take us a generation-plus to absorb as a university system.

JR: I think you have also commented on one of the perhaps more careless comments of Sebastian Thrun when he was predicting the end of universities (Watters, 2013). So perhaps we would say that universities are changing very quickly, also forced by external circumstances like Covid. But there is still a future of universities. Probably also because there will be many more people in the future, with the global population growing, who want to actually go to universities as compared to in the past? So, universities will probably look very different in the future. But there will probably be more universities rather than just ten?

GS: [Chuckles.] One of the things that a lot of educators found upsetting – seven, eight years ago, when there was this big push from Silicon Valley – that people who had never really taught formally in the university sector were very eager to announce the new era. And people like Sebastian Thrun and Clay Shirky and others ended up expressing opinions and views that now seem very childish in their insight. We have the benefit of the lens of today to look back at it. We recognize that universities, or education in general, are an interconnected system. It's a system of systems, you can't just make one change and expect all the other pieces to realign to it.

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That's why the cultural dynamics, that I was just mentioning, around making sure everybody has access to learning, everybody has an opportunity to engage in learning, are so intractable because we can give people technology, but that doesn't necessarily correct some of the underlying social challenges that exist. Now with that said, I do think there was a positive legacy in some regards to the Silicon Valley interest in Massive Open Online Courses (MOOCs) and online learning and so on in that it helped force the Academy to somewhat rethink itself.

In some cases, early universities that signed up to Coursera and edX, they've benefited enormously. To experiment with technology in a way that they might not have in the past. The University of Michigan has been one of the best leaders in this regard. UCF [University of Central Florida] has been fantastic. There's a number of universities like Georgia Tech that have really advanced their programs. And all of those can be based back into their early attempts at large-scale learning online, or at least online learning in general, by partnering with Coursera or edX. Where that becomes more difficult is that their online medium is a unique space. You can't just take content that you taught in a classroom and drop it online and expect it will be effective. You need to do a range of other things to try and make it work and to try and make it have an impact.

That's where I think the early sort of provocateurs that were telling us how the university is different and it's a new reality, ended up being so completely wrong because they didn't see that the university was a system of systems. They didn't see that culture mattered a lot. They didn't see that capability development preceded broad scale deployment. And they also really missed the value of social systems and social interactions as part of the learning process. So, what I mean with that is you see that now there's a greater shift more and more towards more social learning, more collaborative learning, some of the metacognitive attributes that we were just chatting about. And if you look today, where the early initiatives that were going to change the universities, where they've been prominent, they've actually been most successful in the corporate learning space – the space where you have adult learners that maybe need expert service or some discrete names in a specific area of focus before they can move on. That's where I think they've had their biggest impact.

JR: I'm sure you've been asked to tell the story of the first MOOC that you were masterminding many times. But would you mind telling the story? What made you do it in the first place? And what happened thereafter? And what's your current research on MOOCs and what are your current views? You were already highlighting some universities just now. So, there must be some good stuff around.

GS: Well, to give you the background to the first part of your question, I was actually in Memphis with Stephen Downes,

we were at a Design to Learn conference and I met him in the lobby, and we were just chatting, and we were just talking about some of the trends at that point that were going on in the university sector, and a big one obviously, was the curriculum there. At that point, we had the MIT OpenCourseWare initiative going, David Wiley was doing quite a bit of work around open education resources. And so we thought, well, 'what if we tried to do for teaching what these universities had done for the curriculum?' Like, there's no reason why we couldn't teach this stuff online, at scale, right? And we thought, well, 'let's run this', it didn't have a name at the time, we just thought we'd run an open course where anybody could access. And we ran at University of Manitoba. And this conversation happened earlier in the year [2008], probably May or June. And then we got to the few other people who had run open courses up until that point, and we had a meeting in August to discuss what could this look like, what might this look like? And I'd already run a series of courses that were open on Moodle at the time where we were just an icon, like a mini conference, you'd spend a week discussing a particular topic of interest and then you would go and evaluate to do some kind of a summary and go on, rather than a formally structured multi-week course, I'd been doing it with a short run. Stephen [Downes] had some software that he had developed over time, Grasshopper, and a daily newsletter that he still runs (https://www.downes.ca/news/OLDaily.htm). And then we decided to use that as sort of the central approach. And we would distribute the interactions across individuals, blogs or social media at that point. Twitter was still not extensively used. I remember somebody created an entire room or place in Second Life for it as well, because it was more prominent at the time. But that's really how the first course was started, and we just announced it.

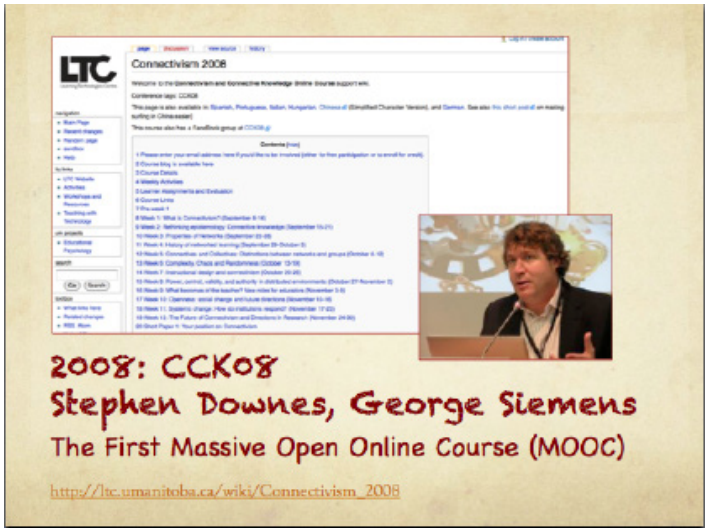

Figure 4: The first MOOC: Connectivism and Connected Knowledge (CCK08).

By today's standards, we didn't have a huge impact. We had 2,300 students. Now obviously, you can have hundreds of thousands or tens of thousands at a minimum, and it is not uncommon to be taught in that kind of an environment. So that's really where we went and started and ran. And by and large, I thought it was quite an effective approach to get the conversation going. We kept running a large number of them, we ran about three, four or five courses at that stage. I was at Athabasca by that time. So, we ended up running a course on Learning Analytics, which was a conference that we had just started at around that time. So, we had that particular program going, and we ran the course on personal learning environments. So, we ran a number of them. But then, of course, as the Coursera initiative started, that's when it really opened things up. And then the New York Times requested an interview on this kind of distributed environment, and Dave Cormier and Brian Alexander, who had actually coined the term, 'Massive Open Online Courses', were the ones that were most prominent. We initially gave it the name, if you will, and it's sort of stuck, and that's how we got to where we are.

JR: At present, I believe the Gates Foundation has given you some grants to do research into MOOCs. So, what would be your current assessment of MOOCs, their usefulness and their state of affairs?

GS: The big shift has been, they've become a little more utilitarian. They've focused on teaching and learning from the lens of a particular need, which is why the corporate interest in MOOCs is so high, being able to give your employees an opportunity to reskill. Because reskilling is a huge knowledge need that corporations have, for individuals who've maybe been working for a decade or two or more, and now they're given an opportunity to sort of restructure or reset their skill set because of the different technologies that have advanced since they were perhaps in the university sector themselves.

The interest in the research that's currently prominent and relevant in this space. There's a lot that really gets at a couple of the sort of nuanced elements of teaching, learning and ultimately, the ability for you to develop your skills as needed. So, what we've seen with courses, they've gone from 12- to 16-week MOOCs. They were initially short MOOCs, they may run several weeks, two, three weeks, for example. We've also seen a big interest in the idea of stackable degrees or stackable credentials, where you could take a few courses that could then ladder into a Master's with university, both Coursera and edX have comparable programs. There's a way that they're treating the course environment as a lead into that more broadly.

The opportunity for data collection hasn't expired, but you can only get so much insight from clickstream data. You have to look more explicitly. How do you design the learning experiences and the learning opportunities for longer term impact with these kinds of courses? Because that's going to make a much bigger difference in terms of your ability to do quality research down the road. That means you need to pay a little more attention around the psychological attributes of the learner population. You perhaps need to pay, when you're doing research in this area, a lot more interest to the design principles that impact how you've structured your particular set of course resources that you're using. Because if you haven't designed it in a certain way, you may not be able to access the kind of insight that you might want to be able to get out of the particular courses that you're running and so on. The other aspect is that the interest in

MOOCs per se has morphed into a broader interest in online learning. And the broader interest in online learning just really focuses on not explicitly large-scale courses, but it can focus on smaller environments as well. It doesn't need to be the huge course environment that we're currently talking about.

JR: Are you still conducting MOOCs? Are you even taking some MOOCs yourself as a participant?

GS: Always taking them, absolutely. There's a few that we did. Two years ago, we did a group on learning analytics that were done on edX. There's a program on edX that Dave Cormier and I are going to start in mid-April. There's going to be a course on edX on teaching online, given the current interest with Covid and the concern about what that means, that'll start within about a week's time (Pivoting to Online Teaching: Research and Practitioner Perspectives).

In spite of some of the negatives that have been discovered around the environment, namely the low completion rates and so on, it is still a very effective way to provide opportunities for a group of individuals who have a particular topic of interest that they may not readily be able to get insight into in their own universities.

Figure 5: George Siemens' latest MOOC.

JR: Just now you already mentioned Learning Analytics a couple of times. Would it be fair to say that, apart from the MOOCs and connectivism, that is another area of focus for you? And what's your view on Learning Analytics? How do you make use of it and what's the major purpose?

GS: Learning analytics. You could trace the currents to what happened with the web in general. You had many years of development of the Internet and the use of web technologies before people really started recognizing that the data that was being generated by people interacting online could provide you with novel insights, say, new products that you might want to develop or new ways to support your users. Around the early 2000s, there was some work that came out of EDUCAUSE that called it 'academic analytics'.

It was really targeted sort of at the VP IT level or the CIO level of an institution, it would be basically the equivalent of business intelligence, meaning you just want to use institutional data to better understand how to, in this case with EDUCAUSE, utility-use on campus, room allocation and so on. But then, by 2008, 2009, 2010, there was a big increase, partly driven by a small cluster of the big companies out of Silicon Valley, Yahoo and Google. Yahoo - they don't matter that much anymore. But Google and a few others that were deep into web technologies, were starting to take the data that was being generated as people interact with their system. And they were starting to add better computation capability, better data collection, better data storage, different approaches to how they managed databases, and suddenly they were able to start gaining insights from these growing data sets that would help them better understand their users. Now, around that time in 2010, 2011, we're becoming aware that when you teach in MOOCs, when you teach in online settings, even if it's in a university course using Moodle or something else, you're getting some data trails that might indicate social presence of the individuals in a course you might be able to gain insight into, or to build what you'd call sort of derived measures such as engagement patterns by looking at multiple data points. You could form networks that indicated who contributed when and how information flowed, and the list goes on.

So I think that's really with the development of digitization, the large scale development of MOOCs where you suddenly had 100,000 students clicking in interacting with content and you could start to ask a number of questions around the profiles of students, you could ask questions around the social activities, the engagement patterns and a range of other factors that eventually gave researchers some insight into how data might support improving the quality of the learning experience for students. So, I think that was the sort of the trajectory of how learning analytics developed in prominence. And now, I think, the most prominent organization in the learning analytics space, Society for Learning Analytics Research, they're having their 10th year anniversary this year and they've got a journal set up, it was just recently formally indexed.

It's really been a field that in spite of being 10 years old, has really had a significant impact rapidly, and seeing the number of programs now that are offered as Master's streams. University of Texas recently had a Master of Science and Learning Analytics announced. Colleagues like Mia Dowell out of University of California Irvine and people like Ryan Baker out of U Penn [University of Pennsylvania], Charles Lang out of Teachers College [Columbia University] are all either working on a series of courses in Learning Analytics or need to develop specific programs. In Australia,

there's probably the biggest concentration of learning analytics people at the Centre for Change and Complexity in Learning (C3L) here at UniSA [University of South Australia]. Colleagues like Dragan Gašević out of Monash or Simon Buckingham Shum out of University of Technology Sydney, there's a lot of work that's happened in really quite a short period of time. That is If you look back at it from the lens of today, it exhibits a surprising amount of surprising speed of development, if you will.

JR: That's a brilliant overview and gives me quite a quite a to do list to follow up on some of these things. And also, thanks for highlighting the MOOC that you will do. I think I will definitely sign up for that one. So, I think you are also concerned about some of the ethical and privacy issues that might arise. And earlier you were saying that there are some actors who are not so well-meaning when it comes to connecting with people. So, how do you address these kinds of challenges when you do learning analytics?

GS: So with learning analytics generally, if you sort of develop your own courses within a university setting, you're able to build in some of the key assessment questions that you might want to know about learning and learning performance, even assessment support or pathways through a set of courses and so on. There's less of an issue of sort of bad actors in that kind of a setting.

But if you have a secondary approach, such as you have a group of individuals who are trying to quantify the learning experience… - and like I said earlier, I think what's probably most needed is a theory of context in the learning space, because context matters significantly in terms of the results that we get and the outputs that we're actually working with and are assessing. So, from that angle to try and promote or assess how we do a better job of addressing that aspect starts to become quite significant.

Fortunately, within the specifics of data, we're not talking social media, where bad actors can manipulate and engage in various inappropriate ways to, say, move a conversation politically. In a university environment, most of the data that we're dealing with doesn't have that same capability for manipulation, because it's in a learning management system, it might be relating to course engagement, it might be related to eBooks or a range of other things that you're doing. So, you don't have quite that output.

But as you might have seen recently, there was this big uproar with what happened to the data that Instructure has access to as a result of being one of the largest learning management systems in the world. They're cloud based, which means they have all of this clickstream or interaction data from tens of millions of students and what are the ethical implications of that? I think that isn't a unique problem to education. Everybody, every company, is looking at what are your privacy rights? Germany has certainly taken an aggressive approach, Europe in general, with GDPR [General Data Protection Regulation], and others are taking an aggressive approach to how they respond to this. And so those are the kinds of questions that aren't unique for higher education to solve. Much like I said earlier, there are certain things technologically that we import into the university, such as mobile phones or web-based technologies that are used in society. I think a lot of the issues around privacy and ethics with data and with analytics aren't going to be solved by the universities themselves. They're going to be solved by importing and reflecting the solutions that are common use in society more generally, in relation to technology use.

JR: You emphasize in your book and also just now the importance of context. So that's why I'm wondering if it's even possible to answer the question. So, the question is, do you have any views on what constitutes best practices of teaching and learning and also assessment in higher education? And I'm a little bit worried that you may say 'it depends'. But how would you respond to that?

GS: We do know, in higher education, much more than we actually practice. Part of the problem for things that we do know like best practices not being adopted is because, like I stated earlier, it's a system of systems. Ideally, if we had small student numbers with greater numbers of faculty, then good teaching and learning is relational. At the end of the day, especially at an undergraduate level, when you're transitioning into university at a graduate level, when you're becoming more nuanced in the academic discipline: those kinds of connections that you have with the people that you're working with, with researchers that are world leading experts and so on are critical to the cognitive and emotional development of students. So, I think from that end, we know a lot more than we practice. We know the importance of that relationship. We know the importance of a sort of a culture of care and concern for the individual students, making sure that people feel a sense of belonging, all of the fuzzy kinds of words that are quite important for students to succeed. Not all. Some students require very little sense of assurance and support, and others require much more. It's just recognizing that there's different profiles that are there. We also know a lot more than we practice about how we want to promote curriculum and optimal learning. And what's the role of goal orientation? What's the role of self-regulation? How do you take a student and give her an opportunity to feel a sense of community with the kinds of people that she might be learning with? And the list goes on.

So I think best practices really are those at a very broad level that affirm the value of human beings, that affirm the value of students, and the value of that relationship between the expert, namely the faculty member and the student because that's how these kinds of environments or these kinds of learnings are optimally communicated. There's a SEC report that's done now in the United States that looks at student engagement. And one of the big factors that they emphasize is the quality of the faculty relationship with a student is critical. Some work that Vincent Tinto has done as well, that addresses that when you have that kind of connection to university, it makes a big impact in terms of the students' longer-term success. I think this relates very well to topics you asked about earlier, relating to connectivism. It really starts with the quality of the relationship between the student and the faculty member and then over time, the quality of that student's ability to explore new topic areas by connecting them to new concepts based on things that they already know.

It really starts with the quality of the relationship between the student and the faculty member and then over time, the quality of that student's ability to explore new topic areas by connecting them to new concepts based on things that they already know.

Now, to the second part of the question, which is assessment, I think this is a difficult one because assessment plays a different role in the university than many of us are aware. What I mean is assessment is about evaluating, in many cases, sorting students into different buckets. It's not so much explicitly assessing their learning. There have been a number of examples. Harvard has their private universe. About 20 years ago, they discovered students graduating Harvard had fundamental scientific misunderstandings. MIT had something comparable, where they had graduates at MIT being unable to light a light bulb with a wire, a battery and a bulb. They had passed. They had met all the assessment needs, but they hadn't learned fundamental core concepts. And so that's the difficulty with assessment. Assessment is as much an evaluation of teaching as it is of the individual mastery of students and what you're mastering, what you're assessing, in many cases isn't what the student knows because they had a number of errors that have crept in, like the private universe and the MIT study indicates. What you end up with instead is individuals who can jump through assessment hoops, but actually haven't learned the material.

What you end up with instead is individuals who can jump through assessment hoops, but actually haven't learned the material.

JR: Any advice on how to make this better? Maybe having authentic assessments?

GS: I think a large part of it has to do with the saying I have used before: technology creates problems that only more technology can solve. And what that essentially means is that as we bring more students to the university sector, we provide them with better opportunities to learn but you have larger class sizes. It's no longer one faculty member for 20 students, you might have 150 or 200 students. So then, to solve that, you have options: you either reduce the size of your classes, which is not a realistic expectation, or you end up having a completely different transition to where you end up having to take advantage of approaches like learning analytics and so on to do a better job of assessing and evaluating students across a range of different approaches.

JR: Absolutely. Would you like to share with us what you're currently working on? My perhaps very superficial impression is that you like to work on many different things? And you don't want to be stuck in a certain area. So, what are you currently working on, any plans for the future?

GS: That's a great question. I think on the broad level, I'm interested around how human and artificial cognition influences knowledge processes and how that impacts society. That's essentially looking at, until now, we've largely had this view of human knowers. Even when we talk about a knowledge network, we assume a human being. And I think, increasingly, that's not just going to be human beings. There will be artificial agents or AI models that will be part of our thinking process as a whole. That's going to be a key area of interest and where I'm devoting quite a bit of time focusing on right now. Also, I'm very interested in some of the psychological or cognitive dimensions of learning in digital settings, that's looking at AI and trust. For example, do we trust algorithms in the knowledge process? We're focused on group and collaborative processes, and what's the effect of being in certain kinds of networks? And if we are in a suboptimal network for learning, how can we change it? Same thing with sensemaking, I think how do we make sense of the world around us is increasingly important. Because it's a little different from learning the way we understand learning, but most of what we do each day is we try to make sense of the things that are happening around us and what does that mean and what's the longer-term impact of it? And so on. So, we spend quite a bit of time looking at least at some of those specific areas and then, of course, the ongoing interest in being in learning analytics and how we better assess, evaluate and support students when they're learning, especially in digital environments.

JR: Anything else that you would like to talk about?

In many cases, as people use more and more technology, there's less and less humanity...what do we become when we use technology extensively? And do we like what that is?

GS: Not really. We covered a pretty broad swath. But I do think that there's a fantastic opportunity that we face as a society for increasing the use of teaching and learning through these digital kinds of settings or digital environments. And I think that's going to have a tremendous long-term impact. But we do have a real need to be aware of: what we are losing in that process. And in many cases, as people use more and more technology, there's less and less humanity. And I think that's going to be a key problem for researchers, academics and others to focus on. Not so much: what can we do with technology? But: what do we become when we use technology extensively? And do we like what that is? Because if you look at it in 2003, 2004, 2005, social media, called web 2.0, was just starting. There was a lot of really optimistic perspectives on the value of everyone having a voice and the value of us being connected. But today, there's a lot of pushback, saying 'we actually lose a lot in this environment, we lose a lot of our humanity, we lose a lot of our ability to hold people accountable'. People can become mean and vicious online, even though they can be very polite and kind in person. So, there's a dehumanizing aspect, and the list goes on. So, I think there's a lot of core questions that we have not answered to date around the human impact of these technology innovations.

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Zeetings review: The mash-up of powerpoint and polling

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Abstract

Zeetings is a relatively new tool in the rich world of Educational Technology (EdTech). It combines the standard features of a slide platform, such as PowerPoint, with online polling functionality, such as Kahoot! I began using Zeetings after feeling stifled by the passive nature of my online academic professional development sessions. I wanted to create more engaging lessons that allowed my academics to enjoy deeper learning opportunities. I present two case studies of professional development sessions at Kaplan Business School using Zeetings in two different pedagogical ways – live and flipped. Anecdotally, the academics who participated in the workshops enjoyed using the tool. From a facilitator's standpoint, Zeetings appeared to provide them with more quality engagement with the content. Embedding formative and summative polling activities throughout the session increased participant engagement and gave me the opportunity to tailor my session according to the responses received. This allowed me to provide just-in-time feedback to my participants which offered them deeper learning opportunities. Zeetings is an easy to use product that achieves its aim of creating enriching and active learning experiences.

