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Introduction to the fourth regular issue of JALT

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The end of the year – and the dubitable (more on this shortly) close of the decade – invites us to be more philosophical than we usually allow ourselves to be in the hustle-and-bustle of the everyday lives of teachers. It is indeed debatable whether the end of 2019 marks the end of a decade. By the time you read these lines, the 2020s may or may not have started, even when applying the Gregorian calendar (and not another calendar, for instance, the Chinese, Islamic or Thai solar calendar, to mention but a few). The year 1 BC was followed by 1 AD (shockingly, there was no year 0 Anno Domini), and as a consequence, the third millennium and 21st century started in 2001, rather than in 2000. While mathematically, the new decade should only start in 2021, convention tells us that 1 January, 2020, marks the beginning of the new decade. And while we write these lines in the old decade, the jury is still out how to call the 2010s – the 'tens', 'twenty-tens', 'two-thousand-tens' or even 'teens', 'teenies', 'teensies', 'tensies', or 'ten-sions'. Time will tell.

If a simple matter like the above calendrical confusion already seems less-than-certain, uncertainty is certainly something that engulfs more complex matters. Falsification has shattered gospel truths. Today, we know that not all swans are white, but people in the Old World certainly thought so till Australia and her black swans were discovered. Inductive reasoning and generalising have long become problematic, knowledge fragile, and Nassim Nicholas Taleb's book *The black swan. The impact of the highly improbable* a celebrated bestseller.

Consider a farm animal like a turkey. Before the turkey eventually becomes a dish, it may well have believed that friendly humans looked after its best interests, prior to the – from the turkey's, though not from the butcher's, perspective – unexpected 'black swan' event of the day before Thanksgiving. In order to significantly differentiate ourselves from the turkey, we need to consider whether being fed proves that we are safe or confirms the danger of being turned into supper (Taleb, 2010). If you prefer a less gory illustration of the fundamental nonlinearity of life, Malcolm Gladwell (1996) offers tomato ketchup in a bottle: "None will come and the lot'll". The poor turkey's demise also teaches us to be wary of common sense (being fed connotes safety). As Einstein said, "common sense is nothing but a collection of misconceptions acquired by age eighteen" (cited in Taleb, 2007, p. 39).

Taleb (2010, p. 133) has issued the friendly advice "to shut down the television set", "minimize time spent reading newspapers" and insulate ourselves from the toxicity of the world, with our improved well-being a welcome side benefit. Following this advice may free up some time for potentially more meaningful activities such as reading. While the collecting of books in form of a private library has occasionally been derided as commodity fetish, and book collectors are oftentimes queried as to how many of their numerous books they have actually read, it could be argued that unread books are at least as valuable as read ones. As we grow older and remain engaged in the continuous pursuit of cumulative knowledge, an ever-increasing number of unread books may stare menacingly at us.

While there is a tendency in research and teaching to devalue older literature, with 'recent' literature deemed more valuable and acceptable solely on the grounds of its relative novelty, academic work that has been produced in previous decades and centuries, including out-of-print books, delivers many surprises and contains innumerable treasures. It is also worth mentioning that historically, a large number of breakthroughs came from outside academia, with the names of intellectual giants such as Voltaire, Rousseau, Darwin, Freud and Mandelbrot merely representative for many others (Taleb, 2010). Consequently, we humbly propose a position of epistemic humility, where the world is opaque and appearances are deceiving, and we not only do not know the future, but also do not know much about the past. Our unread books – and also the uncounted writings that have never been published – may be considered as the important 'unknowledge' of an antilibrary (Taleb, 2010).

Some of our well-meaning and dear friends have suggested to measure the quality of a peer-reviewed journal by the number of rejections (as one of several measures). While we normally and truthfully hasten to assure them that we have

rejected quite a few contributions over the past two years – in as 'developmental' a way as possible – we may all wish to spare a thought for the 'unknowledge' in the antilibrary. In the near future, computer-generated and ghost-written articles may be increasingly difficult to distinguish from original academic work. In the famous Turing Test, the computer is said to be intelligent if it can fool humans into believing that they are fellow humans. Reverse Turing Tests can be conducted by fooling humans to believe that texts were written by humans when in fact, they were constructed by computers. Monte Carlo generators, fed with suitable texts and using a method called recursive grammar, can randomise phrases, generating grammatically sound sentences that are utterly devoid of meaning, and entire papers can thus be generated (Taleb, 2007). On occasion, we have read student assignments that felt like Reverse Turing Tests, but were most probably produced by humans.

It is an editor's ultimate nightmare to fall prey to an academic hoax, computer-generated or not. In a cause célèbre, Physics Professor Alan Sokal succeeded in publishing an academic parody in *Social Text*, an academic journal of postmodern cultural studies. Depending on one's perspective, Sokal can be accused of having acted unethically by deceiving the journal's editors (Ross & Robbins, 1996), or the journal's quality assurance process can be focused upon and questioned: for instance, the journal editors could have avoided much public scrutiny by consulting a physicist during a peer-review process. Thus, editors of journals face the challenging, yet important, task to critically evaluate articles that – involuntarily or not; computer-generated or not – may contain "a mélange of truths, half-truths, quarter-truths, falsehoods, non sequiturs, and syntactically correct sentences that have no meaning whatsoever" (Sokal & Bricmont, 1998, pp. 268-269).

This brings us to the fourth issue of JALT of which we are – in a predictably biased fashion, like proud parents of a newborn – rather pleased with. The first two articles in the peer-reviewed section originate from EDU2019, an international educational conference that was charismatically led by our Editorial Board members Margarita Kefalaki and Fotini Diamantidaki – another outcome of this conference is JALT's recently-published inaugural special issue (Diamantidaki & Kefalaki (Eds.), 2019).

The peer-reviewed section is opened with an outstanding contribution by Lydia Lymperis, in which she explores whether self-organised learning can empower the most marginalised schools of rural Greece, with special reference to the learning of English as a foreign language (EFL). Lydia Lymperis's research on Self-organised Learning Environments (SOLEs) is ongoing, but early results are promising, and such a learning and teaching approach may also be applicable to other disadvantaged regions of the world. The article is of importance to those amongst us who have not given up on the potentially liberating and more equitability-creating applications of technology in conjunction with innovative learning and teaching approaches for the poor and underprivileged.

Robert J. Bonk's eloquent contribution on technologically-enhanced pedagogies in professional writing continues the near-inevitable ed-tech theme begun in Lydia Lymperis's article and also emanates from the EDU2019 conference in Athens. Robert Bonk critically evaluates his vast experience as Professor of Professional Writing at Widener University (a private university with campuses in Pennsylvania and Delaware in the U.S.) and how pedagogy and technology can be change-partners for higher education.

Mark Wheaton, Brendan O'Connell and Giovanni Merola, in their contribution on the effectiveness of inter-teaching, provide international evidence from Australia and Vietnam for this innovative learning and teaching approach in the discipline of accountancy. Inter-teaching is a student-centric approach that differs from the traditional lecture-cum-tutorial model and essentially consists of conversations between two students each with the objective of enhancing students' self-learning, listening, reflection, feedback and critical thinking skills. Wheaton and co-authors present detailed quantitative research findings which, in terms of student outcomes, compare the effects of inter-teaching versus the lecture approach. The results appear to be very much in favour of inter-teaching, and this is certainly a method worthy of further exploration.

After the previous contributions explored English as a Foreign Language, Professional Writing and Accountancy, Paola Magni, Jolene Anthony and Raja Zuha focus on yet another discipline, Forensic Science. Crime drama series such as 'Crime Scene Investigation' (CSI have popularised the discipline and led to the 'CSI-effect' that can sway jurors). Paola Magni and co-authors explore Forensic Science and student mobility programmes within the first Forensic Science international curriculum between Australia and Malaysia and discover much potential in such international and intercultural projects in Forensic Science education.

The above-described peer-reviewed section is followed by a special section, guest-edited by Stevphen Shukaitis. As a partial outcome of a symposium on Pedagogy and Play in Teaching Today (co-organised by the University of Essex and Kaplan Higher Education Singapore) that was led by our Editorial Board member Stevphen Shukaitis, he curated five pieces, including his introductory piece that sets the tone. An important part of this section is a fifth peer-reviewed contribution to this issue by Bina Rai, Tan Hui Shin and Leo Chen Huei on "Bringing play back into the biology classroom with the use of gamified virtual lab simulations". Bina Rai (an Editorial Board member of JALT) and co-authors evaluate the integration of gamified laboratory simulations and Virtual Reality (VR) technologies into the biology curriculum in order to better engage their Gen Z students. Rai et al. conducted a sophisticated experiment with three groups of students (a desktop VR, an immersive VR and a control group) at Singapore University of Technology & Design (SUTD) and it is hoped that more such exemplary research will be conducted by the authors themselves as well as other researchers.