Introduction

What do you get if you mix Kahoot! with PowerPoint? You get Zeetings. Zeetings launched in Sydney in 2015 (Zeetings, 2015) and sits as a relatively new product within the rich world of Education Technology (EdTech). In episode 294 of the Teaching in Higher Ed podcast – '25 years of EdTech' – host Bonni Stachowiak and guest Martin Weller explore how this exciting space has grown over the last 25 years, since its radical beginnings in the late '90s of asynchronous learning, student-led learning journeys through hyperlinks, and network creation through blogging (Weller et al., 2020). These trailblazing learning tools came about from a simple question: "how can we construct knowledge differently?" (Weller et al., 2020). I was asking a similar question when I first came across Zeetings. I was looking for inspiration to create more engagement in my online academic professional development workshops. Being an active classroom facilitator, I was feeling stifled by the constraints of online delivery, so I was intrigued by the Zeetings product. Combining the features of a regular slide-based presentation with the interactivity of an online quiz, it offered me the chance to transform my sessions from passive to active learning experiences. Following is a summary of the product and how it can facilitate sound pedagogy, a personal account of two case studies using Zeetings, and some suggestions for further classroom application. This review is based upon my own subjective view of the success of these workshops, rather than from a formally conducted study. However, I share these positive experiences with the sincere hope that you will be inspired to experiment yourself with Zeetings and perhaps conduct your own analysis in the future.

Zeetings is a tool that increases audience participation by "leveraging each participant's connected device… [getting] everyone involved… [giving] everyone a voice, and… [providing] presenters with unique insight into what each person is thinking" (Zeetings, 2016). To unpack that further, I think Zeetings ticks three important boxes of a modern active learning classroom. Firstly, it leverages participants' addiction to their personal devices by having it work for you, not against you. This is the 'if you can't beat them, join them' philosophy. Secondly, it helps you to efficiently gain whole class engagement – including the reserved members, which would ordinarily require you to pull out all your facilitation skills. Finally, and perhaps most crucially for achieving your lesson learning outcomes, it provides you with formative and summative data collection with which to tailor the lesson for optimal instruction.

Zeetings is free for Educators and Non-Profits but offers for-profit businesses a four-tier pricing plan. It has an intuitive design, with an easy to use dashboard. Although you lose features such as PowerPoint's voice recording and slide transitions, you gain more interactive features that support gamification. For example, each new slide can be text-based, a poll, a quiz, a survey, a word-cloud, or a multimedia page. You can also upload your existing PowerPoint slides, PDFs, or Canva files, directly into Zeetings so that you can embed these more interactive pages within your existing presentation. I have found this latter method makes for quick and easy conversions of existing resources from passive to active versions. Once you have created your resource, you can send your participants

the weblink for the presentation view of the page. Your participants can engage in your presentation synchronously or asynchronously. This allows you to facilitate interactive learning activities live within your session or use it in a flipped learning manner by having the participants complete the activities before the lesson. Similar interactive learning opportunities can be found in other quizzing products. For example, Kahoot! is the better product if you require a simple, fun, online class quiz. Standalone quiz platforms, such as Kahoot! and Socrative do have greater quizzing features. However, the combination of a presentation slide desk with embedded quizzing elements, makes Zeetings unique. With Zeetings, you can combine content and facilitate deeper learning opportunities in the one product.

Creating these deeper learning opportunities aligns with the company's goal to "transform presentations from one-way monologues into two-way conversations" (Zeetings, 2015). It is this mention of 'conversations' that inspired me to use the product because the learning benefits of having a two-way conversation with our students and workshop participants are well supported by learning science data. Gamification in online learning has been proven to increase motivation for learning and higher quality learning outcomes (Tan et al., 2016). In a recent study that assessed students' views on one gamification example, in-class, online polling activities, it found the students had an overall positive feeling towards these learning opportunities in three areas of study: behaviour-related engagement, emotion-related engagement, and cognitive-related engagement (Noel et al., 2015). Specifically, students who used the online polling during their lessons reported four positives: an increase in participation due to the anonymity of the exercise; increased enjoyment of the lesson; a deeper connection to the class; and an increase in understanding of lesson content (Noel et al., 2015). It was with two goals in mind: increased motivation for learning and better-quality learning outcomes, that I incorporated Zeetings into my online academic professional development workshops.

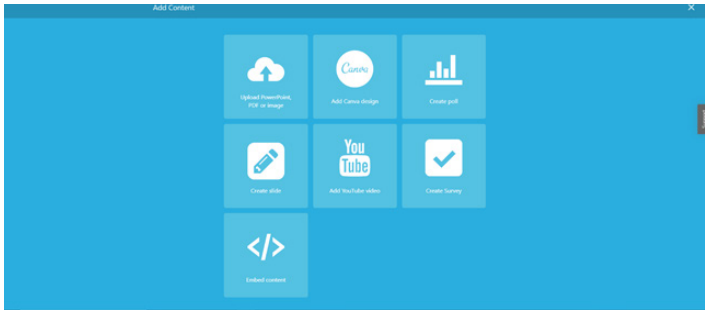

Figure 1: Adding content to your presentation - selecting an interactive slide.

Case Study 1

My first professional development workshop using Zeetings was held online, using Zoom, in September 2018. The topic was 'problem-based learning' and was open to any academic to attend. My primary goal was to introduce this method of instruction to my academics. My secondary goal was to introduce them to Zeetings. There were two reasons for this. Firstly, I simply hoped that they would

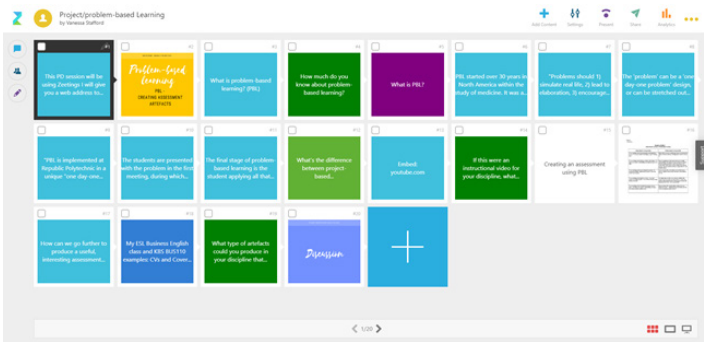

Figure 2: Your slides displayed in an easy to manage format.

be more engaged during the workshop. However, a more holistic reason is my desire for academic professional development sessions to help our Academics to be agile and adaptive in today's age of EdTech pedagogy. Many academics engage in online technology lessons that have been designed or presented by tech-savvy hosts who do not possess educational expertise, which often does not lead to practical, transferrable classroom skills (Flavell et al., 2019). That is why I embedded situated learning into my session, by having the lesson participants use Zeetings while learning a different topic, rather than Zeetings being the topic itself. This way, I gave the participants practice of an EdTech tool in a practical, transferrable manner.

My 20-slide guided workshop was punctuated with active-learning knowledge demonstration activities and was created wholly within the Zeetings platform. I began the session by benchmarking my participants' knowledge of problem-based learning. Having shown them the web link on my first slide, I instructed them to log on using their own devices. They now saw two presentation views: my Zoom window with the presentation shared on their PCs and the weblink version on their mobile devices. They answered the question: "how much do you know about problem-based learning?" using a five-star, Likert Scale. Their answers instantly coloured in the five stars on the main slide for all to see. The average score was three stars, indicating that I had an interested audience, ready to learn more.

The second active learning activity was a three-question summative quiz on the content just presented to them on problem-based learning. They were asked to match 'problem-based learning', 'project-based learning', and 'inquiry-based learning' to their meanings. This gave me an indication of how much they understood from the previous content. Two participants answered incorrectly, which allowed me to confirm their meanings before moving on. The third activity followed a cartoon video that demonstrated a problem-based learning activity. After watching, I asked the group to apply what they'd seen to their own experience and suggest a problem that would fit with their own subject's content. Using the free text tool, some suggested answers were "investment advice", "choosing the right holiday destination", and "an economic policy". This free text tool was useful in generating further discussion as the participants were asked to expand upon the answers. Reflecting on Zeetings' goal to facilitate two-way conversations, it became evident to me that the product is fit for purpose.

The final activity was another free text opportunity. I expanded the notion of problem-based learning to project-based learning and asked the participants to brainstorm ideas for real-world learning objects that the problem solving could result in. The four suggestions made little sense on their own, so I had each participant explain what they meant to be certain that they had understood what a real-world learning object is. It was clear after some explanations that some participants were a little off track. Had I not used this immediate summative feedback method, the confusion around this topic would not have been exposed. In this sense, the product allowed me to facilitate deeper learning.

There are positives and negatives to using Zeetings. What I found successful about this first attempt were the participants' ease of access to the online page; the participants' positive feelings towards being active participants in this new style of online workshop; the efficiency of asking for participants' contributions by mobile device compared to having only verbal eliciting; and finally, the way I was able to shape my lesson according to the answers I was receiving. What I didn't like at first, is the limited text function on the basic text slide. You are quite restricted in font size, positioning, and style, which can take some getting used to. Facilitating a live session using it also has some challenges. The first challenge I faced was doing both lesson facilitation and tech-support when it was also my first time using the tool in a live environment. The second challenge was discovering that my participants could jump ahead in my slides on their own devices and some had already answered upcoming quiz questions. This meant that a carefully planned summative quiz turned into a formative one for some. As someone who enjoys designing my lessons with careful scaffolding through the learning journey, this loss of control was a little annoying. Lesson facilitators may need to choose whether to specify at the start of the lesson that it's best to travel along the learning path together and not skip ahead or whether they will just go with the flow and allow participants to enjoy self-directed learning.

At the end of this lesson, the participants all expressed their enjoyment of the lesson and of the interactive nature of Zeetings. This experience of a one-hour, online, professional development workshop with academics, confirmed for me that using EdTech tools such as online quizzing and polling, increases motivation for learning and allows deeper engagement with the content.

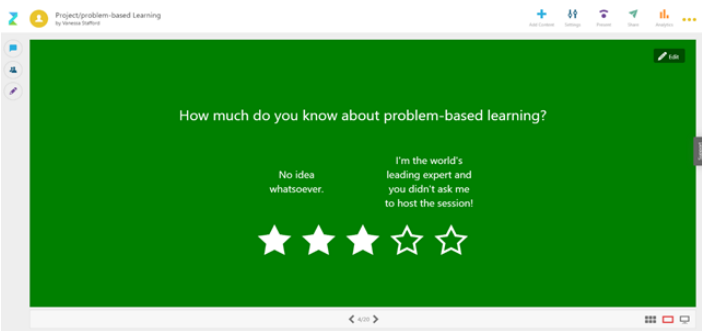

Figure 3: The first embedded activity slide was a benchmarking question.

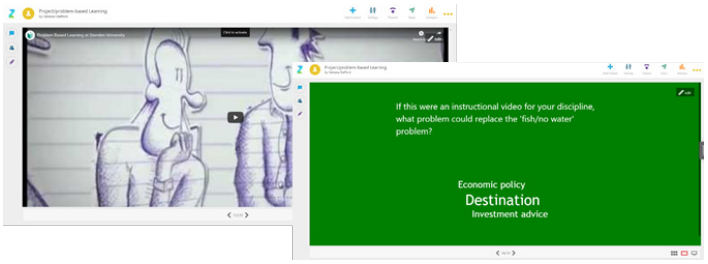

Figure 4: The third embedded activity was a video slide followed by a question slide to apply learning to the participants' own classrooms.

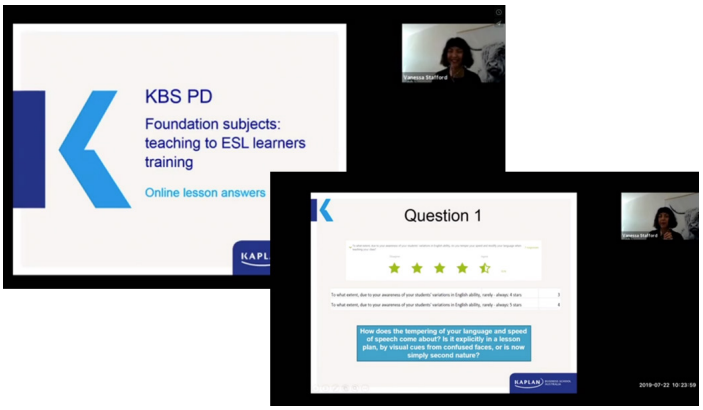

Figure 5: Flipped classroom part 2 – live session webinar screenshots.

Case Study 2

My second attempt at Zeetings was run quite differently. It was a two-part flipped classroom design. Held in July 2019, the session was designed for our foundation subjects' teachers on how to better teach students with English language challenges. The syllabus design goal was to create a compulsory short course, using existing professional development resources housed on the academic learning space of our LMS. These resources were accessible at any time to these teachers but merely directing them to the files and suggesting they read them did not provide me evidence of their learning. By using Zeetings, I created an all-in-one learning experience, punctuating this existing content with summative, comprehension quiz questions. This gave me evidence of participation, levels of engagement, and results that revealed each participant's understanding of the content.

I emailed the web link to the participants and gave them a week to complete the asynchronous part of the lesson – set short readings followed by summative comprehension and reflection questions. During that week, I was able to log on and see the progress. Those who had a free Zeetings account had their answers and email addresses linked, while the others remained anonymous. Had I suggested everyone sign up, I could have targeted those who hadn't yet responded. This would be an efficient way of managing a large flipped classroom cohort. The second part of the lesson was an hour, interactive zoom session, where we could explore the answers together. Having already analysed the data, I was able to tailor this lesson to go deeper into the

areas I thought required it. The efficiency of having the data before the live session gave me an advantage that I didn't have in my first Zeetings session – a lesson plan that was truly targeted to my participants' individual needs. Again, the participants' feedback on Zeetings was positive and my goal of producing an interactive training resource that produced demonstrated learning outcomes was achieved.

Once I had used Zeetings twice, I felt comfortable with the tool. Despite some limited functionality that regular PowerPoint users may miss, the gamification opportunities are fair compensation. I found these features enhanced participation, informed richer discussions between participants, and allowed me to gauge the quality of learning that was occurring and offer just-in-time feedback if they were off-track. Despite not yet using this tool in the student classroom, I have no doubt that it would bring much-needed revitalisation of the traditional PowerPoint slide deck. Further applications could include: using your existing lesson slides to easily and efficiently enhance them with formative and summative activities; replacing the traditional pre-test revision class with a flipped classroom version, allowing you to tailor your revision lesson for more targeted instruction; or even providing your absent students with access to the content they missed, complete with their peers' engagement with it. Outside the classroom, you could even try turning your regular staff meetings into more engaging experiences. From my experience, Zeetings is a welcome addition to the world of EdTech, with the potential to facilitate more quality engagement in both the student classroom and the Academic professional development space. It's over to you now to give it a try.

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Potential for radical change in Higher Education learning spaces after the pandemic

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Abstract

The article situates the challenges that higher education faces before the onset of COVID-19. A future that situates disruptive and immediate transformation for higher education curricula is described to save global universities from the ravages of the "stay-at-home" policies. The move to a totally online environment took place overnight, and most institutions of higher education were totally unprepared. Yet, a future of possibilities could be adopted in the coming five years, one, in particular, being game-based learning, an andragogy based upon experiential education.

> "Four thousand volumes of metaphysics will not teach us what the soul [spirit] is." Voltaire

The trigger for critical transformation in Higher Education

In the Spring of 2020, a panic forced a jump across an abyss of higher education instructional resistance and inertia into online learning. That disruptive, 'black swan' moment demonstrated just how poorly higher education was prepared for a radical change in instructional delivery (Basilaia & Kvavadze, 2020; Hammond et al., 2020; Platje et al., 2020; Strielkowski, 2020; Toquero, 2020). In order to dramatically increase the value proposition of our higher educational systems for learners, we should rethink new approaches for digital delivery of experiential education. Game-based learning (GBL) is one of these potential priorities that has been waiting for this significant opportunity. This essay describes a vision of the emergent thinking that could be embraced over the next five years to propel increased engagement, enthusiasm, and commitment to experiential education, instead of the staid, tired and valueless traditional approaches to higher education, (such as lectures, tests, quizzes, and exams).

Most institutions were loath to transform instructional methods for a wide range of reasons: from outdated syllabi that were good enough for the previous semester; tenured professors with little interest in engaging their students; lack of professor-based coaching and mentoring skills to increase competencies associated with fun, play and learning; ignorance about and lack of experience with action learning; to an absence of empathy by instructors to educate students with the necessary emotional intelligence skills to survive and thrive. Students are bored out of their minds (Géring et al., 2018; Jason, 2017). The current educational ecosystems are seriously flawed — they focus on professor-centric teaching rather than learner-centric learning (El Sebai, 2006; Sheraz & Beg, 2015; Thanh, 2010).

A near-term future based upon a VUCA world

How can we prepare learners and employees (exacerbated by the crisis spawned through the COVID-19 virus) for a future typified by a Volatile, Uncertain, Complex and Ambiguous (VUCA) environment (Bennett & Lemoine, 2014; George, 2017; Kraaijenbrink, 2018)? The skills and competencies necessary for post-pandemic success in education during the next five years needs to be founded upon the adoption of emotional intelligence skills; learning and innovation skills; and information, media and technology skills (Germaine et al., 2016; International Society for Technology in Education, 2016, 2017). All these competencies and skill sets are embedded in the "playing human" immersed within game-based learning frameworks (Huizinga, 2016).

Game-based learning has emerged as a remarkably effective method for building collaboration, diversity of thought, design thinking, critical thinking, decision-making, emotional intelligence, problem-solving, and sensemaking competencies. Games stimulate pleasure in the brain while engaging the consciousness of the player within an experiential learning context. Research associated with learning through play and fun has been amassed over the last seven decades; yet this research has not been widely trusted or adopted as the foundation for the transformation of educational pedagogy (education of children) and andragogy (education of adults) in higher education (Beroz et al., 2020; Campos et al., 2020; Girard et al., 2013; Hays,

2005).

The time-honored teaching method, the lecture, needs to disappear immediately (Bajak, 2014; Cederquist & Golüke, 2016). This method must morph into a hotbed of discussion, enthusiasm, and significant engagement (Barzilai & Blau, 2014; Bodinet, 2016; Kim et al., 2009). Learning is a human game. The power of storytelling, gaming, and human emotion are the emergent methods and tools to jump start student re-engagement and commitment, taking static material and making it come alive in a fun and playful environment (Angheloiu et al., 2020; Stahlke et al., 2020; Jorge & Sutton, 2017; Lu & Lien, 2020; Sutton & Allen, 2019)!

How would a critical element of the emergent learning ecosystems look like?

The Prussian model of education appeared to be useful for worker education during the industrial revolution (McClelland, 2019; Luhmann & Schorr, 1979), but has failed us miserably during the information and knowledge revolutions (Anderson, 2020). Conflict, *not* collaboration and co-operation, infect most of our current workplaces (Groff, 2015). Today languages of communication cannot easily convey holistic experiences to support problem-solving, decision-making, or sensemaking. Measuring teacher effectiveness by exam results ignores what makes a good educator. Richard Duke, an early proponent and designer of serious games and simulations, proposed that the future language of communication would be gaming:

> Proper use of gaming/simulation offers strong promise for establishing the comprehension of totality [a gestalt] necessary for intelligent management of complex systems… As long as we are dependent on communication forms that are sequential, time constrained, dry and cumbersome, it will be difficult to comprehend the complexity of macro-problems, and we will continue to apply piecemeal solutions to problems that should be solved holistically (Duke & Geurts, 2004, p. 74).

Duke appeared to suggest that rule and time constrained educational methods, such as predominated in the Prussian model and still propagated in our educational institutions, are out of step with our VUCA embedded living environments. Placing learners into straight or curved lines of desk stations, where individuals must salute the instructor by raising their hands, is an authoritarian model of rote education — devoid of emotion, interaction, self-discovery, and collaboration. Such an inhibiting learning ecosystem does not promote original, creative, problem-solving, decision-making, critical thinking and sensemaking on the scale we need to approach today's and tomorrow's global problems (Harms, 2015; Blass & Hayward, 2014).

The outcome of game-based learning is an architecture of a new language of learning communication (Riopel et al., 2020; Yam, 2015). These rich learning spaces (Hsu & Chen, 2018; Klofsten et al., 2019):

- contribute to the socialisation, behavioural, emotional, and cognitive development of players;
- develop psychomotor skills and knowledge of physical movement/coordination;
- promote self-confidence; and
- construct values that shape the players' contribution in the local (and global) society.

Duke proposed that a quantum leap was necessary in learning from strict rule-based limitations and time constraints to something like a gestalt experience. He suggested that accelerated change and societal transformation necessitated a new language to convey experience and complexity. Today's problems are infinitely more complex, going beyond normal human comprehension and not yielding to conventional or traditional forms of education.

The application of multiplayer online role-playing games (MORPGs) over the last decade has stimulated an increased awareness and sensitivity to the practice of collaboration and the spontaneous generation of Communities of Learning, Communities of Inquiry, online instructor presence, and subsequent vivified Learning Ecosystems. Because of globalisation and the now common occurrence of multinational virtual teams, the practice and the adoption of Emotional Intelligence skills through experiential learning is critical for organisational survival and cultural development. Emotional Intelligence (EI) helps to decipher, manage, and express feelings that deal with our emotions (Bar-On, 1996; Goleman, 1995; Mayer, 2003). A range of well-tested sims and serious games has been proven to deliver a unique experience to build up interpersonal and intrapersonal EI competencies (Almeida, 2020; Rankin et al., 2009).

Design elements are embedded into well-designed games in order to motivate a player to increase their efforts to identify alternative, open-ended solutions to the set goal. Adaptive games engage our curiosity through action learning and should contain multiple, harder levels that need to be achieved in order to progress. Thus, the player should be led to personally discover new information and knowledge that will support achieving the game's goal and consequently, new 21st century skills (Alsaadat, 2019; Qian & Clark, 2016). Additionally, instant feedback provides the player with lessons learned and pragmatic knowledge that can be used to scaffold action decisions in future play (Montgomery et al., 2015).

Next steps

We are in the midst of the perfect storm because of the impact of COVID-19 on the traditional methods of teaching, learning, training, and education. Could game-based learning become the emergent paradigm to replace the staid and boring traditional educational approaches? We have a critical and significant choice to make in these post-COVID-19 times for the future of education through a new and powerful language — gaming. We have an unforeseen opportunity to

prepare students for active, concerned citizenship, uptake of necessary emotional intelligence competencies, and increased ethical leadership through game-based learning (Ferreira et al., 2019; Rojas, 2017; Sutton & Allen, 2019). A new paradigm for higher education could emerge in the coming five years if institutions of higher education could shift their paradigm from professor-centric to learner-centric andragogy (adult education). Game-based learning has a unique opportunity to become the center of focus in online education, which will continue after the pandemic, but must be revamped. The current adoption of online learning was at the last minute with little or no planning for student engagement, empowerment, or commitment to learning. The nascent model for communication of education is a foundational language founded upon *gaming*.

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Artificial Intelligence in education: Rise of the Machines

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Introduction

The arrival of the Fourth Industrial Revolution is not only providing humankind with new capabilities, but it is also changing the way we live, work and relate with one another. The following diagram best sums up why it is so different from the three Industrial Revolutions before it – the confluence and convergence of emerging technologies are changing the world we know at lightning speed. One of the interesting analogies depicting the impact of this phenomenon is that the machine in the First Industrial Revolution was steam-based and the fuel was coal, whereas the machine in the Fourth Industrial Revolution is Artificial Intelligence (AI), fueled by the rapidly burgeoning data in the cloud. UNESCO (2018) depicts this age of big data in which people generate individual information footprints as resulting in an abundance of data, enabling human and societal behaviour to be objectively quantified, hence, easily tracked, modelled and, to some degree, predicted. This phenomenon surrounding information footprints is referred to as 'datafication' (Mayer-Schönberger & Cukier, 2014). While some may think that the title of this article may seem cliché or playing with pop culture, the Future of Learning, like many aspects of life, is truly driven by the Rise of the Machines (AI).

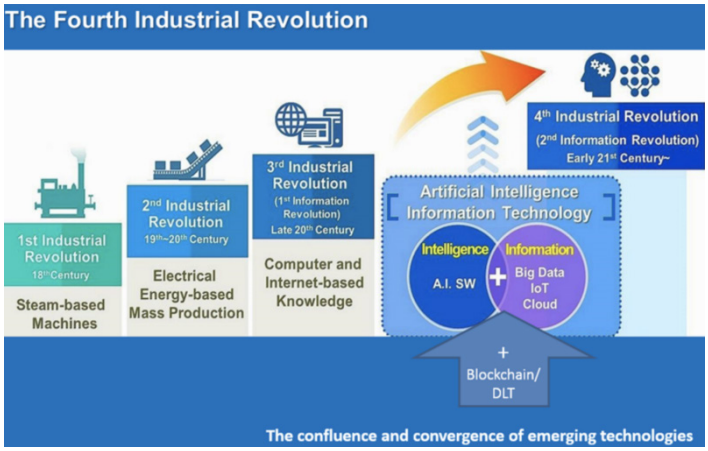

Diagram 1: The Fourth Industrial Revolution (Welsh, 2018).

A quick survey of the situation indicates that the convergence of high-speed mobile internet, artificial intelligence, big data analytics, and cloud technology is fueling the Robot Revolution at incredible speed across various industries between 2018 and 2022. In the Future of Work 2018 survey, the World Economic Forum estimated the impact on industries in the following chart.

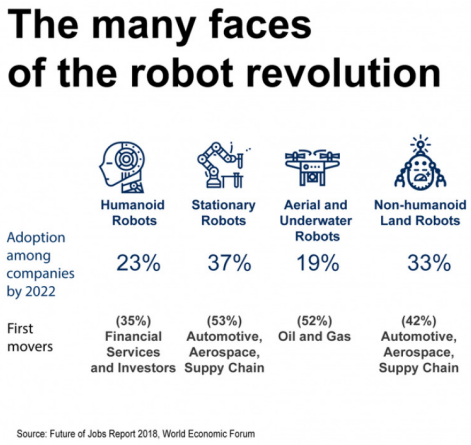

Diagram 2: The many faces of the robot revolution (World Economic Forum, 2018, n.p.).

This is supported by a study conducted by McKinsey Global Institute asserting that technologies such as Artificial Intelligence (AI) and robotics are driving the automation of jobs (Rapp & O'Keefe, 2017). McKinsey estimates that automation alone could boost global productivity growth by 0.8% to 1.4% annually. The following are jobs where automation can have the most significant impact.

The findings from the McKinsey report corroborate WEF estimates that by 2022, emerging occupations are set to grow from 16% to 27% of the employee base of large firms globally, while job roles currently affected by technological obsolescence are set to decrease from 31% to 21%. In purely quantitative terms, 75 million current job roles may be displaced by the shift in the division of labour between humans, machines and algorithms, while 133 million new job

roles may emerge at the same time. Not surprisingly, Data Analysts and Scientists, as well as AI and Machine Learning Specialists, emerged as the top two fastest-growing roles.

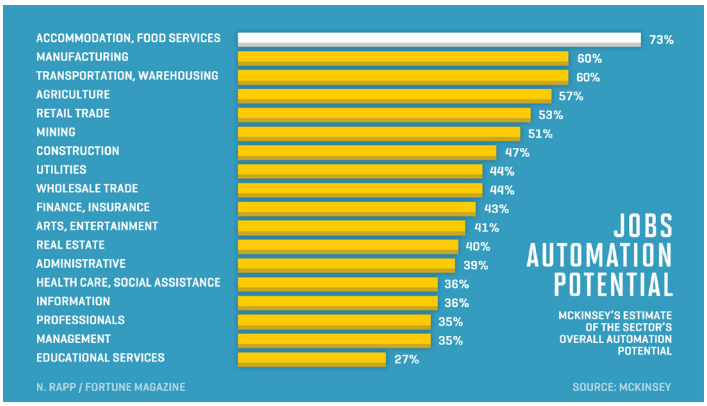

Diagram 3: Jobs automation potential (Rapp & O'Keefe, 2017, n.p.).

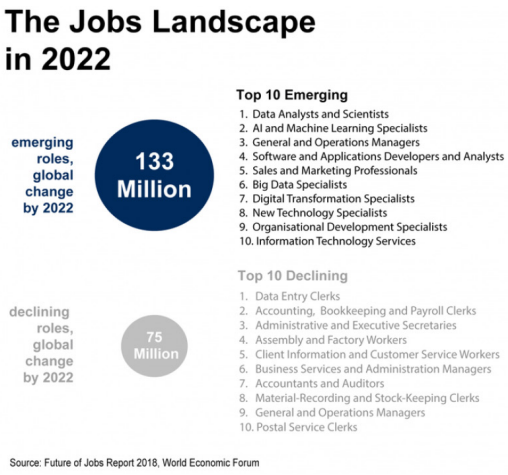

Diagram 4: The jobs landscape in 2022 (World Economic Forum, 2018, n.p.).

In short, AI is a thriving technological domain capable of changing every aspect of our social interactions - cutting-edge AI algorithms that learn, computing power and access to technology have increased across the world. The development and application of Artificial Intelligence (AI) are bringing imminent and rapid changes to almost every aspect of life (Siraj, 2017). In considering the impacts of AI on education, the relevant skills and knowledge needed in the future, there is an exigent need to look beyond the current trends, and identify the jobs and skills required to redefining intelligent in an AI-augmented world (OECD, 2018). In education, AI has started producing new teaching and learning solutions that are now undergoing testing in different contexts. While there are significant potential benefits, there are risks as well as opportunities with AI in and for education. As such, we need to proceed conscientiously and prudently into a new educational environment where AI is used to support learners and teachers, and where we also prepare learners for a future world in which AI plays an increasing role. As such, it is timely or even overdue to ask serious questions about what artificial intelligence in education (AIEd) is, the benefits, and how it goes about doing that. More importantly, we need a clear explanation of how AI can connect to the fundamentals of teaching and learning so that we can circumvent general-purpose technologies being used in ways that do not deliver the steep changes in learner outcomes.

What is Artificial Intelligence (AI)?

Since 1956, the field of artificial intelligence (AI) has continued to capture the imagination. While AI has been around for nearly 60 years, there had not been significant breakthroughs until recently, due to sweeping changes with the advent of big data, economical access to computing power and advances in Machine Learning (Luckin, 2018). It can be challenging to define artificial intelligence (AI) as what AI includes is continually shifting. While there is no conclusive definition of AI, McCarthy (2006), Zhong (2006), and ITU (2018), among others, provide a clearer description of AI. Adapting Russell & Norvig's (2010) work on AI, UNESCO (2018) categorised the different dimensions of AI using the following table.

Table 1: Different Dimensions of AI (UNESCO, 2018, p. 8)

Thinking Humanly	Thinking Rationally
'The exciting new effort to make computers think… *machines with minds*, in the full and literal sense.' (Haugeland, 1985) '[The automation of] activities that we associate with human thinking, activities such as decision-making, problem-solving, learning…' (Bellman, 1978)	'The study of mental faculties through the use of computational models.' (Charniak & McDermott, 1985) 'The study of the computations that make it possible to perceive, reason, and act.' (Winston, 1992)
Acting Humanly	**Acting Rationally**
'The art of creating machines that perform functions that require intelligence when performed by people.' (Kurzweil, 1990) 'The study of how to make computers do things at which, at the moment, people are better.' (Rich & Knight, 1991)	'Computational Intelligence is the study of the design of intelligent agents.' (Poole, et al., 1998) 'AI… is concerned with intelligent behavior in artifacts.' (Nilsson, 1998)

UNESCO (2018) recounts that research in AI has focused mainly on learning, reasoning, problem-solving, perception, and using language, classifying AI into two types: data-driven AI through Machine Learning and knowledge-based AI. The current success of AI is mostly due to developments in data-driven AI. The following table summarises these developments:

Table 2: Developments driving the success of AI

Deep learning	A specific subfield of machine learning - a new take on learning representations from data that emphasises learning successive layers of increasingly meaningful representations. In deep learning, these layered representations are (nearly always) learned via models called neural networks structured in literal layers stacked on top of each other.
Data mining	In computer science, data mining is the process of discovering interesting and useful patterns and relationships in large volumes of data.
Learning analytics	Learning Analytics (LA) is an emerging discipline seeking to improve teaching and learning by critically evaluating raw data and generating patterns to characterise learner habits, predict learner responses and provide timely feedback.

Will AI take over from humans?

The school of thought originating from Vernon Vinge is based on the concept of the singularity, the point at which an AI-powered computer or robot becomes capable of redesigning and improving itself or of designing AI more

advanced than itself (Vinge, 1993). Inevitably, Vinge argued that this would lead to AI far surpassing human intelligence, understanding, and control, and to what Vinge describes as the end of the human era. More recently, Stephen Hawking, Stuart Russell, Max Tegmark and Frank Wilczek have also cautioned about the potential dangers of AI becoming too smart (Hawking et al., 2014). Unfortunately, science fiction films such as The Matrix and Terminator have shaped our limited understanding of AI. This is largely because most people have only a very limited and inadequate knowledge of machine learning, neural networks and artificial intelligence. However, it is essential to note that significant advances in 'general AI' – AI that could perform any intellectual task that a human being could – would be necessary for any singularity to occur. At this point, general AI does not exist. AI programmes are only as intelligent as we programme them to be. Computers can be programmed to process information in specific areas that go far beyond human capacity (Tegmark, 2017). A case in point is that while the best chess player in the world stands no chance against a modern computer programme, that programme would be useless against a child in a game of identifying people. Humans, even the very young, possess a general intelligence across a broad range of abilities. However, AI is getting more sophisticated, and it is already having a profound impact on our economy. AI research such as Google's Deep Mind has started to break new ground.

Harari (2017) argued that AI goes far beyond the fields of engineering or science, and is of strong political interest. As such, it should be among the most critical items on our political agenda. When science becomes politics, scientific ignorance becomes a recipe for political disaster. Tegmark (2017) seeks to rectify the situation through his book, Life 3.0 by conceptualising a political and philosophical map of the promises and perils of the AI revolution. Instead of advocating any one agenda or prediction, Tegmark provides a broad spectrum of various possibilities, reviewing a wide range of scenarios concerning the impact of AI on the future of work, warfare and political systems.

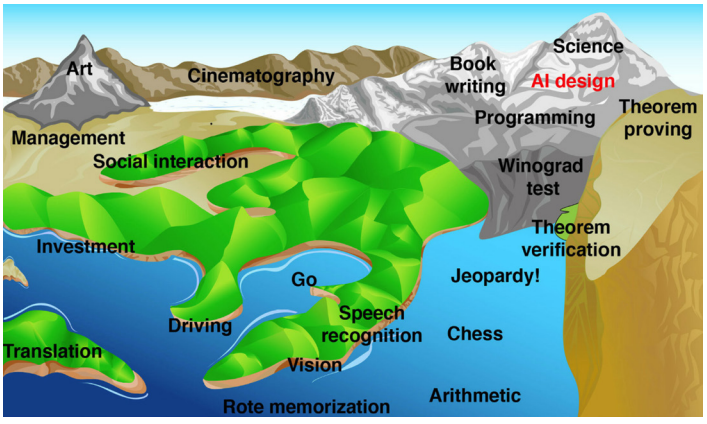

Diagram 5: The future impact of AI. Adapted from Tegmark (2017).

Conversely, another school of thought advocates for more effort on reconceptualising the Human Intelligence (HI), rather than worrying about singularity or general AI. The next section provides some perspectives in understanding HI and how humans can work with AI.

Human Intelligence (HI) and Artificial Intelligence (AI)

Luckin (2018) advocates that machine learning and HI focus specifically on reconsidering HI due to the sophisticated AI that now permeates much of society. As humans are adept in developing significant tasks and activities, including creating and sustaining cultures, crafting and sharing art, and developing social relationships, Siemens (2019) asserts that AI should ideally function to augment HI by having machines do things that it is much better at than anything humans can do. Conversely, Luckin (2018) describes intelligence as "aligned with intellect, with complex cognitive processes, with the understanding of the knowledge, skills and abilities both of others and ourselves. It is our intelligence that enables us to learn, to apply our knowledge, to synthesise what we know to solve problems, to communicate with others, to make decisions to think, to express and learn from experience."

Luckin suggests seven elements of human intelligence:

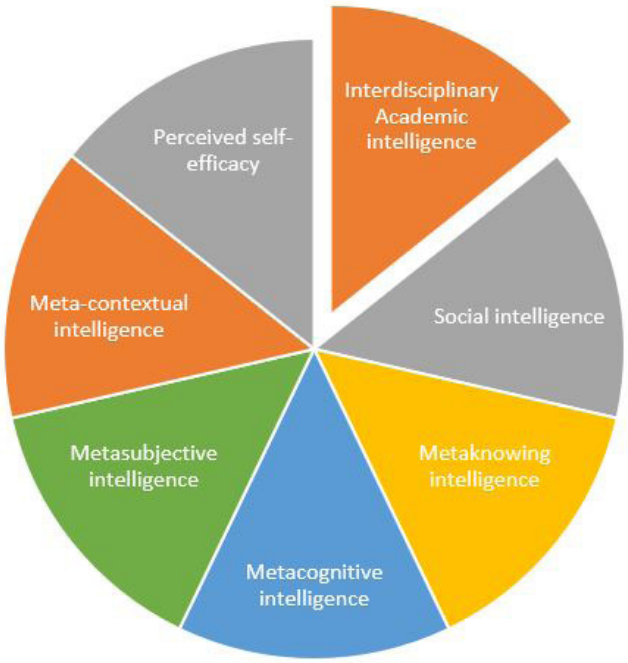

Diagram 6: Seven elements of HI (Luckin, 2018).

Luckin indicates that the machine cannot contextualise and make sense of subjective knowledge (that humans are adept in), and it is embodied in our meta-subjective and meta-contextual intelligence. Relatedly, as human knowledge is deposited within culture, AI cannot understand culturally-embedded aspects of being (Siemens, 2019). Moving forward, rather than working together with machines, humans will need to think and learn with machines. Siemens asserts that the new world order is one where 'what we know is less important than how we are connected to ongoing knowing' - a context where sensemaking, meaning-making, and wayfinding become the primary knowledge activities (Siemens, 2017; Siemens et al., 2020). The next section provides an overview of how AI could possibly add value in education.

Artificial Intelligence in Education (AIEd)

The development and application of artificial intelligence in education (AIEd) has been the subject of academic research for more than 30 years. It brings together AI and the learning sciences to advance the growth of adaptive learning environments and other AIEd effective tools (Luckin et al., 2016). In recent years, the rapid progress in AI has enabled experimentation with different models of AIEd, fulfilling the promise of transforming education by creating adaptive learning systems that could personalise learning. Given the emerging AI technologies, there are an increasing number of studies (Laanpere et al., 2014; Luckin et al., 2016; Mayer-Schönberger & Cukier, 2014; Montebello, 2017; OECD, 2018; UNESCO, 2018) indicating how AI can help improve learning opportunities and outcomes for students.

While there is a growing body of literature in AIEd and models, Luckin et al. (2016) propose a seemingly robust theoretical framework that encapsulates three critical models at the heart of AIEd: the pedagogical model, the domain model, and the learner model.

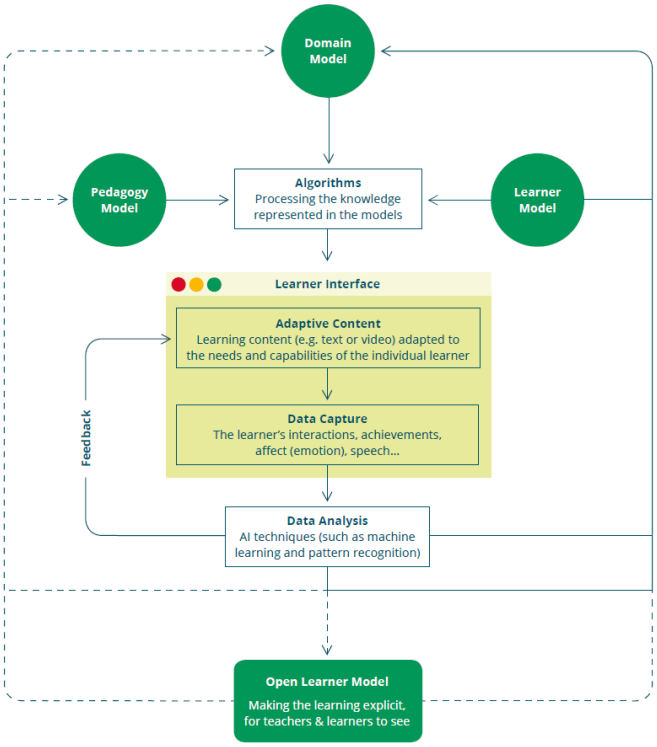

Diagram 7: Three critical models at the heart of AIEd. Adapted from Luckin et al. (2017).

This framework consists of (1) the learner model (knowledge of the individual learner), (2) the pedagogy model (knowledge of teaching), and (3) the domain model (knowledge of the subject being learned and the relationships between the different parts of that subject matter). AIEd algorithms process that knowledge to select the most appropriate content to be presented to the learner, according to their capabilities and requirements. Also, the in-depth data analysis using machine learning and pattern recognition is paramount in providing valuable feedback for learners fine-tuning the adaptive learning content.

Conclusion

It is evident that AI will continue to make substantial contributions to how students engage with knowledge, develop academic knowledge related skills and learning experience in their education in terms of personalised learning. This will result in human teachers reinventing their practices to support students to nurture and monitor the other aspects of human intelligence described by Luckin (2018). This is corroborated by Siemens (2019) in that appropriate synergy of AI and HI so that humanwork such as culture, 'being-ness', and social-emotional learning permeates as lifelong learning.

At this juncture, it is difficult to predict what AI will bring to our futures given the rapid pace of development. Still, we need to support active citizens of the future in harnessing and engaging with AI, grounded in transparent, ethical practices for education and society at large.

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What is curriculum?

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Introduction

> The main question in the field of curriculum seems to be "What is curriculum?"
>
> - Johnson-Mardones, 2015, p. 124

It is no coincidence that, separately, Pinar, Reynolds, Slaterry, and Taubman (1995, as cited in Pacheco, 2012, p.2) and Johnson-Mardones (2015, p.124) declared curriculum a "complicated conversation". 20 years of deliberation and study did not yield greater clarity in the field (or should it be fields) of curriculum theory, studies, design, and development; it appears that time does not clarify.

Should government/regulator or institution specify curriculum, and make decisions with regard to knowledge, skills, and pedagogy (Priestley, 2017)? Should regulation/policy govern the input (what is taught) or output (what outcomes have been achieved) of curriculum? In what ways would curriculum be globally and locally influenced in terms of vision and purpose? How are curriculum, teaching, and learning related?

This is a conversation that asks tough questions. Perhaps the answers have thus far been underwhelming.