Stevphen Shukaitis led and edited two fascinating conversations – which form the first two out of a total three interviews of this JALT issue. Unusually, both conversations are *tri*alogues, one together with Tan Shao Han and Allana Yeo (from gaming consultancy and design house Curious

Chimeras) about their cutting-edge work involving games and education, and another with Juliana Lim (an arts manager) and Kenny Leck (a publisher and bookshop co-founder) about strategies for artists, also in the city-state of Singapore. The guest-edited section is completed by an insightful piece by Yeo Xi-Wei, who provides some practical and thoughtful advice on how gamification can contribute to learning.

In past issues of JALT, members of the editorial team had interviewed Bror Saxberg (Saxberg, Harris & Rudolph, 2018) and John Biggs (Biggs, Harris & Rudolph, 2019). This tradition of interviewing world-renowned educational thought leaders is continued in the present issue with an extensive interview of Stephen Brookfield. Professor Brookfield was most generous with his time and apart from a 90-minute interview via Skype (the time difference was 13 hours), also answered additional questions via email. Brookfield's massive contributions to Higher Education and Adult Education include 19 books on adult learning, teaching, critical thinking, discussion methods, critical theory and teaching race. While Brookfield's work demonstrates a remarkable continuity in terms of emphasising the needs for critical thinking and democratisation, the wide-ranging interview also outlines some notable changes in Brookfield's focus through the years, such as a turn to self-directed learning (in the 1980s), a focus on power dynamics (in the 1990s), a theoretical turn (heavily influenced by Critical Theory, at the turn of the century) and a turn towards the importance of race relations (in the noughties).

The ed-tech section features two contributions by JALT Editorial Board members. Samson Tan reflects on the rise of immersive learning and sheds some much-needed light on learning across the reality-virtuality continuum and how Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) differ from one another. Rob Burton reviews the Nearpod (a cloud-based application that lets the facilitator ensure that students' devices are in sync with each other during class and learning objectives can be achieved via co-operation) and shares his extensive experience with the software from his interactive classes.

Like the ed-tech section, the informed journalistic section contains two articles. There is Kara Jung's entertaining and light-hearted contribution on learning English as a "misspelling minefield" (that is not helped by programmes – or programs – that will further confuse learners). And Justin O'Brien (a repeat contributor to JALT) provides us with a remarkable instructional piece on giving and receiving feedback in the form of a role play exercise.

The final section contains eight book reviews. Michael D. Evans, the Chairman of our Editorial Board, reviews a third book (two previous ones were reviewed in earlier issues of JALT) in Bloombury's excellent leadership in higher education series – this time, it is an edited volume on *Exploring consensual leadership in higher education: Co-operation, collaboration and partnership*. Anna Mihaylov enthusiastically reviews Dede, Richards and Saxberg's *Learning Engineering for online education*. *Theoretical contexts and design-based examples*. John Hulpke delivers a refreshingly idiosyncratic review of Wlodkowski and Ginsberg's fourth edition of *Enhancing adult motivation to learn: A comprehensive guide for teaching all adults*. Roy, Baker and Hamilton's third edition of the Cambridge University Press-published *Teaching the arts: Early childhood and primary education* comes highly recommended by reviewer Arati Mhatre. Alevtina Sedochenko (another repeat contributor) has two reviews to her name – on Kapur and Ghose's edited volume *Dynamic learning spaces in education* and Dillon and co-authors' *Redesigning learning spaces* – as does Jürgen Rudolph, who reviews the second edition of Brookfield's *Becoming a critically reflective teacher* and a volume edited by Bhambra, Gebrial and Nişancıoğlu on *Decolonising the university*.

The year 2019 has been a busy one; it saw us co-organising five symposia on applied learning and teaching, and participating in the afore-mentioned EDU2019 conference in Athens and also the *Teaching Matters* conference organised by the University of Tasmania (and our Editorial Board members Joey Crawford and Bill Baker). The undersigned were also most fortunate to be amongst the winners of the 2019 Kaplan Way Awards.