Sensing curriculum

> … the assumptions of … 'future thinking' tend to be that certain wider social changes are not only inevitable, but of positive benefit to humanity and that schooling in the future will have to follow them. This 'following' is invariably viewed as unproblematic.
>
> - Young & Muller, 2010, p. 11

This following along with the alluded requirement to stay relevant have fractured specialised knowledge from schooling (Muller & Young, 2014). Consequently, there appears to be a deliberate conflation of higher education with vocational education, treating conceptual knowledge and practical knowledge as similar (if not the same), perhaps even emphasising generic skills (such as problem-solving) over discipline-specialised knowledge (Muller & Young, 2014). This dislocation is deemed unproblematic because the relevance that higher education seeks is increasingly found in university graduates' employability. If generic skills will get the graduates employed, then surely the curriculum ought to follow. In Singapore, employability is further defined by starting salaries and employment rates. Such measures of educational quality are thought to be valid and demanded of both the autonomous universities and private education institutes with the results publicly compared in the national newspapers.

However, higher education's utility in the job market is not entirely straightforward. It is necessary to discern knowledge from opinions and experiences without devaluing either because specialised knowledge is significantly different from everyday knowledge. It is produced differently (not informally through everyday experiences), structured differently, and for different purposes (Young & Muller, 2013).

Such contentions of schooling's response (or lack of) to prevailing trends and the ensuing curricular debate lay bare the challenge of making decisions on the future of education. What are the possible futures when defining curriculum?

Traditionally, higher education and vocational education are respectively bounded and separated. These boundaries are taken for granted and the social construction of knowledge is ignored. However, the distribution of specialised knowledge heavily favours the elite few in higher education whilst the mass has to settle for simpler, procedural versions of the knowledge through the vocational track. Thus, this Future 1 has often been accused of causing "social divisiveness, inequality, unhappiness, and conflict" (Young & Muller, 2010, p. 17).

Future 2 is the emergent anti-thesis seeking to break the boundaries, de-differentiate and de-specialise both knowledge and institutions thereby leading to the conflation of higher education and vocational education. Young & Muller (2010, p.18) proffered various manifestations of this "over-socialised" knowledge:

- Integration of school subjects resulting in the weakening of the boundaries between school knowledge and everyday knowledge
- Stipulation of curricular content as generic skills thereby weakening disciplines
- Promotion of formative assessment over summative assessment leading to the weakening of boundaries between students
- Introduction of unified qualifications framework weakening the boundaries between academic and vocational qualifications
- Promotion of facilitative over directive teaching weakening the boundaries between experts and novice learners

Unfortunately, the apparent elevation of vocational education has a price.

> The erosion of expertise and the loss of trust in specialist knowledge has been an inadvertent consequence of the relativism of boundary-less thinking. Trust in reliable knowledge and in the judgments of specialist knowers has been hollowed out by common sense scepticism... we deride specialised knowledge and knowers even as our lives are ever more dependent upon them.
>
> - Young & Muller, 2010, p. 21

As a result of this ostensible dichotomy, the necessary Future 3 dialectic seeks to hold that the construction of knowledge is social and historical whilst situating the boundaries of disciplines within communities of practice. These boundaries are not a given (unlike Future 1) and are subjected to reordering (not eliminating as called for in Future 2) where new knowledge is socially constructed then stabilises. Are we there yet?

Particularising curriculum

As alluded to in the preceding discussion, curricular considerations span a wide array of milieus and elements. Priestley (2017, p. 2-3) proffers that delineating curriculum requires conceiving it as a layered construct.

A parallel can be found in Johnson-Mardones' (2015) treatise on the "fractured" state of the field of curriculum studies (p. 124). He opted for a multi-dimensional concept of curriculum so as to accommodate its complexity, proffering an understanding of "curriculum as a phenomenon, as design and as field" (p. 125).

Curriculum as an academic field enables research into various discourses that are undergirded by disciplines spanning phenomenology, critical theory, postmodernism, psychology, and beyond. This, in turn, allows dialogue between the curriculum field and other educational fields.

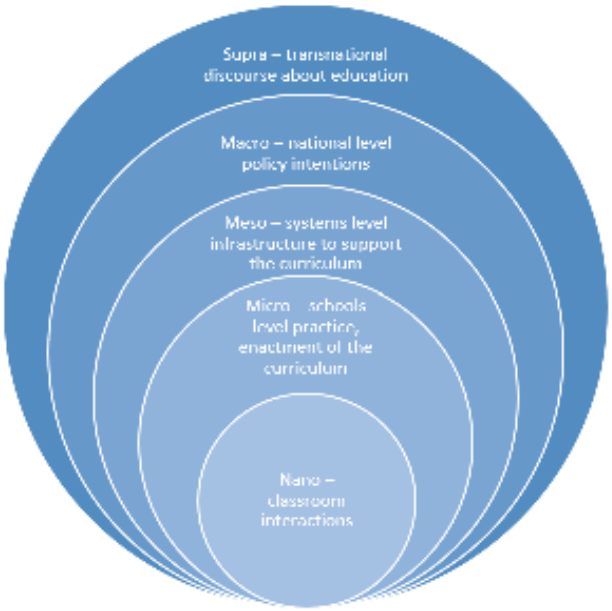

Figure 1. Layered construct of curriculum

Curriculum as design is often referenced against the Tylerian tradition of technical decision making about what is to be taught and how. This is often achieved through appropriating Bloom's taxonomy for the necessary verbs to formulate learning outcomes, ascertain suitable levels of understanding, and ensure measurability (Johnson-Mardones, 2015). Inevitably, a dialectical reaction against the perceived rigidity of the Tyler Rationale would emerge. The reconceptualists, chiefly William Pinar, claimed that "the curriculum field was in a period of stasis and that there was a need to move it into new ways of understanding" (Pacheco, 2012, p. 5). The curriculum discourse thus departed from the technical towards the political and personal; predominantly underpinned by critical theory.

Curriculum as phenomenon is manifested in the written and experienced. As a written document, curriculum "regulates the content of schooling, shapes the school experience, and controls teachers' work" (Johnson-Mardones, 2015, p. 125). This is a familiar aspect of curriculum. However, the curriculum experienced by students "through schedules, routines, and school rituals" may differ from the official prescription, giving rise to a "hidden curriculum" (Johnson-Mardones, 2015, p.126). Consequently, curriculum as a phenomenon is complex, layered, and multidimensional.

The various dimensions and their respective constituents are:

Intended	Unintended	Experienced or lived
Written	Hidden	From the point of view of the students
Supported	Null	
Taught		
Tested		

Table 1: Dimensions and consituents of curricula.

Lecturer agency

Curriculum consideration is incomplete without including the state of lecturer agency. The enactment of curriculum is necessarily lecturer-mediated, between policy intentions and classroom realities, hence never lecturer-proof, and predisposed to implementation gaps and unintended consequences (Priestley et al., 2015). The temptation, therefore, is to remove all decision making from the lecturers so that fidelity of implementation is enshrined. However, counter-intuitively, the problem is exacerbated when lecturers are constantly tasked with implementing others' decisions without appropriate autonomy being accorded to them. Agency by necessity requires an "acting-out" by the lecturer, which is dependent on the agent's capacity to decide between myriad alternatives, resolving dilemmas, then acting on that decision. Lecturer agencies cannot be aided by efforts in dehumanising them. Instead, a bottom-up approach is needed, where improvements may be achieved through lecturer-driven initiatives.

Unfortunately, the prevalent regulations demand accountability and benchmarking – enforcement of top-down control when a bottom-up approach is desired.

> Ethical and professional practices thus lose out to performative pressures, as survival strategies lead to tactical and even *cynical compliance*.
> - Priestley et al., 2015, p. 4, emphasis not in original

The achievement of lecturer agency lies within the narrow space where the autonomy of a bottom-up initiative overlaps the conformity towards a top-down regulatory requirement. Apart from the capacity of the lecturer, the affordances accorded, and the limitations of the ecology influence the degree of agency (Priestley et al., 2015).

A working construct of curriculum: A synthesis

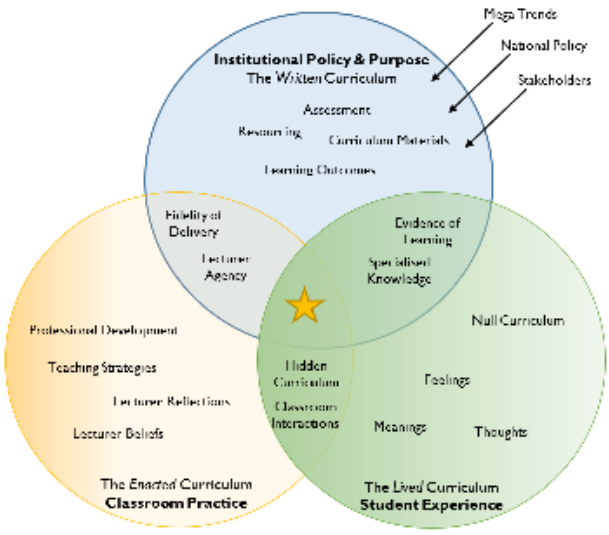

Figure 2. A working construct of curriculum: A synthesis

This diagram illustrates an attempted synthesis of the many facets of curriculum reported earlier. The realms of the written and enacted curricula have been discussed in the preceding sections. What remains glaringly missing is the consideration of student experience in the lived curriculum.

The lived curriculum

> ... a peculiarity of academic learning is to focus, not on the world itself, but on others' views of that world. The idea that people can learn through listening to lectures most clearly expresses the fact that teaching is a rhetorical activity, seeking to persuade students of an alternative way of looking at the world *they already know through experience*. This way of learning presupposes that students must be able to interpret correctly a complex discourse of words, symbols, and diagrams, each bearing a specific meaning that must be interpreted correctly if the student is to learn what is intended. How do students deal with this?
> - Laurillard, 2002, p. 43, emphasis not in original

Indeed, how much is going on in the classroom? How complex is learning? When learning takes place in the away from the real world, how many representations of that world are present? How might the myriad first-order experiences that students bring with them to class be reconciled with the second-order descriptions by the subject matter experts – namely the curriculum developer and lecturer? Indeed, students experience not just the subject matter but the teaching as well, how much of this dual-experience are we paying attention to? Would the representations from the written curriculum and the enacted curriculum converge or diverge? Would these representations accurately and sufficiently reflect reality? Or would these representations be mired in ludic and narrative fallacies? How do students then reconcile these in a representation of their own?

The impossibility of education?

Formal learning that is situated away from actual practice predisposes a written curriculum, and the very act of codifying the curriculum causes the loss of authenticity. This is often criticised as the impracticality of theoretical knowledge. However, it is the second-ordered nature of curriculum, be it higher education or vocational, that is driving a "crisis of confidence in professional knowledge" (Schon, 1983, p. 3). The loss of faith in specialist knowledge, where experts do not solve problems without creating new ones, is not due to a ubiquitous theory-practice dichotomy. The chasm may instead lie in the loss of randomness inherent in real-life vis-à-vis a deliberately designed lesson plan that is anything but random; and the tacit knowledge that drives the expert's intuitive responses vis-à-vis a well-defined, best practice protocol. Such authenticity cannot be replicated in a well-structured curriculum in the classroom, particularly the Future 1 and 2 curricula.

Therefore, a causal education seems impossible since the very act of writing a curriculum negates the efficacy of the learner's problem-solving abilities in real-life. We are unable to conclude that the enacted curriculum has caused the successful development of the stipulated learning outcomes and that these outcomes adequately reflect success in real-life. Furthermore, would not academic success at best reproduce current realities (more likely inferior versions given the irreproducibility of intuition) and thus ineffectual in creating new realities that are apposite to these uncertain times? How then might a non-written curriculum be enacted? Would navigating through the elements in the above model afford mediation towards the co-construction of disciplinary boundaries by lecturers and learners in the form of a Future 3 curriculum, thus removing the need for a written curriculum?

If so, then the outcome of education is necessarily teleological. This is a conversation that asks tough questions.

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Developing critical thinking skills: Using Edward de Bono's six thinking hats in formative peer assessment & feedback

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Abstract

Increasingly, management students are required to demonstrate their critical thinking and problem-solving skills upon entering the workforce. This prompts educators to ask how can students be taught to think critically and what kind of exercises can be built into undergraduate learning to ensure critical thinking and problem-solving are practiced? As such, peer assessment as learning promotes active critical thinking and problem-solving via collaborative assessment and exchange of feedback amongst peers. This classroom exercise is designed for students on any management undergraduate course to develop their critical thinking and problem-solving skills through a peer assessment and feedback task. Adopting Edward de Bono's approach to thinking encourages students to think in a focused, deep and critical way about the piece of work they are assessing. Through this exercise they obtain the benefits of developing critical thinking skills and further learn to develop a collaborative approach to problem-solving in the provision of feedback and feedforward.

Introduction

The formative assessment on the 2nd year undergraduate course in Strategic Marketing calls for students to submit an industry analysis using Padlet (see www.padlet.com). The links to the Padlets are submitted and posted to Moodle and form the basis for a peer assessment exercise. For students to successfully engage in any peer assessment exercise, they must be able to think critically. Using the metaphor of wearing different coloured hats, de Bono designed a very simple model but one which when applied correctly can augment critical thinking and assessment (de Bono, 1985). The model reflects de Bono's belief that "simple methods used effectively are more valuable than complicated methods that are difficult to understand and confusing to use". In explaining the philosophical underpinnings of his six coloured hats, de Bono declared that "when we attempt practical thinking, there are three fundamental difficulties that we encounter", he identifies these as emotions, helplessness and confusion. Given that students are likely to encounter all of these elements during a peer assessment task (Brown et al., 1994; Light et al., 2009), I chose to implement this technique in an attempt to alleviate some of these feelings and to promote critical thinking and problem-solving.

Theoretical Foundation

Rust (2007) asserts that how the student experiences feedback is central to the scholarship of assessment. Feedback should help students to understand more about the learning goals, their own achievement status as regards these goals and how to bridge the gap (Sadler, 1989). Thus the idea of student involvement in the assessment process links conceptually to feedback. However, depending on the social, cultural, and educational background, participation in peer assessment may be accompanied by uncertainty as well as subjectivity and lack of reliability (McConologue, 2012). As such, much of the research on peer assessment has addressed questions of reliability and validity (Falchikov & Goldfinch, 2000; Magin, 2001; Sadler & Good, 2006). Yet, less research has examined students' perceptions of peer assessment, particularly regarding critical thinking. Perhaps, Nicol et al. (2014) provided some of the strongest insight into peer assessment's connection to critical thinking, finding that the unique kind of "reflective comparison" required also "engages students in active critical thinking". Furthermore, data from Nicol et al. (2014) suggest that "through reviewing the work of peers, students can learn to take control over their own learning, to generate their own feedback and to be more critical about their own work". Given the link between peer assessment and the requirement for critical thinking, Edward de Bono's six thinking hats approach; a heuristic based on separating different reasoning modes; lends itself particularly well to a critical thinking and problem-solving exercise. The hats help the students to assume a particular role and to hone in on a particular thinking focus, thus facilitating critical thinking and problem-solving.

Learning Objective

Overview

Since the shift of attention away from teaching information

and content towards developing thinking skills, continuous attempts have been made to instil critical thinking into the curriculum. One possible approach is through peer assessment. Peer assessment as learning in particular promotes active thinking via self-assessment and exchange of feedback among peers. One way to further facilitate critical thinking is to adopt the use of Edward de Bono's six-hat thinking. The blue hat considers thinking as a whole, it can be used to manage the overall evaluation process of the peer assessment and to enforce the guidelines for each hat, or it can be used as a tool for each individual to evaluate the feedback received from each 'hat'. The red hat introduces emotions and feelings, the person wearing this hat states their hunches about the piece of work, without justification or explanation. The white hat primarily looks at data and facts. It considers what information is present and how it could be improved and what further information is needed. The black hat represents caution and looks at potential flaws or issues with the piece of work. It is advised to either pair this hat with the green hat or to ensure that the green hat is used to offset the black hat. The green hat represents creativity, offering creative solutions and alternatives to the advice suggested by the black hat, thus offering up feedforward. The yellow hat represents optimism, the wearer looks for positives in students' work and finds the value and benefits. Thus, white, red and yellow speak particularly to feedback elements of the assessment. Meanwhile, black, green and blue speak to feedforward elements of the assessment.

The technique encourages constructive and non-habitual thinking on the part of students both when assessing their peers' work and when writing their own. Furthermore, students will realise that to adequately evaluate the assessment, they must consider the ideas of wearers of other hats; a process that necessitates consultation and collaboration.

Exercise

Materials, Space, and Other Requirements

- A room which holds approximately 20 students set up in three to four round/square table configurations
- Laptops/tablets for each student
- WiFi connection for access to Moodle
- Six hats per group, coloured red, blue, white, yellow, black and red
- Laminated A4 handout for each group explaining the general role of each hat (Appendix A)
- Six A5 pieces of colored card per group (red, blue, white, yellow, black and red)
- Metallic pens (for writing on dark colored card) (Amazon, 2020).
- A copy of the grading rubric per group (Appendix B)
- A copy of the grading sheet (Appendix C)

Time Requirements

Total time for task: One and a half hours if the instructor allows 15 minutes per assessment, up to two hours if allowing 20 minutes per assessment.

Before Class Preparation

Instruct students to complete their formative assignment and upload the link to their assessment to Moodle 48 hours before the start of the first workshop where the exercise is implemented. Remind students to bring their laptops/ tablets to class.

In-Class Activities

1. Explain to students about the exercise and highlight the advantages of peer assessment and feedback. Introduce students to the idea of Edward de Bono's six thinking hats. Explain how these hats can be used to focus thinking and facilitate critical thinking and explain that each student will be adopting a particular coloured hat approach.
2. Divide the class into groups of six and seat them all together at round or square table.
3. Place the six hats, corresponding coloured card and pens, the laminated sheet which explains the role of each hat (Appendix A), a copy of the rubric (Appendix B) and a grading sheet (Appendix C) in the centre of each table.
4. Students should now choose which hat perspective they want to adopt and take the corresponding hat from the middle of the table and put it on.
5. Assign each group four links to the Padlet assessment on Moodle.
6. Tell students to choose one link and ask each group member to review it from their mode of thinking only and to write notes from their specific mode of thinking on their corresponding piece of colored card. After ten minutes of individual assessment, students should have a group discussion with each student relaying what he/she has written on their card.
7. Instruct the blue hat to collate all thoughts and once a consensus is agreed to fill out the grading sheet with written feedback and feedforward from each hat perspective.
8. Students should assign a grade and fill it in the space provided on the rubric sheet.

9. Repeat steps 6-8 for all assigned assessments.

10. Instruct the teams to return sheets and grades to the instructor for academic moderation.

Variations

- The class could observe a panel of six engage in the peer assessment exercise. Assign the panel a Padlet and instruct the class to look at the same Padlet. By listening to the thoughts and comments of the panel, the class can compare the panel feedback with their own based on solo thinking.

- Students could work sequentially in their groups rather than in parallel, all wearing each hat at once and collectively generating comments on the assessment for each hat.

Debrief

After the exercise is complete, explain to students that this exercise gives students a new way of thinking about not only the piece of work they are grading, but also about their own future assessed work. Prompt the class to think in future when conducting a piece of work, 'what might the blue hat say about my work?' or 'if I put on the black hat now, what would be some of the issues to consider'.

Students often declare the activity to be fun and engaging and like the way the exercise focuses their thinking and encourages them to think in a different way. Ask the students whether the different modes enabled a group consensus to be reached more easily than if approached in a less structured manner or solo manner.

Some students complain that peer assessment is not valid since they would rather the work is graded by the instructor. At this point the instructor can reiterate the learning gain from the exercise and highlight the benefits of the peer assessment process given the number of different peers they had to contribute to their work (see Gibbs, 1999). Further, explain how the six hat thinking enabled them to think critically and remind the class that the instructor will review all assessments before returning to students such that academic moderation is guaranteed.

Ask students if they felt less confused and less worried about the task using one specific thinking mode. Ask students whether it may facilitate thinking in their own work and future assessments and they will most likely agree given that this mode of thinking reduces confusion, a concern of many students when conducting peer assessment (Hanrahan & Isaacs, 2001). Some students say they are more comfortable giving the qualitative aspect of feedback than assigning the grade, in which case the instructor could opt for an alternative approach where in future where the students provide the written feedback and feedforward but the instructor provides the grade (Cestone et al., 2008).

Remind students that the technique for critical thinking and problem-solving can be adopted in multiple scenarios throughout their learning, This six thinking hat approach could be used for a number of different tasks such as group discussion; case study analysis; analytical thinking; journal article analysis; planning; approaching a group/individual assignment; brainstorming; developing ideas around an issue; decision making; any task requiring a solution; lateral thinking; tasks requiring a totally different way of thinking; or problem solving – workshop-style quiz, problem-based learning. Specific questions to pose during the debrief are provided in Appendix D.

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Appendices

Appendix A

Appendix A - Edward De Bono's Thinking Hats

Fact Hat - The White Hat calls for information which is known or needed. It's all about this: 'The facts, and nothing but the facts.'

Emotional Hat - The Red Hat calls for feelings, hunches, and intuition. When you use this hat, you should focus on expressing emotions and feelings and share fears, likes, dislikes, loves, and hates.

Optimism Hat - The Yellow Hat symbolizes optimism, confidence, and brightness. Under this hat, you explore the positives and probe for value and benefit.

Cautious Hat – The Black Hat is all about judgement. When you put on this hat, you're the devil's advocate where you try to figure out what or why something may not work. It's now your job to spot the difficulties and dangers and ask where things might go wrong.

Creative Hat – The Green Hat focuses on creativity: the possibilities, alternatives, and new ideas. It's your opportunity to express new concepts and new insights.

Thinking Hat – The Blue Hat is used to manage the thinking process. It's your control mechanism that ensures the Six Thinking Hats guidelines are observed.

Appendix B

Appendix B - Rubric
Formative Assessment 1 – Individual Industry Analysis using PADLET
Grade DOES NOT COUNT TOWARDS FINAL GRADE

Grade: _____

The assessment requires you to create an industry analysis using PADLET. You are required to choose the industry in which your chosen firm (Assessment 2) operates. This assessment will help to inform your second assessment and enable you to determine your objectives and to formulate your marketing plan. The feedback you receive will help with your final marketing plan. You are free to be creative and to present your ideas as you wish.

Criteria	20 Very Good - Excellent	15 Satisfactory - Good	10 Poor - Satisfactory	5 Extremely Poor – Unsatisfactory
1. Organization & presentation • The Padlet is attractively formatted • The Padlet is well laid out and easy to read	The Padlet is exceptionally laid out and extremely well presented. It is very easy for the reader to follow.	The Padlet is well laid out and well presented. It is easy for the reader to follow.	The Padlet is poorly laid out and poorly presented. It is difficult for the reader to follow.	The Padlet is extremely poorly laid out and very poorly presented making it impossible for the reader to follow.
2. Content & Accuracy – Links to Files/Documents • Links to files/documents are used to enhance the presentation • Information published relevant to task • Information provided will be useful to inform assessment 2 • At least five relevant topics are addressed	The content of the Padlet is highly appropriate and extremely relevant to the task. The industry is very well analyzed and excellent use is made of taught frameworks. This will serve assessment 2 extremely well.	The content of the Padlet is appropriate and relevant to the task. The industry is well analyzed and good use is made of taught frameworks. This will serve assessment 2 well.	The content of the Padlet is not very appropriate or relevant to the task. The industry is quite poorly analyzed and little use is made of taught frameworks. This will need improving for assessment 2.	The content of the Padlet is not appropriate or relevant to the task. The industry is very poorly analyzed and little, if any use is made of taught frameworks. This will need improving greatly for assessment 2.
3. Technology Utilization • Makes use of the technology • Information published is of different media forms	Excellent use is made of the technology offered by Padlet. A very broad spectrum of media is used to inform the analysis.	Good use is made of the technology offered by Padlet. A broad spectrum of media is used to inform the analysis.	Poor use is made of the technology offered by Padlet. A narrow spectrum of media is used to inform the analysis.	Very poor use is made of the technology offered by Padlet. A very narrow spectrum of media is used to inform the analysis.
4. Graphics & Pictures • Graphics used to support text • Pictures added to enhance the look of the Padlet • There is a good combination of text and pictures	Extremely good use is made of graphics to support textual information. An excellent combination of text and graphics.	Good use is made of graphics to support textual information. A good combination of text and graphics.	Poor use is made of graphics to support textual information. A poor combination of text and graphics.	Very poor use is made of graphics to support textual information. A very poor combination of text and graphics.
5. Writing & Grammar • The use of language is professional & appropriate • Grammar has been checked	Excellent use of language and highly professional written textual entries. No grammatical errors.	Good use of language and professionally written textual entries. Few grammatical errors.	Poor use of language and unprofessionally written textual entries. A number of grammatical errors.	Very poor use of language and unprofessionally written textual entries. Numerous grammatical errors.

Appendix C

Appendix C - Edward De Bono's Thinking Hats & Feedback & Feedforward – Padlet Assessment Grading Sheet

Fact Hat - State something factual about the Padlet. Overall, it was X, Y or Z?

Emotional Hat - State something based on your feeling, - what did the Padlet make you feel? What impression did it give you?

Optimism Hat - State something positive about the Padlet, what has the Padlet owner done particularly well?

Cautious Hat – State something the Padlet owner should be cautious with particularly moving forward to the summative assessment

Creative Hat – How might the Padlet owner solve the problem suggested by the black hat?

Thinking Hat – What should the Padlet owner do next (thinking ahead to the summative assessment - Marketing Plan)?

Appendix D

Appendix D – Questions for Debrief

Questions:

1. How did you find the task?
2. How did the hat help you to think?
3. Were you able to maintain your focus just from that perspective?
4. How did it help you to reach a consensus?
5. Did the blue hat do a good job collating and providing the final grade?
6. Were you convinced each assessment received the grade it deserved?

More general questions may refer to the peer assessment element of the task

1. How did you feel about assessing your peer's work?
2. Did you feel better positioned as part of a group to assess than individually?
3. Do you feel that the mark you assigned and the feedback and feedforward that you gave is accurate?

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Gabbard, D. (2020): Silencing Ivan Illich revisited. A Foucauldian analysis of intellectual exclusion. Myers Education Press.

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Gabbard's book was originally published in 1993 as *Silencing Ivan Illich*, but then fell out of print after the publisher Austin & Winfield went out of business in 1995. It is not clear to me what the precise differences between the 2020 *Revisited* and the original version from 1993 are, but it appears that Gabbard not only added a helpful additional Preface, but in addition, re-examined his arguments. While looking high and low for the original book – and being unable to find it, I was delighted to find the new one. Scholars interested in Ivan Illich's controversial and brilliant work should be thankful to the new publisher, Myers Education Press, for the thought-provoking book at hand.

Gabbard's central thesis can already be found in a nutshell in the book's title. It is that Illich as the author of the classic *Deschooling society* (1971) had been 'silenced' for having committed the heretical act of denying the benevolence of state-enforced, compulsory schooling. Illich's *Deschooling society* is a stunning, controversial and counter-intuitive critique of the US public school system and compulsory education in general. Illich's thinking on education appears to be as relevant today as when his book was written close to 50 years ago. Gabbard provocatively states that in his perception, the "entire system of compulsory schooling was created to spread lies on behalf of state and corporate power" (4). Based on the "messianic principle of inclusion", in order for an author's discourse to enter the archive of educational discourse, the rules of formation governing their discursive practice must constitute the school as an inherently "benevolent institution that can deliver either the single individual or society as a whole, or both, into a state of secular salvation" (71). Illich's violation of this principle led to his exclusion from "educational discourse by the 1980s" (3).

In this book review, I will eventually critique Gabbard's core thesis, but not before I reconstruct the book's main contents and give it a fair – and by the way, fairly positive – hearing. In line with Gabbard's central argument (that Illich has been silenced and excluded and is thus largely forgotten), it would be wise to assume that the kind reader of this book review may be unfamiliar with Ivan Illich. Hence, I begin with some introductory remarks about his life and work.

Introductory remarks on Illich's life and work

Although it is tempting to go into much greater detail when it comes to Illich's fascinating life and work, I shall keep these introductory remarks to relatively broad strokes. Ivan Illich was born in Vienna in 1926 to a German, Jewish mother (who had converted to Protestantism) and a Croatian, Catholic father. In 1941, at the tender age of 15, being considered half-Jewish, Illich escaped the Nazis by fleeing from Vienna to Florence. After initially reading Histology and Crystallography at Florence University (under a false identity under Fascism) – and playing a small part in the Italian resistance, he studied in Rome and Salzburg and earned graduate degrees in History, Philosophy, and Theology (Illich & Cayley, 2005). Illich was ordained as a Catholic priest in 1951 (Cayley, 1992).

Illich arrived in New York in 1951 with the original plan to study the history of medieval alchemy at Princeton. However, he was moved by the plight of Puerto Rican migrants, and instead became a parish priest in Washington Heights (in Manhattan) and a culturally-sensitive champion of the newcomers (Fitzpatrick, 2002; Kahl, 2002, Madar, 2010; Todd & La Cecla, 2002). In 1956, Illich was appointed Vice-rector of the Catholic University of Puerto Rico. Rather than furthering his impressive career within the Catholic Church, Illich eventually felt compelled to speak out critically about the Church, for instance on the perceived contradiction of the Vatican's pronouncements on birth control and its relative silence about the atomic bomb. In addition, Illich's publicised position for a clear separation of Church and state led to him being declared persona non grata by the bishop, and he was told to leave Puerto Rico (Cayley, 1992; Fitzpatrick, 2002).

Illich's leaving Puerto Rica led to one of the most intellectually productive periods of his life. He relocated to Cuernavaca, Mexico, and founded and led the Centro Intercultural de Documentación (CIDOC) at Cuernavaca from 1961 to 1977. The purpose of CIDOC was to subvert the "contemporary crusade" for international development and discourage the sending of volunteers to 'developing countries' (Cayley, 1992, p. vii). Together with Paulo Freire, he was involved

in the founding of a similar centre in Petropolis, Brazil, but withdrew from it in 1967 (Mitchum, 2002). The subversive activities at CIDOC were dangerous, with Illich having been "shot at and beaten up by chains" (Cayley, 1992, p. 13).

In a series of concise books from the early 1970s to the early 1980s, Illich provides a devastating critique of institutions and envisioned: the 'disestablishment' of systems of education (*Deschooling society*, 1971); transport (*Energy and equity*, 1974); medicine (*Medical nemesis*, 1976); and work (*The right to useful unemployment and its professional enemie*s, 1978; and *Shadow work*, 1981) – arguing against the concept of humankind as primarily a homo oeconomicus – and homo educandus. Illich's provocative and counterintuitive theses include: that schools are the enemy of learning; cars are immobilising; modern medicine makes people sick; and the justice system generates crime (Illich, 1973).

Illich's surprising and radical critique focuses on elements of modernity that appear to have undeniable benefits: education, health care, transportation, communication, labour-saving machines, economic development. In Illich's perspective, experts have come to exert a radical monopoly on such basic human activities as health, learning, and agriculture, leading to a war on subsistence that robs societies of their vital skills and know-how. Economic and institutional development result in paradoxical counterproductivity and, especially in emerging economies, in modernised poverty.

In Illich's later years, he transformed himself once again from a social critic to a historian and peripatetic professor. Illich eventually embarked on an intellectual journey into the Middle Ages, notably into the 12th century which was to serve the purpose of bringing the strangeness of the present into dramatic relief (Illich, 1993). In the 1970s, Illich's books were bestsellers and his lectures jammed auditoriums. His publisher Marion Boyars (2002, p. 46) recalls that many major universities invited Illich, and on one occasion in Dublin, "all lecture halls were used for the eight thousand people who had to listen via radio linkup" – his books sold like "hotcakes". But by the 1980s, Illich's celebrity had largely faded. Especially unpopular was his 1982 study Gender that was vilified by feminists, as it controversially claimed that the feminist pursuit of equality would lead to new disadvantages for the majority of women, while favouring only a minority of them. In the 1980s and 1990s, Illich wrote about the historicity of materials (*H_2O and the waters of forgetfulness*, 1985), literacy (*ABC, the alphabetisation of the popular mind*, 1988) and the origins of book-learning (*In the vineyard of the text*, 1993). He constantly travelled between Bremen (Germany), Penn State (U.S.) & Cuarnavaca (Mexico). Before his death in 2002, he suffered terribly due to a disfiguring cancer. He refused surgery, as he was concerned that it might affect his intellectual capacity, and rather self-medicated (Illich & Cayley, 2005).

A critical discussion of Gabbard's Silencing Ivan Illich Revisited

After this introductory excursion into Ivan Illich's exceptional life and work, let us return to Gabbard's book and its full title that states that it is a Foucauldian Analysis of Intellectual Exclusion. Gabbard uses a perspective and methodology on Illich that he picked up from the French philosopher and historian Michel Foucault, with particular reference to the latter's *Archaeology of knowledge* (1982) approach and the inseparability of power and knowledge. Discourses – including educational ones – are governed by particular sets of rules that determine what can and cannot be said. Adopting Foucault's theoretico-active methodology (that blurs the lines between theory and practice and sees theory and practice as similarly inseparable as knowledge and power), Gabbard sets out to understand the discursive forces and relations of power and knowledge responsible for the 'marginalisation' of Ivan Illich from educational discourse.

Influenced by Foucault's observation that a book's "unity is variable and relative" and it being "a node within a network" (cited in 20), Gabbard makes the rather peculiar decision to somewhat camouflage the two works by Illich that he chooses to focus on – *The celebration of awareness* (1970) as "Text One" and *Deschooling society* (1971) as "Text Two" – and not discuss Illich as an author upfront (this is the diametrically opposite approach to the one taken in this book review). Gabbard's thin book (originally based on his doctoral dissertation at the University of Cincinnati) is of similar brevity as Illich's *Deschooling society* and consists of six chapters: (1) To explain an exclusion; (2) Theoretico-activism; (3) To deny the pastoral; (4) Practices of exclusion; (5) An analogous exclusion; and (6) The archive and other transgressions.

Gabbard convincingly combines some of Illich's and Foucault's thoughts on the Church and its influence on modern institutions. The Church has lost much of its previous pastoral power, and this power has undergone a major transformation and become dispersed through a multitude of institutions. Gabbard observes with Foucault that religious salvation in a world after death has to some extent been replaced with a different type of salvation: health, wealth, standard of living, and security. And in *Deschooling society*, Illich (1971, p. 10) writes that schooling has become the "world religion of a modernised proletariat, and makes futile promises of salvation to the poor of the technological age".

In *Deschooling society*, Illich perceives modern schools as manipulative institutions that possess a radical monopoly and counter-proposes convivial institutions – the latter being an idiosyncratic conceptual choice that is further explored in his *Tools for conviviality* (1973). It refers to institutions fostering a sense of interrelatedness between individuals who spontaneously and voluntarily participate in them. Convivial institutions aid in shaping a different sort of social experience and social reality. Consumerism and an unreflected belief in ever-increasing industrial productivity and 'progress' are opposed. Gabbard reinterprets Illich's ambiguous battle cry of 'deschooling' as a transformation of schools into convivial institutions, rather than getting altogether rid of them.

Deschooling society, in its most radical interpretation, means the 'disestablishment of schools' – an interpretation from which Illich has explicitly distanced himself. A less radical meaning is the abolition of compulsory schooling, in particular in the U.S. (that Illich was largely referring to in his

attention-grabbing book title). Illich later clarified: "I never wanted to do away with schools" (cited in Cayley, 1992, p. 64). Illich was aware that the title of his book may sound "like treason to the enlightenment" (Illich, 1971, p. 24). However, it is his argument that "it is enlightenment itself that is now being snuffed out in the schools", and deschooling would be "at the root of any movement for human liberation" (1971, pp. 24, 47). *Deschooling society* can be reflected upon in the context of Illich's broader critique of development and the paradoxical counterproductivity of institutions.

In Illich's perspective, the 'schooling of society' leads to two undesirable consequences: (1) a public dependency on the commodity of education that convinces the poor of their inferiority, thus justifying their inferior socio-economic status and stimulating underdevelopment, and (2) the modernisation of poverty. Gabbard (45-46) cites Illich: "educational disadvantage cannot be cured by relying on education within the school"; and the school as the institution that specialises in education "discourages and disables the poor from taking control of their own learning".

Gabbard distinguishes three principal positions when it comes to the school system. The first one is that of meritocrats. By forcibly exposing all individuals, mandatory public schooling provides us with an equal opportunity to acquire 'enabling functions' and display merit "that can be applied to serve the interests of society as a whole" (70). The various levels in a stratified society are justified "on the basis of the high degree of merit displayed by those at the top of the hierarchy and the low degree of merit displayed by those at the bottom" (58). Meritocrats, in Gabbard's analysis, are particularly inclined to 'silence' Illich's discourse as it threatens "the very existence of the sorting mechanism itself" (92).

The second position is occupied by social reconstructionists. In the words of Gabbard (70):

> "The rule that governs the social reconstructionist's discursive formation states that: In order to properly speak of the school, one must conceptualize it as an agency that, in order to fulfill its proper mission, gives rise to an increased awareness among individuals of the radical changes that need to occur within society in order for a truly egalitarian society (secular salvation) to emerge, for only with such awareness can individuals become 'empowered' to enact those necessary changes" (70).

The social reconstructionists, while not opposed to mandatory schooling, "are vehemently opposed to the school serving the role of a sorting mechanism which reproduces a society that is stratified along the lines of socio-economic class" (92). The third and final position is that of Illich – again, to quote Gabbard:

> "The school, as an institution, is not capable of leading anyone to secular salvation. To the contrary, secular salvation can only be achieved if humanity abolishes its dependence on institutions such as the school for the fulfilment of authentically human values" (70).

The final two chapters of Gabbard's book are amongst my favourite parts. They deal with Illich's issues with the Catholic Church (chapter 5), provide a wider historical context of compulsory schooling in the U.S and discuss the works of other scholars that Gabbard perceives as similarly marginalised as Illich (Everett Reimer, Jerry Farber, and Paul Goodman – all worthwhile adding to one's reading list – chapter 6). Chapter 5 reconstructs Illich's disenchantment with what he perceived as the North American Church's cultural imperialism in its pastoral activities in Central and Latin America. While being America's youngest Monsignor, Illich began to reject the pastoral image of the institutional church and denounce its "'savior complex'" (76). Gabbard cites Illich's *Celebration of awareness* (86): "Men and money sent with missionary motivation carry a foreign Christian image, a foreign pastoral approach, and a foreign political message. They also bear the mark of American capitalism".

Amongst many other insightful observations in the final chapter, Gabbard traces "the first manifestation of the sort of messianic discourses that have continued to project a pastoral image of the school throughout the history of American society" (94) to the Massachusetts Law of 1642. The book is concluded by a call to depoliticise the classroom. An advantage of a pedagogy grounded in theoretico-activism would be that teachers are enabled "to maintain an acceptable distance from the discourses to be analysed / taught" (112). Interestingly, Gabbard believes that "proper pedagogical practices rely on the integrity of the teacher" (112).

It is now time to critique Gabbard's central thesis that was stated at the outset of this book review. It occurs repeatedly in various passages throughout the book. Due to Illich's violation of the messianic principle that governs messianic institutions, he was excluded "from two communities" (89): "Insofar as Illich was once a monsignor with the Catholic church and was once a major author within the discursive community of education, there is a certain analogy that can be drawn here" (75). As a consequence, "Illich has not been heard from within the archive of educational discourse for many years" (89). What evidence does Gabbard provide for the discursive exclusion of Illich? He provides an anecdote about Illich's office neighbour at Penn State University, Leonard Waks, who recounts that a typical reaction when Illich met somebody new was saying: "'Oh yeah, I've heard of you. But I thought you were dead'" (73). Gabbard further states:

> "this is hardly an empirical measure of the validity of my assertion that Illich's discourse has been silenced within the educational community, but I believe that it gets the point across. How could a person whose writings 'burst' upon the education scene with such vitality have become so marginalized just twenty years later?" (73)

There are so many problems with Gabbard's exclusionary thesis that it is easiest to start with his minor claim. Chapter 5's argument of an "analogous exclusion" is contestable. While I do not dispute the inquisition-like interrogation that the Vatican had planned for Illich in 1969 and that Illich bravely refuted, it was Illich himself who decided to

stop working as a priest and give up all titles, advantages and privileges that he was entitled to. However, it was the Church that did not accede to that request, and much later, when Illich taught for the University of Kassel (Germany), a cheque was made out to "Monsignore Ivan Illich" (Pacquot, 2017, p. 32). In addition, Illich (1985) continued to refer to himself as both 'Christian' and 'theologian'.

Gabbard's much more central claim of course regards Illich's exclusion from the archive of educational discourse. A Google Scholar search on 17 May, 2020, discovered 7,650 citations of *Deschooling society*, whereby 1,050 of these citations have been made in or after 2016. In contrast, Gabbard's book has thus far zero citations – this will undoubtedly soon change, as the book has only been available for a couple of months. When it comes to Illich, there is even a specially-dedicated open access journal, *The International Journal of Illich Studies*.

Gabbard's exclusionary thesis also appears to ignore that Illich was a man of many interests with his other works also continuing to attract an immense number of academic citations: for instance, *Medical Nemesis* has thus far garnered 5,741 citations. In my analysis, it was not so much a discursive exclusion based on *Deschooling society* violating a messianic principle that moved Illich away from the limelight. Rather, it was his controversial book *Gender* that led to Illich falling out of favour with a large portion of the public. On a more general note, authors oftentimes become fads and then become forgotten, and there is nothing nefarious about it necessarily. But being forgotten, silenced or excluded is not Illich's fate.

A related problem is that Gabbard's discussion is fairly U.S.-centric and provides a very limited review of the literature that focuses on some admittedly interesting articles (many come from the compilation of critical articles, entitled *After deschooling what?*) and some select books. Also, as with many other native English speakers, Gabbard shows the unfortunate tendency to ignore the academic literature in other languages. This is highly problematic, considering the multilingualism of Illich himself and also the reception of his work in Spanish, French and German, to name but a few languages that Illich was astonishingly fluent in. To only provide a few counter-examples that provide evidence against Gabbard's exclusionary thesis from the German and French literature, there are five books on him that have been published from the 1980s onwards: (1) a collection with contributions by prominent academics discussing various aspects of Illich's work, edited by Pfürtner (1985); (2) and (3): two very different books on Illich's life and work, a largely positive one by Kaller-Dietrich (2008) and a highly critical one by Kohn (2012); (4) Bachmann (2013) in her book discusses the differences and commonalities between four 'revolutionary' pedagogues: A. S. Neill, Freire, Holt and Illich; and finally, Paquot in 2012 wrote a book in French on Illich as thinker and rebel that was translated into German in 2017.