We owe very big Thank You's to our fantastic Editorial Board that has been further strengthened and become more diverse in 2019; Associate Professor Rhys Johnson, COO and Provost for Kaplan Singapore, for his continued faith in us; our esteemed colleagues Mike Christie, John Matthew, Nelson Ang, Lilian Ng, Desmond Teo, Marty Windle, Femmy Lais and other wonderful colleagues (too many to mention) at Kaplan Singapore for their kind co-operation and support; once again, our esteemed Editorial Board member Nigel Starck for his critical proofreading of parts of the issue (all remaining errors are solely our fault!); and our academic colleagues worldwide for their continued sharing of the JALT initiative with their networks. This is also a good opportunity to thank Chris Harris for his important involvement in the founding of JALT and his contributions to the first three issues. He has since moved on to greener pastures and we wish him all the very best! Lastly, we continue to welcome all feedback and ideas, and we hope to bring JALT to greater heights in 2020 and beyond!

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Self-organised learning: Empowering the most marginalised schools of rural Greece?

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Keywords

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Greece;
rural schools;
self-organised learning environments (SOLE).

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Abstract

Despite increasing demands in the labour market for higher-order thinking skills, along with OECD reports highlighting an urgent need for a curriculum reform in the crisis-ridden country that will aim to adopt a more holistic approach to the education and development of its young people, Greece is still ranking among the lowest across 30 OECD countries in terms of performance on 21st century competencies, such as creativity, while also performing well below average on foundational literacies such as scientific and cultural and civic literacy. It should be hardly surprising that the structural constraints imposed by a debt-ridden economy seem to weigh heavily on the administrators, who, recognising the need for the nation to play catch-up, are currently amidst a curricular reform for a number of secondary school subjects, yet inevitably pushing over 500 of the most marginalised primary schools operating in rural and socioeconomically challenged parts of the country down the list of priorities. It is against this very backdrop, then, that questions such as "How can we do more with less?" have greater currency than ever. This ongoing scholarship investigates the design of a targeted intervention aiming to provide support for the more disadvantaged state schools where there is currently no provision for the teaching of English as a Foreign Language (EFL) due to geographical and budgetary constraints. 'Self-organised learning' as an alternative, cost-effective model for the enactment of the primary English curriculum to current approaches has been put to the test. Pupils from eight such schools participated in a quasi-experiment consisting of weekly sessions where they were encouraged to self-organise, take responsibility for the direction of their own learning, demonstrate initiative, and collaborate effectively. Preliminary findings are discussed in terms of behavioural changes regarding the above-mentioned skills, including the participants' preparedness to self-direct.

1. Introduction

With Greek education expenditure having been cut by an estimated 36% (European Union, 2015) in the current harsh economic context and educational outcomes remaining weak compared to other Southern European countries (OECD, 2017), along with findings placing Greece at the top of the list of countries with a marked disparity in the quality of educational provision between rural and urban areas as a result of an uneven distribution of resources across the country (OECD, 2018), it is important to understand fully the potential of alternative educational and pedagogical approaches in ensuring all students – including those in geographically remote and disadvantaged areas – are given equal opportunities to high quality learning.

The magnitude of the impact of the severe sovereign debt crisis that Greece has been faced with since 2010 is perhaps best reflected in the acute shortage of teachers that has led to a number of subjects not being taught at all throughout the year or, worse still, schools being shut down completely. This is observed particularly in remote villages and islands where the number of children is not deemed sufficient to justify the recruitment of a full-time teacher. As a result, children are expected to travel long distances in order to attend schools in towns or villages where educational facilities are indeed available, or to simply receive access to an abridged version of the curriculum in their local school unit.

It is against that backdrop that this study is set as there seems to be a dire need for more accessible teaching pedagogies that will suit those particular contexts. The aim of the present scholarship then is to test an alternative pedagogical approach to English as a Foreign Language (henceforth EFL) by measuring its appropriateness and effectiveness in those new contexts. Self-Organised Learning Environments (SOLE) is a relatively new learning model which appears to be a potentially effectual – yet not sufficiently tested at the time of writing this – response to the aforementioned issues. This study investigates the impact of SOLE and computer-supported tasks on EFL learning by means of measuring the amount of progress achieved by a group of primary learners attending ultra-small schools in rural Greece. It is anticipated that any results obtained from the study will offer valuable insights into the ways in which alternative educational environments can help address the issue of insufficient teaching resources in schools operating in remote areas.