Illich himself of course continued to be a highly popular professor till the end of his life, and in 1985 (when, according to Gabbard, he had already become 'silenced'), published a book on education in German: *Schule ins Museum. Phaidros und die Folgen* (which I loosely translate as 'The musealisation of school. Phaidros and the consequences'). Finally, browsing through the *Journal of Applied Learning and Teaching* shows that three prominent educational thought leaders discussing Illich in positive terms (Biggs et al., 2019; Brookfield et al., 2019; Siemens et al., 2020).

All in all, there is more than sufficient evidence against Gabbard's core thesis of discursive exclusion. This is not to deny that Illich never entered the educational mainstream. A more accurate assessment, however, may be that Illich, together with other 'alternative' or 'revolutionary' pedagogues, continues to be discussed by scholars and practitioners who are interested in exploring alternatives to contemporary educational systems. In conclusion, Gabbard should be congratulated on his original choice of combining Foucault and Illich, two 20th century titans of critical thinking that very much deserve our further revisiting and reflection. I highly recommend *Deschooling society* and other works by Illich – and Gabbard's book thankfully adds a noteworthy interpretation to the canon of Illich studies.

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Choudry, A. & Vally, S. (Eds.) (2020). The university & social justice. Struggles across the globe. Pluto Press.

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In this laudably international collection, Aziz Choudry (an Associate Professor and Canada Research Chair at McGill University) and Salim Vally (a Professor and Director at the Centre for Education Rights and Transformation (CERT) at the University of Johannesburg) bring together contributions from a dozen nations. We are usually better informed about the goings-on in our own countries and (most probably) in the English-speaking world, but may know less about the Higher Education (HE) situations in countries that are less in the limelight, for instance, in Palestine or Nigeria. This book (to which a total of 21 authors, who come from a variety of shades of the political left, contributed) provides an excellent opportunity to learn more about student activism across four continents: Africa (Nigeria and South Africa), the Americas (Canada, Chile, Mexico and the U.S.), Asia (India, Palestine, Philippines, and Turkey) and Europe (France and the UK).

The student revolutions of 1968 are but a distant memory. However, the last half century has seen protest movements across the globe. In JALT's previous issue, I had reviewed Bhambra, Gebrial, & Nişancıoğlu's (2018) edited volume, entitled *Decolonising the university*, also published by Pluto Press (Rudolph, 2019). The book at hand makes references to calls for decolonisation and 'Rhodes must fall' and can be seen as a companion volume. Student movements across the globe exhibit numerous differences, but many of their focal points can be subsumed under the concepts of economic and social justice. There are calls for institutional change (de-corporatising and democratising universities) and there is opposition against military research, sweatshops supported by apparel manufacturers, environmentally-destructive businesses, sexism, racism, and economic marginalisation.

Whilst the editors appreciate universities for their potential to address social inequality and their facilitating the "circulation of knowledge" (8), a trend towards marketisation and privatisation is observed: "Universities are recast from a public to a commodified sphere, with students as consumers" (8), "faculty as customer service" (122) and "staff as sales consultants replete with corporate values and corporate planning networks" (8). Such a commodification of HE alienates "it from its emancipatory possibilities in the service of profit" (10). In passing, there is also a warning against the blind embrace of EdTech and the ardent, techno-utopian promotion of the Fourth Industrial Revolution by university administrations in the editors' introductory chapter.

All contributors to *The university & social justice* were requested to reflect on some pertinent questions. "What can be learned from the strategies, tactics, demands and visions generated by student movements? How have these struggles resonated (or not) with other parts of society? How do current / recent movements / forms of activism relate to earlier moments in history / periods of struggle over education and society?" (6). And: "What are the horizons of possibility to reimagine education for liberation outside of the limited imagination of the neoliberal university and educational capitalism?" (16). These are highly politically-charged questions that to anybody with an interest in the global history of student movements and HE are worthwhile considering.

The 12 country case studies are kicked off with chapter 2. Jamie Woodcock (a researcher at the Oxford Internet Institute) reflects on his personal activist involvement and narrates the story of the 2010 UK student movement that was influenced by macro-events such as the Iraq war (supported by Tony Blair's Labour government), Israel's Gaza Strip invasion in 2008 (resulting in Palestine solidarity), and the Global Financial Crisis of 2008. The corporatisation of UK universities had a landmark event in 2010, when UK MPs voted in favour of tripling the existing limit of tuition fees to £9,000 p.a. (initially, the maximum fee was supposed to be an exception, but it quickly became the norm).

In chapter 3, Prem Kumar Vijayan (Hindu College, Delhi University) provides an excellent analysis of India's student organising in the context of castes and social classes. In the offensive bureaucratic terminology, there are 'Other Backward Castes (OBC)' that constitute close to half of India's more than 1.3 billion people. Historically, students from lower income families tend to be 'lower-caste' and excluded from HE. A reservation system was created to provide compensatory access to public universities, but its implementation is wanting, resulting in "techniques

Figure 1. Demonstration at the Palace of Westminster. Student demonstrators march past the London Houses of Parliament in opposition to planned spending cuts to further education and an increase in tuition fees in November 2010. Source: BillyH, English language Wikimedia, CC BY 3.0, https://commons.wikimedia.org/wiki/File:Student_protest_march_past_Houses_of_Parliament.jpg.

of exclusion disguised as stipulations of eligibility" (44). Moreover, there has been a trend towards HE's privatisation, with the reservation system not applicable to these largely 'upper-caste' institutions.

Gülden Özcan (Assistant Professor, University of Lethbridge, Canada) brings us to Turkey in chapter 4. Özcan argues that Turkey has a long history of violations of academic rights and freedoms – including "discriminating against women, LGBTQ people, people with disabilities and Kurdish people in academia" – despite the widespread perception that under President Erdoğan's rule, "these are the darkest times" (74). After the coup attempt of 2016, many thousands of academics have been persecuted, sacked, and/or banned from leaving the country, with President Erdoğan labelling academics as "traitors" (who support terrorism) and "pseudo-intellectuals" ("most of whom even are paid by the state, and carry state identity cards") who "are dark and ignorant" (cited in 65).

In chapter 5, rosalind hampton (Assistant Professor, University of Toronto) critically reflects on the 2012 Québec student movement and puts it into the historical context of settler colonialism, where through "appropriating the struggle of racialised, colonised others, French settlers re-imagined themselves as the 'native' population of Québec who faced invasions of the British colonisers and American capitalists" (86).

Javier Campos-Martinez and Dayana Olavarria are both PhD candidates at the University of Massachusetts, Amherst. In chapter 6, they discuss three waves of Chilean student mobilisations between 2006 and 2018. During the 'Penguin revolt' of 2006, secondary school students in their classic black and white uniforms critiqued the high degree of segregation in the education system, the constitutional law inherited from the Pinochet military dictatorship, and "the differences in quality, resources and support between public and private institutions" (103). Other waves included the 'Chilean spring' of 2011 and the Feminist wave of 2018.

Figure 2. On 30 March, 2005, a group of students hoisted the students' symbol (a red square) on Mount Royal cross in Montreal. It took 24 hours before authorities removed it. On its lower panel, it said: "Arrêtons de sacrifier nos enfants" (Let's stop sacrificing our children). Source: Philippe42 at the English language Wikipedia, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=21009455.

Figure 3: The entrance to the University of Chile which was occupied by students in July 2011. The sign reads "La lucha es de la sociedad entera / Todos por la educación gratuita" (The fight is for the whole society / Everybody for free education). Source: Osmar Valdebenito, English language Wikimedia, CC BY-SA 2.0, https://commons.wikimedia.org/wiki/File:La_educaci%C3%B3n_no_cabe_en_tu_Moneda.jpg.

Rabab Ibrahim Abdulhadi (Senior Scholar, San Francisco State University (SFSU)) and Saliem Shehadeh (doctoral student, UCLA) in chapter 7 provide a case study of the Arab and Muslim Ethnicities and Diasporas (AMED) programme at SFSU. Islamophobia, as well as anti-Arab and anti-Palestinian racism, is decried, while labelling Palestine advocates as anti-Semitic, and equating anti-Semitic with anti-Zionist, are rejected. The issue is that Zionism espouses the re-establishment of a Jewish state in the territory of the historic Land of Israel, and this 'Holy Land' includes Palestine. Interestingly, SFSU has a student group named "Jews Against Zionism" (JAZ). Abdulhadi and Shehadeh exemplify how the 'Israel lobby' attempts to influence academic decision-making via million-dollar donations. The corporatisation of universities such as SFSU leads to an increased need for fund-raising, with "the measure of a university's success" being "the size of its endowment" (121).

With chapter 7 passionately arguing the Palestinian case in the U.S., Lena Meari (Assistant Professor, Birzeit University) and Rula Abu Duhou (a researcher at the same university) in chapter 8 discuss student activism in Palestine itself. From a Palestinian perspective, 1948 was the year of Nakba (catastrophe), "when Zionist military groups occupied 78 per cent of Palestine, destroyed over 500 Palestinian villages, and expelled two thirds of the Palestinian people" (139). Meari and Abu Duhou provide a helpful historical overview of origins and developments of Palestinian student movements. Birzeit University is described to be under neoliberal governance, and this led to proposed fee increases that students and faculty successfully fought against. The authors perceive this as a renewal of the Palestinian anti-colonial, anti-capitalist and social justice struggle.

In chapter 9, Alma Maldonado (a researcher at Center for Advanced Research, Mexico City) and Vania Bañuelos Astorga (a master's student, CREFAL) transport us to Mexico which has a long tradition of student revolts. They focus on three Mexican student and youth movements. The first, #YoSoy132 ('I am 132'), took place in 2012 as a protest against a presidential candidate, Enrique Peña Nieto. It began with a home video that introduced 131 Ibero-American University students who protested against the campus visit of the candidate (Peña Nieto became President from 2012 to 2018 anyway). The second movement, #TodosSomosPolitécnico (We are all Polytechnic), centred on mass demonstrations and a strike at a Mexican polytechnic. The third student movement was the Ayotzinapa protests. They occurred after 43 rural teacher education students had been presumably murdered "with the complicity of the police and military in Igula, Guerreo" on 26 September, 2014 (159).

Julie Le Mazier is a postdoctoral researcher at Université Paris 1 Panthéon-Sorbonne. Her chapter 10 is based "on an ethnographic investigation, through long-time immersion among student activists" (175) in France in the late 2000s. Unsurprisingly, amongst the far left, watchwords from 1968 such as autogestion ('self-management') and 'direct democracy' continued to be in use.

Chapter 11 by Asher Gamezde (a cultural worker, based in Cape Town) and Leigh-Ann Naidoo (an educationalist at the University of Cape Town) focuses on recent campus revolts

Figure 4. Situationist grafitti in Menton, France, 2006: The 1968 slogan "Il est interdit d'interdire! (It is forbidden to forbid!), with missing apostrophe. Source: https://upload.wikimedia.org/wikipedia/commons/6/66/Situationist.jpg

in South Africa and also contains a well-informed critique of standard academic knowledge production. The South African students' social media campaigns certainly showed savvy and humour: Demands for free education (#feesmustfall or #fmf) and in-sourcing (#outsourcingmustfall or #omf) came after the call for decolonising universities (#rhodesmustfall or #rmf) and #blackstudentmovement (#bsm).

Figure 5: Students from the University of Cape Town marched to the local police station on 20 October, 2015, to demand the release of other students arrested the night before. Source: Discott, English language Wikimedia, CC BY-SA 4.0, https://commons.wikimedia.org/wiki/File:Second_day_of_the_FeesMustFall_protests_at_the_University_of_Cape_Town_04.JPG.

Rhoda Nanre Nafziger (doctoral candidate) and Krystal Strong (Assistant Professor) research both at the University of Pennsylvania. They narrate the history of Nigeria's student movements in chapter 12. In Nigeria, "the fight against imperialism, militarism and neocolonialism in the struggle for human rights and equitable, accessible public education"

has been central to student mobilisations (207). Nafziger and Strong describe the sorry state of HE in the African continent's most populous nation in stark terms: "While Nigerian educational institutions were once recognised as among the best in Africa, many universities have become unaccredited, and the overall decay in the system has led to a mass exodus of faculty and students abroad" (218). The situation in the 1990s was described as "book famine, crowded classrooms, lack of consistent electricity, water supply and learning equipment, lecturers not showing up to teach, unpaid scholarships, and lack of general concern of the government to the deteriorating conditions of the universities" (cited in 211). Alas, there was no apparent improvement in the 2000s, with "starving, overcrowded and deprived students" (cited in 216).

The final chapter 13 by Sarah Raymundo (Assistant Professor, University of the Philippines) and Karlo Mongaya (an instructor at the same university) discusses the HE situation in the Philippines. The authors do not mince their words in assessing President Rodrigo Duterte as "a fascist demagogue" who throws "off liberal niceties in favour of militarist rule" (236). This would be an extremely ill-advised public statement if one indeed resided in a country ruled by a "fascist demagogue". A similarly controversial contention by Raymundo and Mongaya is that the Philippines' "so-called postcolonial governments are no different from the colonial governments of Spain and the US" (238).

I would like to end this book review with some critical considerations. Gamezde's and Naidoo's chapter 11 on South Africa is amongst the sections that I found most thought-provoking. I was, however, surprised by the apparent exclusion of non-Black students in the publishing project across several universities that is described in their chapter. It made me think about what Stephen Brookfield recently wrote on race and racism in the context of HE. Brookfield views "white supremacy as the philosophical foundation of racism" (2019b, p. 4), and I think this leads to the corollary that racism by Blacks is per definitionem impossible. If the issue of race is "one of the greatest scars on America's soul" (Brookfield, 2019a, p. xv), this must be at least as true for South Africa. This leads us to the question whether or not non-white racism is possible. To be clear, I am not accusing the authors of any racism whatsoever, and South Africa with its post-Apartheid national reconciliation and muliculturalism in the Rainbow Nation appears to be a shining example in many ways.

More critically, Ernest Mandel is cited as writing that the university as an institution "remains bound with golden chains to the power of the ruling class" (cited in 17) and "that any lasting radical transformation of the university could only occur if there was a radical transformation of society" (17). This idea from the editors' introductory chapter is picked up again in chapter 3 by Vijayan who recalls "the Gramscian-Althusserian contention" of "the primary objective of education (and any such institutional apparatus)" (42). This line of thinking perceives HE's systemic function as producing "malleable, obedient and docile" subjects that are capable to contribute productively to "the larger hegemonic order" (42). With additional references to Foucault and Bourdieu, it is suggested that "the entire structure and infrastructure of higher education (HE) is deliberately designed (or has historically evolved in design) to tame and subdue the generations of 'unruly subjects' who will pass through them" (42).

Although the above contentions by some of the above-mentioned Marxist thinkers (in particular, Mandel, Gramsci and Althusser) and non-Marxist thinkers (such as Foucault) are worthy of our critical reflection, I personally do not subscribe to theories that posit teachers as being "unaware of the forces constraining" them and them being "somehow unwitting agents of the state mindlessly reproducing dominant ideologies" – as Brookfield put it so well in a recent interview (Brookfield et al., 2019, p. 85). We could also question the directionality of the statement that quasi-causally, the transformation of society is supposed to precede the one of the university. Could not educators bring about change that leads to societal transformations? Overall, it is certainly a more uplifting thought to view HE (with Marcuse and Brookfield) as a zone of potential liberation.

It may have been useful to include even more countries (Brazil, China, Hong Kong and Malaysia are some nations that spontaneously come to my mind). However, I enjoyed reading *The University & social justice* and found it surprisingly hard to put down. I recommend the book highly, particularly for its unique insights into HE and student movements by academic insiders in select countries across the globe. It provides us with a refreshingly different angle on global HE that should not be ignored, if we are to take seriously the oft-implored, mantra-like values of student-centricism and critical thinking.

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Brookfield, S. & Associates (2019). Teaching race. How to help unmask and challenge racism. Jossey-Bass.

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> If you can't speak out against this kind of thing, a crime that's so unjust,
> Your eyes are filled with dead men's dirt, your mind is filled with dust.
> Your arms and legs they must be in shackles and chains, and your blood it must refuse to flow,
> For you let this human race fall down so God-awful low!
> (Bob Dylan, The Death of Emmett Till, 1962)

One evening in August 1955, 14-year-old Emmett Till, while visiting his uncle in a Mississippi village, went to a grocery store to buy candy. Emmett is said – and even this is disputed – to have whistled admiringly at the sight of the attractive white storekeeper, Carolyn Bryant. This was a violation of the unwritten racial code that still prevailed in the southern states at the time. A few days later, Roy Bryant and his half-brother J.W. Milam kidnapped and tortured the black teenager, shot a bullet in his head, weighted his body with metal and barbed wire, and threw him into a river, seriously injured and still alive (Pitzke, 2018). Despite the overwhelming evidence against Bryant and Milam, the all-white male jury acquitted the accused. Bryant and Milam admitted killing Emmett Till in an interview shortly thereafter, but remained unmolested as they were protected against double jeopardy.

Figure 1: Part of display with racist quote from murderer of Emmett Till - National Civil Rights Museum, Downtown Memphis, Tennessee, USA. Photo taken by Adam Jones on 14 May, 2012, CC BY 4.0. https://en.wikipedia.org/wiki/File:Display_with_Racist_Quote_from_Murderer_of_Emmett_Till_-_National_Civil_Rights_Museum_-_Downtown_Memphis_-_Tennessee_-_USA.jpg

The photos of Emmett Till's disfigured body and the scandalous acquittal became a symbol of resistance and an icon of the U.S. civil rights movement (Pitzke, 2018).

Figure 2: Mississippi Freedom Trail Marker in Money, Mississippi, explaining how Emmett Till's visit to Bryant's Grocery led to his murder. Photo taken by Eames Heard on 20 May, 2018. CC BY 4.0, https://commons.wikimedia.org/wiki/File:Bryant%27s_Grocery_Mississippi_Freedom_Trail_Marker.jpg

Fast forward 65 years later after Emmett Till's gruesome, racially-motivated murder. The killing of a black man, George Floyd, by a white policeman in broad daylight in Minneapolis, invoked memories of America's long history of racial injustice. "I'm still crying for Emmett Till", read one note decorated with hearts, beside a sketch of the 14-year-old lynched in 1955 (*The Economist*, 2020a). George Floyd, in some ways, is perhaps the 21st century Emmett Till.

In the U.S., racial injustice began with the original sin of slavery, but even after its hard-fought abolition, it has endured due to white supremacist beliefs and racial

discrimination. George Floyd's death has provoked protests around the world, strengthening the global Black Lives Matter movements and providing them with widespread multiracial, multi-generation support. Global outrage was caused by Floyd's killing having been filmed in excruciating detail. Also, police brutality against minorities is rife in many countries around the world. *The Economist* magazine (2020b) drew a parallel between the #BlackLivesMatter and #MeToo movements: "Just as women on every continent found common cause in the #MeToo movement, despite the range of their experiences, so protesters around the world have united around the cry that black lives matter".

Thanks to the recent Black Lives Matter protests and their creating awareness about the systemic racism and racial discrimination in the U.S. and elsewhere, the importance of Brookfield and co-authors' book under review should be glaringly obvious. Although Teaching race was published before the murder of George Floyd, there is an extremely helpful discussion of violence in the book (George Floyd is of course but one of the many unarmed black people killed by the police in the U.S.). Citing Galtung (in 105), the structural violence of racism manifests itself as "unequal power and consequently as unequal life chances", while the cultural violence of racism refers to cultural aspects (assigning individual characteristics such as 'inferior', 'lazy', 'stupid', or 'inherently violent') "that can be used to justify or legitimate direct or structural violence". Structural and cultural violence are then "used to justify direct violence, as housing is destroyed in gentrification, calls for justice are repressed as riots, and unarmed people of color are disproportionately killed by police" (105). Another indication of systemic racism is the mass incarceration of black people. The collective trauma of black people is invisible to other communities for whom it is not a daily reality. "Physically and emotionally, people of color find themselves drained, more marginalized, and less hopeful about the future" (235). Violence in communities of colour is a symptom, and not the cause, of poverty.

Teaching race is led by Stephen Brookfield and co-authored by 17 "associates" of the lead author and editor. It first and foremost aims to be a guidebook to teach about the emotionally-charged and contentious issues of race and racism. *Teaching race* provides numerous activities, exercises, resources, techniques and strategies to examine racism in the classroom, and some of them may also be helpful to teachers involved in adult and higher education in different contexts. The target audience is "anyone interested in antiracist practice" (xvii).

Stephen Brookfield is a world-famous educational thought leader who hardly requires an introduction, also not to the faithful readers of this journal. JALT's previous issue saw a review of the second edition of Brookfield's classic *Becoming a critically reflected teacher* (Rudolph, 2019), and he also granted us an interview in which he disclosed that his forthcoming 20th book will be on *Creating an anti-racist white identity* (Brookfield et al., 2019). While we are wishing Brookfield all the best for his impending milestone, a review of his 19th book, *Teaching race*, is in order.

Teaching race is "a work of passion intended to address one of the greatest scars on America's soul" (xv). Brookfield writes that "this is not a book of analysis (though there certainly is analysis in here) but a book of action" (xv). Such practicality as well as modesty is typical for the self-deprecating Brookfield, but the latter is quite unnecessary. While the techniques and activities described in the book are undoubtedly very useful (Brookfield and co-authors are highly reflective experts on a plethora of participatory teaching and learning methods), I appreciated the analytical aspects of the book at least as much as the practical, actionable aspects. Every chapter comes with helpful references and there is a 20-page bibliography at the end with more than 200 items as well as an eight-page index (in addition, the authors' biodata are included over eight pages at the beginning of the book).

Brookfield's introductory chapter damningly states that we "live in a time of rampant racism fuelled and legitimized by racist political leaders" (1). Racism is hugely damaging, as it excludes "large groups of people from full participation in political, social and economic life" (1). Racism is discussed largely as a structural rather than an individual problem. Racism is a system of beliefs and practices

> "in which public policies, institutional practices, cultural representations, and other norms work in various, often reinforcing ways to perpetuate racial group inequity. It identifies dimensions of our history and culture that have allowed privileges associated with 'whiteness' and disadvantages associated with 'color' to endure and adapt over time. Structural racism is not something that a few people or institutions choose to practice. Instead it has been a feature of the social, economic and political systems in which we all exist" (123).

In Higher Education (HE), "racism is glaringly evident in admission policies, disciplinary guidelines, curricula, hiring practices, attrition rates for faculty and students of color, and the composition of boards of trustees" (2-3). Apart from racism, related key terms in the book are white supremacy, racist microaggressions, and repressive tolerance. White supremacy does not refer so much to obvious examples such as the Ku Klux Klan (KKK), Aryan Nations and other extreme white nationalist terrorist groups, but rather "the idea that whites, because of their superior intellect and reasoning power, should be in control of decision-making for society as a whole" (4). The book's authors perceive white supremacy as the all-pervasive "philosophical foundation of racism" (4).

Another useful key term highlighted by the authors is microaggressions. They are at the level of everyday behaviour that enacts the ideology of white supremacy and keeps racist systems in place. Microaggressions are defined as "daily verbal, behavioural, and environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial, gender, sexual-orientation, and religious slights and insults to the target person or group" (Sue, cited in 54).

Brookfield also warns to watch out for repressive tolerance, a brilliant term originally coined by Herbert Marcuse. Repressive tolerance refers to institutions managing threats to their authority and legitimacy by only appearing "to be changing while keeping things as they are" and making "small, symbolic changes to institutional functioning" and presenting them "as substantial and important" (10-11).

At the end of Brookfield's magisterial introduction to the book, he states that the rawness of teaching about race will mean that teachers may constantly feel out of their depth. Hence, approaches to address racism and white supremacy by the book's authors can be classified into the three umbrella categories of scaffolding, modelling and community building.

In chapter 2, George Yancy, a black philosopher and leading public intellectual on race, describes "whiteness" as a site of power, privilege and hegemony. Yancy models vulnerability for white students by describing his own sexism, thus hoping to change their understanding of racism so they can begin to see themselves as racist. Labelling white students as racists does not imply that they are horrible people. This is quite an important point that is made on various occasions throughout the book. For instance, Klein in chapter 5 emphasises that the point of such a critical pedagogy is "not to assign blame or wallow in guilt, but to critically assess normative assumptions and to free ourselves from racist social constructions so we can pursue education as the practice of freedom" (89) – referring to Paolo Freire and bell hooks (whose name is intentionally in small letters). Buffy Smith also states helpfully that "white guilt is not the desired educational outcome" (187).

However, Yancy's rather persuasive argument is that white people benefit from white systemic racism and thus contribute to the maintenance of that system. A white person in the U.S. cannot be exempt from the "relational dimensions of white privilege and power", as they are "in socially, politically, and economically oppressive relations" (31). However, with reference to the iconic bell hooks, HE classrooms continue to be locations of possibility in which we can be radically open and "transgress and oppose all manifestations of oppressive structures" (40).

In chapter 3, Susan Hadley (a professor and director of music therapy at Slippery Rock University, Pennsylvania) discusses teaching whiteness in predominantly white classrooms. One of Hadley's educational techniques is to provide the example of 'handedness' (with the world being wired for right-handed people) before moving on to a critical discussion of white privilege. The whole book provides references to excellent documentary film resources, and Hadley is the first of several authors in *Teaching race* that refers to Lee Mun Wah's (1994) important and difficult-to-watch documentary *The Color of Fear* – a film in which eight men of different racialised backgrounds talk about the state of race relations in North America.

Lucia Pawlowski is an assistant professor at the University of St. Thomas, Minnesota, and the author of chapter 4 that is about the creation of brave space classrooms through writing assignments and social media to help students explore racial identities. Pawlowski regards the creation of *safe* spaces as a learning and teaching environment (in which learners 'agree to disagree', 'avoid personal attacks', and 'respect each other') as a platitude and replaces it with *brave* space, where controversy is invited and embraced. Like other authors in *Teaching race*, Pawlowski justifies her approach by referring to bell hooks who, in *Teaching to transgress* (1994) referred to classrooms as enactments of bourgeois democracy. The "idea of classrooms as calm, reasonable, even-tempered analytical havens means that white students are never confronted with the raw anger and hostility expressed by students who have spent their lives being insulted and dismissed by racism" (69).

In chapter 5, Mike Klein (an assistant professor at the Department of Justice and Peace Studies at the University of St. Thomas, Minnesota) writes about "Teaching intersectionality through 'I am from…'" Intersectionality refers to the interconnected nature of social categorisations such as race, class, gender and age as they apply to a given individual (or group), thus creating overlapping and interdependent systems of discrimination and disadvantage. Identities are complex and plural, and the 'I am from…' exercise assists students in identifying their own constructed identities. Importantly, Klein argues against "black and white (pun intended)" categories that prevail in popular culture, as race is socially constructed and complicated by categories such as "ethnicity, nationality and hybridity" (101). Reference is made to Freire's key concept of *conscientização* that requires "learning to perceive social, political, and economic contradictions, and then taking action against oppressive elements of a society" (105).

Chapter 6 is authored by Pamela Barnett, at present the Dean of the School of Arts and Sciences at La Salle University in Philadelphia. Her chapter discusses various approaches how to build trust and negotiate conflict: the teacher as 'the good doctor', naming exercises, hopes-and-fears feedback, and structured questioning. To me, the most memorable part of Barnett's contribution was her narration of the story of white supremacist Derek Black (the irony of his surname is difficult to escape), and Black's transformation is also picked up in other pieces of *Teaching race*. In 2013, Black disavowed white nationalism, after he studied Arabic to better understand the Islamic culture of the early Middle Ages. Two chapters later, Cavalieri and co-authors state: "Stories such as that of Derek Black… illuminate how relationships and the knowledge from our professions can be powerful tools in reforming even the most avowed white supremacists" (169).

Lisa Merriweather (an associate professor of adult education at the University of North Carolina at Charlotte), Talmadge Guy (a retired professor of adult education), and Elaine Manglitz (most recently, a vice president for student affairs at Clayton State University) in chapter 7 discuss how to create the conditions for racial dialogue. This involves teachers carefully researching their students and ideally leads to the realisation of the illusion of 'colour blindness' as well as unrecognised racial bias and unacknowledged white privilege.

Chapter 8 is another multi-authored piece by Consuelo Cavalieri, Bryana French and Salina Renninger, who are

all associate professors of Professional Psychology at the University of St. Thomas. Their collaborative work takes students deep into uncovering systemic racism. Systemic racism is also found in universities where white teachers are usually in charge and assess students. Although students are not completely disempowered (they can be disruptive in various ways or provide negative teaching evaluations), the teachers' power is undeniable. Cavalieri and co-authors state that when "good relationships guide our teaching, good relationships become an important outcome" (169).

Buffy Smith is a sociology professor at the University of St. Thomas whose chapter 9 is entitled "Forming classroom communities to help students embrace discomfort". Smith shares her practice of building *ohana* communities before inviting her students to consider privilege and white supremacy. *Ohana* is a native Hawaiian word which means 'no one gets left behind', an approach that Smith uses with humour, patience, mercy and grace. Students are reminded "that it was healthy for family members to talk about difficult topics" (176), with care and empathy being essential building blocks in creating a strong learning community. Comfortingly, Smith proclaims that "we are all works in progress" (184). Smith – like Brookfield, Yancy and others in this volume – convincingly argues against the "myth of meritocracy", i.e. the "illusion that people have earned their privileges by their own intellect and hard work ethic". White students' realisation that their privileges are based on their skin colour more than on merit leads to an awakening of their racial consciousness, with them becoming socially responsible leaders a much-preferred outcome to mere 'white guilt'.

In chapter 10, Brookfield reviews six specific discussion protocols that can be adapted to the analysis of racial issues. He makes the excellent point that it would be a "simplistic mistake" to assume "who uses discussion is dedicated to social justice and anyone who lectures is an authoritarian demagogue", also referring to Paterson's notion of counterfeit discussion (191). Brookfield discusses six discussion techniques (that are described also in his earlier work: Brookfield & Preskill, 2016) and applies them to the topic of antiracist discussions: TodaysMeet, Circle of Voices, Chalk Talk, Circular Response, Bohmian Dialogue, and Appreciative Pause.

In the 11th chapter, Wendy Yanow (an adult educator with Adult Learning Unleashed) teaches against a colour-blind perspective and builds on critical race theory (CRT) to explore community writing projects, documentary analysis, and the juxtaposition of story and counter-story. A 'colour-blind' ideology leads to the inability to see white privilege. Coates is cited (224): "If I have to jump six feet to get the same thing you have to jump two feet for – that's how racism works". White privilege is oftentimes unintended racism, and the impact of the 'colour-blind' ideology is negative both for the receiver and the perpetrator. CRT sounds like a most meaningful approach as, methodologically, it understands how white supremacy operates by learning from people whose everyday lived experiences are centred on dealing with racism. The CRT tenet is "that racism is pervasive and endemic in the United States, and that one of the ways that situation is secured is through the widespread acceptance of color-blind ideology" (230).

In chapter 12, Dianne Ramdeholl (an associate professor at SUNY Empire State College in New York City) and Jaye Jones (the executive director for Literacy Studies at Lehman College – CUNY) unearth students' positionalities through learning histories, questioning, decoding media, and integrating current events into the curriculum. They evaluate the "rise of Trump and his cadre of billionaire populists" as "the most visible expression of an institutional contempt for black and brown people" (235).

In chapter 13, Mary Hess (a professor of educational leadership at Luther Seminary) uses "digital storytelling to unearth racism and galvanize action". Her chapter contains an important quote about the data – information – knowledge – wisdom (DIKW) pyramid, a key Knowledge Management concept, that reads: "It is as if the ladder of inference that once stretched upward from data to information to knowledge to wisdom has been truncated, with people rarely climbing as far as knowledge, let alone all the way up to wisdom" (260). Hess's piece is not short of other quotable quotes, for instance:

> "The insidious stock narratives of neoliberal capitalism – that persons are individuals, not relational beings; that truth is best arrived at through competition; that value accrues only to what you do, not to who you are; that if you are not successful it is due to your own worthlessness, or to someone else's cheating… – these stock narratives effectively rule out of order a systemic analysis of the social construction of race" (268).

Chapter 14 is entitled "Examining mistakes to advance antiracist teaching", and authored by Bobbi Smith, a teacher and education consultant in British Columbia (Canada). Smith describes how her world exploded when she asked participants in a workshop to conduct an antiracist power analysis of her own teaching, before eventually achieving a positive outcome. Brookfield's final chapter 15 builds on Smith's previous chapter as well as Samuel Beckett's notion of failing well to review some common misperceptions that block white teachers' efforts to do antiracist work. Brookfield discusses the following eight avoidable mistakes: 'I can control what happens', 'I need to stay calm', 'I must fix racism and transform my students', 'I've finally escaped racism', 'I understand your pain', 'Please confess your racism', 'I mustn't dominate, so I'll stay silent', and 'I'm your ally'.

Teaching race is a major contribution to the analysis of race and racism as well as to the practice of teaching about racism. Even if you never had the inclination or opportunity to teach about race, I would nonetheless highly and unreservedly recommend this book. It is a powerful tool in triggering off self-examination and critical reflection of our own potential racism and our attitudes towards race and racialised others.

I would also like to disclose that I read this book, especially initially, with some resistance and little joy. Nobody likes to be called names, least of all a 'racist'. Eventually, I realised

the power of the idea that if at all a 'racist', it may not be at an individual, but at a systemic level. While I continue to think of myself as an anti-racist cosmopolitan, the book is highly persuasive on its key points, including (but not limited to) the ideas of white privilege, the fallacy of 'colour blindness' and the omnipresence of repressive tolerance. I wholeheartedly embrace the idea of cosmopolitanism that incidentally, is also discussed in this volume: One "can become, indeed should aspire to be, a citizen of the world, able to embrace local ties and commitments, but also to extend well beyond them, engaging a wider human community, even across divides of seemingly irreconcilable differences" (Avila & Pandya, cited in 270). I personally also prefer the concept of intersectionality to the sole focus on race and applaud the application of the decolonial concept of the pluriverse (a sense of multiple coexisting differences) to teaching and learning (McLeod et al., 2020).

My own sociological studies – as well as the book at hand – advise me that "race is a social construct (not a biological reality) and that our concept of white racial identity is socially constructed just as other racial identities are (e.g. Asian and black)" (185). However, it would be wrong to see racism as some sort of phantom that can be eradicated by simply deconstructing it. Racism, of course, causes real physical and mental consequences for the people affected by it.

There is no other book in recent memory that triggered off as many memories as *Teaching race*. Without wanting to take too much time from the reader in this overly long book review: It made me recall an early childhood scene on a staircase in the Bavarian village where I grew up and where I, a three-year-old boy, was frightened of the black family that I encountered for the first time in my life; white and black GI's befriending female high school students from my *Gymnasium*; my being the only white person in various 'heartland' neighbourhoods in Singapore (white people normally stay in condominiums, not in Housing and Development Board flats); my teaching of the Colgate / Darkie toothpaste case (the packaging originally showed a white man pretending to be a black man!) in an International Management module; amongst many other recollections.

With Stephen Brookfield's critical pedagogy inviting critical interrogation, he would be probably displeased by an entirely laudatory review. I do have one critical issue with the book and that is its America-centrism. The book is largely written by U.S.-Americans about their experiences in the U.S., and Bobbi Smith's Canadian contribution (in chapter 14) is the only exception. This raises the question of applicability of the book's methods and findings beyond North America.

From my own experience (having lived in Singapore for more than half of my life), it is, for instance, doubtful whether the brave space advocated by Pawlowski would work well in too many Asian cultures. It could be perceived as culturally insensitive, and the safe space concept may be preferred. Pawlowski may not even see the need for such a brave space in Asian countries, as white people do not get to racially discriminate against black people much there anyway? While I continue to ponder about the point just made, a much larger issue is the concept of racism. Racism was the central pillar of Nazi ideology during their nefarious reign from 1933 – 1945 that caused the holocaust and the death of many millions of innocent people. The main victims of the Nazis were Jews, Roma and Slavs (and not black people), who were all to be exterminated and replaced by the German 'Master Race'.

I wonder whether Critical Race Theory (CRT) and other ideas from the book can be applied to other countries – including those where black people may be less affected. Is non-white racism a possibility? Is racism dependent on the amount of melanin of victim and perpetrator? Can racism be purely understood in terms of skin colour? Within Orientalism, the so-called 'Orientals' (whose skin colour could be as fair as that of whites) were pejoratively characterised as "backward, degenerate, uncivilized, and retarded" in order to be subjected and colonised by white supremacist, ethnocentric imperialists (Said, 2019, p. 207). Is such Orientalism not also racist? If this excellent book had any limitation, it would be the editorial decision to not discuss race and racism outside North America. Brookfield, as a leading expert on critical reflection, did perhaps not want to give us all the answers and make us think critically about issues that go beyond the gamut of this outstanding and highly commendable work. Perhaps a sequel, entitled *Teaching race* in a global context could be considered?

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Caplan, B. (2018). The case against education: Why the education system is a waste of time and money. Princeton University Press.

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Are we wasting too much time and money on education? There have been ongoing debates about the necessity of formal education. It has been argued that education does not prepare individuals for their future career of choice. If this is indeed true, should governments still encourage students to pursue higher education? This controversial and counter-intuitive book by Caplan, *The case against education*, certainly provides much food for thought for reflecting on this important issue.

The book's argument draws on research on economics, psychology, and sociology. Caplan discusses a very important issue, as most people would acknowledge, yet it is under-discussed due to its controversial nature. His arguments are mostly presented around two concepts, human capital and signalling. The former demonstrates that investments in education enable increased work quality and production, whereas the latter contradicts such a notion.

Bryan Douglas Caplan is an American economist and an author of several books, namely *Selfish reasons to have more kids*, *The myth of the rational voter*, and *Open borders*. He is a professor of economics at George Mason University, and the bulk of Caplan's academic work is in behavioural economics and public economics, especially public choice theory (Caplan, 2019). This book review focuses on his book *The case against education*.

The book's central argument is that the purpose of education is not to enhance a student's skills but to signal their qualities to be a good employee. It consists of a preface, an introduction, ten chapters and a conclusion. Caplan addresses the provocative book title by explaining that the book does not discourage individuals from having an education, but illustrates defects in the education system and argues that there is too much education. Most skills learned in school are not applied in the workplace, for instance: geometry, advanced math, history, literature, or foreign languages. Despite knowing the logic of the redundancy in education, individuals would still strive to take up as many modules as possible, with only one purpose: a better future career. Caplan proposes the use of the concept of 'signalling' and suggests that "a significant fraction of education is signalling" (4).

In chapter 1, Caplan discusses the 'magic' of education whereby one single signal overshadows every other quality of an individual: our education. The chapter illustrates the cruel truth of society – if you do not have an expected level of education, you are perceived to exhibit negative qualities such as being lazy, unconscientious, unintelligent, an outcast. Without the desired level of education, an individual may not even be given a chance in an interview, let alone the opportunity to perform. Education signalling is crucial in employment as it signals desirable qualities of intelligence, conscientiousness, and conformity. It is assumed that if an individual is able to persevere throughout the long journey of education, they would have qualities of self-discipline, commitment, and work ethics. Education also signals conformity, such as being able to conform to societal rules. The chapter establishes how education achievements are viewed upon as well as the discriminatory factors of not achieving it.

Chapter 2 is focused on the usefulness and application of learning in future workplace contexts. Caplan provides ample statistics which seem to show that the content of the current curricula has minimal applications and usefulness in the workplace environment. This phenomenon could be due to the manner students are being wired from young in their journey of education: "When students challenge the relevance of their lessons, the teachers often reply, 'I teach you how to think not what to think'" (50). This statement led me to reflect on my education journey, realising the large extent to which students were reliant on their teachers in K-12 education. Information was widely provided, and there were always answers to the problems. However, in higher education, students are required to gather their own data, think critically, and form substantiated arguments without much help. Since we were wired to rely on others in the K-12 learning process, we became 'lazy' in our thinking processes, eventually decreasing our ability to transfer learning into the real world. Yet, such findings do not imply that education is useless. Interestingly, education builds discipline and social skills of individuals by training them to show up on time for class and to cooperate with their peers.

Despite learning that education provides us with few benefits in enhancing our performance and capabilities, individuals are still being rewarded handsomely if they possess higher education qualifications. Chapter 3 attempts to explain why society perceives that an education premium equals ability. The author provides a unique and robust argument by disagreeing with such perceptions through the use of a term, IQ laundering. He explains the observation why a four-year degree signals ability rather than a three-hour IQ test. He states that "employers reasonably fear high-IQ, low education applicants' low conscientiousness, and conformity" (88). An IQ test is not sufficient when hiring college-quality workers; employers are not only looking for intelligent workers, but also for individuals who would listen and follow instructions. This implies that the labour market will reward not only college diplomas but also college admissions. The fundamental flaw here is that credentials are not what is regarded as necessary, but the duration committed. As long as you apply for a school and make it through it, you are deemed as a qualified worker with a good character, whereas skipping college signals an undesirable character.

Chapter 4 tries to convince us further of the signs of education signalling and its logic in four approaches: the Sheepskin effect; malemployment and credential inflation; the speed of employer learning; and the education premium. Caplan compares these approaches using two models: the pure human capital model and the signalling model. Results show that the advantages of education were indeed more predictive of the signalling model. Interestingly, the Sheepskin effect provides evidence that graduation is especially lucrative only because the individual has conformed to social norms, according to the signalling model. The Sheepskin effect refers to a higher education premium being positively correlated to an increased salary. It is assumed that one's ability to graduate is due to one's intelligence, conformity, and work ethics, which adds valuable details to a person's character. Contrary to this assumption, the human capital model states that graduating is less lucrative and having skills is more crucial. The case in point is that the human capital model states that education raises income by imparting useful skills, whereas signalling says education raises income without imparting valuable skills.

Chapters 5 and 6 concentrate on the burning question of "Will my education pay?". Caplan explores two perspectives, individual and social, in an attempt to answer the return on investment of education. In analysing the personal viewpoint of the profits of education, he categorises the student population into three categories: Excellent, Fair, and Poor students. Overall, he advises that dropping out of school is imprudent as even the Poor students who loathe school may expect a foreseeable positive return on their investment. The students with Fair performances could consider other routes such as proceeding to the workforce, unless they love school, and lastly, the Excellent students should definitely consider higher education. Hence, despite the possibilities of incurring wasted time and effort, higher education should be considered.

From the perspective of social returns of education, individuals need to examine their own productivity. It is assumed that workers on average earn what they are worth. In the signalling model, one's credentials are matched to one's remuneration package without much attention to one's actual ability. If your credentials are weak for someone of your ability, you earn less than you produce. In contrast, if your credentials are stronger as compared to your ability, you receive more than you produce. In the calculation of education's social returns, several components are considered: job satisfaction, status, health, crime rates, workforce participation, politics, and behavioural genetics. In evaluating these components, it was found that social returns are low as a whole. Despite education being able to boost worker productivity, workforce participation, as well as decrease unemployment and crime rates, the value of the combinatory benefits are low. In examining these arguments, perhaps too many expectations were placed on the influence of education over the power of social transformation.

The following chapter (7) argues that society needs much less education and should rather ponder constructive ways to boost education completion probabilities. Caplan argues that education is largely wasteful signalling and highlights two forms of educational austerity: cutting fat from the curriculum and cutting subsidies for tuition. The former states that excessive education that should be cut are these subjects: history, art, music, foreign languages, and social studies. Caplan's rationale is that students hardly retain any knowledge of these subjects, and their applicability is minute. Making these subjects optional would also compel students to work harder in actual classes, in turn improving overall performance in literacy and numeracy. Cutting subsidies for tuition works similarly to supply and demand. The scarcer resources are, the pricier they get, which increases the premium on education. Students are required to put in more effort to graduate. Eventually, this leads to higher completion rates. However, such actions could also incur undesirable effects – inequality and social injustice. Then why do we still not proceed to cut spending on education? Social desirability bias is probably the answer. Humans do not like ugly truths; we dislike saying 'no' to people regardless of our true feelings because we wish to be emotionally appealing. Likewise, we appeal to education as "the most important investment we make in our children's future, we have to ensure everyone who might benefit from college attends" (223). Caplan argues that with such enduring fallacies being reinforced over generations, society continues to waste resources and promote counterproductive policies.

Chapter 8 discusses vocational education as a promising alternative that has been neglected. It is known as "career and technical education" (226), which teaches specific job skills via learning-by-doing. Vocational education stands out as it helps students by building their skills in typical jobs which in turn leads to increased productivity in society. Another theme, child labour, was also mentioned in the context of internships. Some reasons that children are discouraged from getting jobs are due to concerns of 'exploitation' and distraction from academic success. A critical premise is that the educational path is so superior that it should be prioritised over work. But this is utterly untrue. Modern schools today

are preparing students for careers which are rare: authors, mathematicians, musicians, historians, etc. Schools devote minimal time to general skills which are much more critical in the general workplace, leading to students leaving school with unrealistic expectations and unclear routes.

Chapter 9 asks the question "Is education good for the soul?", and several perspectives are explored in analysing education's effect on values. Economists push for education as they think it leads to high social returns, and not because of intrinsic benefits. To understand how education influences society, these aspects were studied: politics, family size, leadership, peer effects, culture, religion, marriage and divorce, and fertility. An abundance of research suggests that education raises moral values and support for capitalism, free markets, and globalisation. Likewise, education also leads to a positive correlation between peer effects and politics. However, Caplan cautions the results of the studies may be subjective, and the significance of the variable mix remains unclear. Caplan profoundly argues that for education to benefit and be intrinsically valuable, students need to be eager and motivated in order to become increasingly knowledgeable through their learning.

Chapter 10 encompasses five dialogues on education and enlightenment, with the arguments inspired by three decades of debates about education: the definition of signalling, its role in education and society, challenges in accepting transitions of traditional education to alternative education (online education), evaluating educational investments, and the importance of students' attitudes for education.

In conclusion, Caplan stated that education is grossly overrated and education mostly creates credential inflation rather than societal prosperity. To make changes to the education system, people must stand up against social desirability bias.

Overall, the main argument of this book is that education beyond mastery of basic literacy and arithmetic is a waste of time and money, as it neither promotes individual productivity in the workplace nor encourages economic growth. Instead of wasting resources on education that produces no benefits, the focus should be placed on increasing social skills or job-specific skills.

I agree with the argument of credential inflation inasmuch as education provides credentials that signal to potential employers the qualities (intelligence, conformity, and conscientiousness) job seekers might possess to perform in the workplace. However, I disagree that cultural education and humanities should be made optional in school. If these subjects are made optional in K-12 education, what are the odds of students taking the initiative to take up additional courses? When these subjects are made optional, students might fear additional stress and not opt for them, and these students might never know if they will be interested in subjects such as literature, history, etc., and pursue them as a future career. Therefore, I feel that these humanities should still be taken as compulsory subjects, and only once students are of a certain age, they could have them as options.

Other critiques that can be directed at the author's arguments are the validity of the sample (the book is rather U.S.-centric and does not consider the global situation sufficiently), the illusion of cause and effect, and the perpetuation of education inequalities. As this book is from the perspective of a single author, his perception of education is based on his background and experiences. It is quite a sweeping statement to say that everyone else would share the same perception and experience. The signalling theory discussed in the book also seemed to portray an illusionary cause and effect relationship between signalling and investment of education. Whether the investment made is poor or good is subjective, and saying that money spent on education is a poor investment is too quick a conclusion to make.

Caplan also says that bad educational experiences are due to too much investment in education. I beg to differ; bad educational experiences are due to insufficient investments in improving the learning experience. With the increasing diversity of students, there have been attempts to enhance the learning experience by providing faculty with training and re-investing in better classroom facilities and equipment to encourage a more active learning experience. It is due to insufficient investments that attempts to improve the facilitation of better learning have encountered many challenges in catering to a wide range of students. Therefore, too little investment in the right areas appears to have been the main problem.

Finally, Caplan also suggests for government to cut back on subsidies for education. This could lead to dire consequences of even further educational inequality. By cutting back on tuition, the poor would face more difficulties achieving higher education, contributing to a further widening of the gap between the rich and the poor. Other consequences, such as decreased global competitiveness, weakened democracy, and discriminations may also arise (Berliner, 2013).

The case against education raises important questions about the role of educational signalling in society. It also provides the opportunity to discuss provocative arguments on education. On the whole, I recommend reading this book with an open mind, while reflecting critically on its controversial approach to higher education.

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Yorkstone, S. (Ed., 2019) Global Lean for Higher Education: A Themed Anthology of Case Studies, Approaches, and Tools. Productivity Press

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I am passionate about Lean, Six Sigma or Lean Six Sigma in higher education (HE). Lean is a methodology of high performance, enabling organizations to focus on improvement and value. Respect for people and continuous improvement is the foundation of Lean. Lean has a long history in manufacturing, more recently in the service environments, health, and the wider public sector. Application of Lean in HE has the potential to transform this sector too, and the number of Lean practitioners in universities is increasing.

Stephen Yorkstone enables continuous improvement in Edinburgh Napier University as an internal consultant. In his role, he facilitates and runs interventions, from "process reviews" to more tailored workshops; convenes an internal community of practice; and delivers support and advice informally and formally in terms of consultancy, coaching and training. He is an experienced speaker, trainer, coach, working with senior leaders on facilitation and change. Externally to the University, he chairs Lean HE, the international organisation for continuous improvement in universities (www.leanhe.org.). Lean HE conducts an international conference annually and operates three continental divisions, each of which organises a programme for universities in their regions. In previous roles, he has worked with several Universities, including establishing the 'Lean team' in the University of St Andrews where he co-designed the Lean 'St Andrews Model' and established their internationally successful consultancy services.

This book, *Global Lean for Higher Education*, edited by Stephen Yorkstone, consists of contributions that that represent the global practical applications of Lean HE. It aims to demonstrate the scope of how Lean is implemented in universities, in a way that can inspire others to engage deeply in their specific context with Lean Thinking; to drive efficient, productive, sustainable, lean work. Lean HE provides the university with an established platform to tackle these challenges and fulfil other essential tasks.

In *Global Lean for Higher Education*, the editor aims to offer a broad range of readings from lean experts and practitioners from all over the world, sharing findings, methods, resources and case studies that provide rich knowledge and practical observations that can direct universities pursuing Lean adoption. It provides a useful compendium for universities exploring the possible application of Lean at their institutions. It also offers additional tools and approaches and suggests new ideas for continuous improvement to further enhance efforts at universities that are currently implementing Lean.

The authors are 24 well-known Lean HE experts, as well as emerging practitioners. They reside internationally, in countries like Australia (3 chapters), Canada (1 chapter), Malaysia (1 chapter), Poland (2 chapters), the United Kingdom (16 chapters) and the U.S. (1 chapter). They represent higher education environments ranging from specialised teaching institutions to research-focused universities; from universities less than 50 years old to universities more than 800 years old.

This book is not focused on Lean theory. Instead, it discusses how HE institutions have taken Lean forward and lessons learned. It comprises six sections and a total of 24 chapters:

1. Starting out (5 chapters)
2. People (4 chapters)
3. Projects (4 chapters)
4. Technology (4 chapters)
5. Sustaining Lean (3 chapters)
6. Culture (4 chapters)

Each chapter is identified as research (1 chapter), case study (10 chapters), approach (9 chapters) or tool (4 chapters). Each contribution is also drawn from a different institution so that the reader can select the field of greatest interest and relevance to them.

Section I – starting out

The first chapter "Establishing process improvement capability in higher education" is by Rachel McAssey who co-founded the award-winning Process Improvement Unit

at the University of Sheffield (UK). This chapter explores what HE organisations are doing to implement capacity for process improvement and to help those who are considering or those already doing so. The second chapter "Tools to get you started" is by Bonnie Slykhuis, a Lean and Continuous Improvement (CI) consultant at Des Moines Area Community College (DMACC), Ankeny (Iowa). Her responsibilities include driving Lean throughout DMACC's six campuses, designing Lean training programs. Slykhuis's chapter demonstrates that the team's responsibility includes helping plan and drive ongoing activities, monitor outcomes, communicate to the masses and look for ways to continually improve and expand the institution's Lean efforts.

In chapter 3, "Value Stream Mapping as a tool for creating a Lean Culture in a University", Justyna Maciaq (Jagiellonian University in Cracow, Poland) shows how the application of Value Stream Mapping (VSM) can influence Lean Culture. Lean Culture often depends on the higher education model in a specific country and the attitude of the authorities of that university. In chapter 4, "Lean into your service model: An institutional case study using library system", Tony Wai and Lenore O' Connor explain how, through the What We Do Matters program (64), Macquarie University Library motivated workers to optimise processes and apply Lean methodology to increase the quality of workflows and enhance the client experience.

In chapter 5, "Developing a continuous improvement service: From inception to reality in 18 months", Katie Wall and Emma Morris introduce the Continuous Improvement (CI) Service (81) at Sheffield Hallam University (UK). The authors focus on how senior leaders gained support, how they used a platform of Lean tools and strategies to adapt the company to meet customer needs, plus the challenges, achievements and lessons learned along the way in a timescale of just 18 months.

The first section aims to outline some of the key points to know and do when starting Lean in the sector. In Lean, all work steps are sorted into two basic categories, value-added and non-value added. Lean is about identifying waste, analysing and improving processes to remove waste, standardising work steps, and engaging people to solve problems with the aim of continuous improvement. The Lean methodology aims at achieving efficiencies by reducing the amount of process waste. Lean must be a part of a university's DNA code, focused on shared values and principles pursued in person and group actions, everyday philosophy and management practices. Getting the right people involved in these processes for quality improvement and seeing their ideas recognised. Any implementation of the Lean concept requires a previous diagnosis of the maturity of a university's organizational culture for planned change.

Section II – People

In chapter 6, "Identity and value to drive respect for people: A case study based on embedding kindness as an operational value", Susanne Clarke, Laura Poper, Lois Farquharson and Vianna Renaud (Bournemouth University, UK) outline their case for kindness and share their experiences in embedding it as a virtue in the workplace – empowering others to make kindness a central part of their daily lives. Their favourite quote: "Be kind whenever possible. It is always possible" (113). Kindness, care and respect for people are a core part of their identity and strongly influence their beliefs, values and motivation – they propose to apply kindness in the Lean initiative and relate kindness to Lean's 'respect for people'.

Tammi Sinha and Claire Lorrain are discussing how Lean embedding is important to people at Winchester University (UK). Chapter 7, "Inspiring sustainable Higher Education and Lean through a Lean Ambassadors Network", explains the Lean Ambassadors Network that operates in Winchester University (UK), bonding people through training and networking to help them change. Workshops enable participants to build up their confidence, capability and experience in applying Lean principles and gaining their Lean foundation.

Chapter 8, "Improving performance through engagement – The impact of daily stand ups in the University of Strathclyde" by John Hogg and Heather Lawrence at the University of Strathclyde (UK), introduces 'daily stand ups' (an innovative meeting style) which have been proven to be powerful in achieving a culture of continuous improvement. The 'daily stand ups' are based around three pillars: people, performance and continuous improvement. The impact of 'daily stand ups' at Strathclyde has 70% of employees feel more empowered in their role, over 70% feel more confident about raising concerns and improving ideas, and 100% feel that teamwork and collaboration have increased. 'Daily stand ups' may provide a practical mechanism to positively change the institutional culture and continuously improve the university's collective mindset.

At Universiti Putra Malaysia, Dr Siti Raba'ah Hamzah and Dalina Kamarudin addressed how they used a survey approach to access readiness for change among their employees against a challenging context posed in chapter 9 – "Lean transformation management among employees in Universiti Putra Malaysia". Critical to ensuring the effective application of Lean change management is the strong engagement of all stakeholders within the organisation. Lean Thinking is a management approach that prioritises the interests of consumers whether they are internal or external clients. Readiness requires the elements of a worker's confidence, disposition, and purpose on the need and ability to incorporate organisational changes.

Section III – Projects

The tenth chapter, "Applying Lean in projects: from visualisations to process engineering – It's covered!" by Laura Hallett, York St John University (UK), explores the application of Lean concepts to manage projects, providing practical advice and guidance for project implementation and delivery. It provides a variety of tools and examples of how Lean principles can be implemented when running projects. The chapter focuses on people, adding value, visualisation and eliminating wastes. It is easy to transfer Lean principles to project management. Lean places people,

processes and perfectionism themes at its centre, valuing the skillset of people. Process mapping is the technique of mapping the sequence of actions which get people from the start to the end of an activity.

The University of St Andrews (UK) employs a project-type approach to Lean, and in chapter 11, Mark Robbin outlines one of the main methods that they use in the early stages of a project: "BOSCARD: A scoping tool for Lean Continuous". The model is based on the broad stages experienced and then identified by the Lean Team during its early stage Lean project work. BOSCARD is an acronym that stands for Background, Objective, Scope, Constraints, Assumption, Risks and Deliverables. The Lean Team had three main goals: culture change, effectiveness and efficiency.

In chapter 12, "Six Sigma as a Method for Improving University Processes: The Case of the Academic Assessment Process" by Justyna Maciaq, Jagiellonian University in Cracow, Poland, shows how Six Sigma has been applied to HE processes. This chapter demonstrates how the DMIAC (Define, Measure, Analyse, Improve, Control) model, which is at the heart of the Six Sigma method, can be used to improve the process of lecturer assessment. Six Sigma is a highly effective approach to quality assurance management and defect removal, implemented in high-volume transaction processes.

Chapter 13, "Lean training to Lean project" by Marion Malcolm, University of Aberdeen (UK), concludes the book's third section with the story of how to relate their Lean training to a project approach, and how this supports their development and growth into a Lean culture as a result of organisational change within the university. A more tailor-made training approach can lead to substantial benefits for different areas such as time savings for workers, more collaborative work, etc.

Section IV – Technology

In chapter 14, "Machine Leaning – Adopting Lean into a University IT culture", Brian Stewart, Lee-Anne Klein and Melanie Clements (University of Alberta, Canada) present how the library launches their Lean initiative with work focusing on technology, and what they learned from this. The project results have made service delivery more reliable with reduced turnaround times. Machine Leaning has the potential to change the information technology function in organisations away from running increasingly marginalised infrastructure and declining relevance to a source of strategic value through the adept use of digital technology to solve wicked organizational problems.

Linda Spinks, University of Cambridge (UK), is developing a Network of Lean Change Agents (258) using a kata approach in a higher education programme (HEP). Kata is a structured practice, referring to a 'way of doing' for consistent improvement. Chapter 15, "Can information services lead a network of change agents in a HEP?", examines how this has happened, and what are the implications of a technology department that leads to this initiative. At Cambridge, there are examples of Lean initiatives being carried out within IT areas, within business areas, and collaboratively across both IT and business. The answer must be 'yes, it can', but it relies on the motivation and creativity of people willing to lead the charge.

In software development, agile is an umbrella word that encompasses several different tools, approaches and working methods. Like Lean, it focuses on consumer satisfaction at its heart, encouraging quality improvement and reducing the waste from the software development process (272). Richard Arkless at University of Edinburgh (UK) explains in chapter 16, "Lean, Kanban and Agile, A story of continuous improvement in a University Software Team", how agile and Lean approaches were used by the Student System team who are passionate about Lean and system development, to help them realistically handle their task. The aim is to generate value by influencing the production process to help produce the best product with customer throughput.

The University of Lincoln (UK) used the acronym PETEWORM (People's potential, Excess inventory, Transport, Excessive processing, Waiting time, Overproduction, Rework, Motion) to identify the eight wastes. Having a 'worm' as the issue, what would be better than a 'mole' to devour it; remove the waste? A tweet size of 280 characters means that you must ensure that your information is succinct and important so that you draw the attention of the reader (292). The author, Stuart Morris, highlights one aspect of the University of Lincoln Continuous Improvement Team's work towards solving this problem, with Muda (Japanese: 'wastefulness') Mole, the team's star Twitter correspondent in chapter 17 - "Every organisation needs a mole!". The most common challenges in implementing Continuous Improvement (CI) or Lean across any organisation is obtaining buy-in from all staff and developing the culture of identifying and addressing waste.

Section V – Sustaining

Chapter 18, "Head, heart, hands: The three essentials to sustaining Lean in HE", explores how Macquarie University's Business Process Management Plan became a part of the story. It considers the importance of core dependencies for Lean's successful implementation, including executive support, the unit leader and a highly functioning central team. Sustaining Lean in Higher Education needs continuous support from the executive and a group of senior staff who advocate and provide practical support to the leader and team for Business Process Change. Chapter 19 describes the lessons from implementing Lean at the Veterinary Teaching Hospital at the University of Queensland (Australia). According to its author, Chris Shannon, implementation included embedding Lean in the hospital strategic plan, running a rapid improvement event, and implementing changes and addressing cultural and behavioural change within the hospital. The Lean leader's job is to inspire the organization to create a culture of continuous improvement and strengthen the capacity of the organisation to recognise and eliminate problems. Chapter 20, "Cardiff University. A Lean University or a Better University" by Sarah Lethbridge from the same university, reflects on the ten years since

the university introduced its first Lean implementation at a UK university, the history that contributed to the birth of that Lean project, the lessons learned and where Cardiff University is heading next.

Section VI – Culture

Chapter 21, "Developing a culture – The essentials for continuous improvement" by Natasha Bennett and John Perkin from Middlesex University (UK), explores tools and learning in building this culture of sustainable continuous improvement across the institution. Together these tools interlink to support a continuous improvement culture that is proactive, responsive and student-focused. Chapter 22, "Growing a Lean approach in a changing University" by Brent Hurley and Stephen Yorkstone, describes the journey of Edinburgh Napier University (UK) in experimenting Lean type activity since 2009, and outlines the current approach that the university is undertaking as a case study. The university was a relatively early adopter of Lean-type improvement in the UK higher education sector. The approach taken by Edinburgh Napier University continued to develop in 2017, concentrating on a Business Improvement Programme as one of six programmes in the University's Change Portfolio strategy. The Business Improvement Framework brings together both new and existing information on Business Improvement tools, training, "people who can help", external resources, FAQs and case studies, and is designed to support and empower staff to carry out improvements.

Chapter 23, "Making sense of learning, practice and theory" by Grete Stonebridge, Claire King and Leanne Sowter, discusses how people combine practice and theory and how they use learning to involve both practise and theory to shape and implement in Leicester University (UK). The Leicester approach to continuous improvement uses a range of tools. The leaders helped to allocate adequate staff resources and they showed flexibility in taking action, decision-making and process control. Staff involvement in learning is the key to the shaping and development of the approach. The theory comes from practice, practice comes from theory: learning is the glue between theory and practice. Finally, the last chapter "What if we knew the future could be different!" by Radka Newton at Lancaster University (UK) offers a challenge to the culture of Lean itself in the context of universities, questioning if they still take respect for people seriously in universities, and proposing they should take more time to think about their improvement activity, to make a real difference.

The book has several strengths in helping readers better understand the steps of Lean process. Lean begins with a series of projects, using project tools at certain stages, learning from different project approaches, and linking project work to learning to become Lean. By looking at value, techniques, tools and ways of measuring, the authors demonstrate to the readers how people engage and enable Lean. Although Lean can bring about short-term improvements, the real benefits of Lean are in sustaining activity over the long term. There is also a large intersection between Lean and technology since the rise of technology is one of the most important changes facing today's world of work. Lean culture is an important theme that has emerged throughout this book. Analysing culture (how groups of people behave) and moving these behaviours towards respect for people and continuous improvement can be conceptualized as an aim of Lean.

Over the past ten years, there has been a substantial increase in the discussion and implementation of Lean in higher education, and more recently particularly in the UK, where there is a continuing push to enhance quality and experience. Lean in Higher Education is instrumental in improving the student experience and using time and resources wisely. Stephen Yorkstone has done an outstanding job of providing a broad overview of Lean Higher Education. This rich and broad perspective will allow the reader to understand the many ways that Lean thinking is applied globally in higher education. Importantly, this book offers insights and realistic approaches about the what, why and how of Lean in Higher Education and may help the reader apply Lean to their work. In conclusion, it provides a great contribution to the growing list of publications on this significant agenda.