2. Literature review

The concept of Self-Organised Learning Environments (SOLEs) was developed by Mitra and researchers at SOLE Central, Newcastle University and constitutes a relatively new pedagogical approach with only very limited research data available in the context of language teaching and learning. It draws on an earlier series of experiments carried out in India which found that groups of children, when provided with appropriate resources that could generate an adequate level of motivation to induce learning, were able to attain computer literacy with minimum intervention from adults (Mitra, 2000; Mitra & Rana, 2001; Mitra, 2003; Mitra et al., 2005). This subsequently came to be known as Minimally Invasive Education (MIE). SOLEs consist of a learning process whereby a Big Question at the beginning of a session provides a springboard for students' engagement in an exploratory enquiry task in pursuit of a plausible answer. Insofar as learners are working in small groups and are given access to the Internet, no intervention from a knowledgeable adult (i.e. teacher) is needed in this phase. This is then followed by a group presentation of findings and then a review and feedback phase. It is only in those latter stages where the presence of a 'mediator' would actually be beneficial by means of helping encourage and facilitate a discussion about the question itself and the investigation process as well as by providing timely feedback (Mitra & Dangwal, 2010).

The SOLE approach is positioned alongside the long-established dominant educational framework of constructivism and the notion that children actively construct knowledge rather than acquire it from someone else (Piaget, 1973). In line with constructivist ideas, learning occurs through a contextualised process of meaning-making which involves active attempts to connect newly-discovered facts with prior knowledge. A constructivist learning experience therefore should be structured by a facilitator just enough to provide the parameters with which to achieve the learning objectives but should do so in a manner that permits enough freedom and flexibility for the learners to research, interact and arrive at their own discoveries (Savery & Duffy, 1995). Previous research conducted on the impact of SOLE has demonstrated positive results in the areas of computer science and mathematics (Inamdar & Kulkarni, 2007) and English pronunciation (Mitra, Tooley, Inamdar, & Dixon, 2003) while compelling evidence also suggests that children are able to teach themselves algebra with minimal adult interference (Nicaud, Bittar, Chaachoua, Inamdar, & Maffei, 2006). Applied to the context of EFL, progress was found to have been made among adult learners in terms of confidence and oral fluency levels (Stanfield & Unlu, 2016).

However, despite calls for further empirical research repeatedly being made in the literature (see for example Dolan et al., 2013) there has been no systematic quantitative evaluation to date of SOLE's impact on student learning outcomes across the different skills of the EFL curriculum so as to determine whether semi-autonomous learning could actually support existing curricular demands in a more holistic fashion. Indeed, this lack of concrete empirical data has given rise to a considerable amount of criticism with critics appearing rather dubious about children's ability to teach themselves a language in the absence of teacher intervention as per the mainstream model (Dellar, 2014). Dellar's critique has some resonance with Harmer's (2014) concerns about the lack of clarity in the teacher's role in a SOLE, who warns that such a self-organised learning design seems to leave the need for scaffolding and facilitating of learners' work unmet. Additionally, the need for children to develop the range of thinking and reasoning skills alongside skills in research and information awareness has often been highlighted in the literature as a prerequisite for successful collaborative enterprises of this type (Leat, 1999; Mitra & Arora, 2010; Dolan et al., 2013; Sowey, 2013). Yet, how best children can be guided towards mastering such a skill set in

a learning context with minimal teacher/mediator input is yet to be understood.

The present study is therefore an attempt to empirically address the above criticisms from the existing literature, including the gaps that have been highlighted in order to improve understanding around the potential of SOLE in maximising learning gains in educational settings where academic resources, including teachers, are currently scarce.

The research questions that the study seeks to answer have been formulated as follows:

1. Can SOLE help us address the lack of EFL teachers in schools operating in geographically remote areas in Greece?

2. What is the impact, if any, of SOLE on primary EFL learners in terms of (a) learning outcomes, and (b) their preparedness to self-direct?

Hypotheses

It was hypothesised that:

1. Measurable progress would be achieved by the group that would have received the intervention, in terms of the language skills pertinent to the present study (i.e. listening, speaking and writing), as well as vocabulary acquisition and grammatical awareness.

2. It was assumed that, due to the highly communicative nature of SOLE, participants would score higher on the oral component of the post-test compared to their baseline scores.

3. Methodology

3.1. Research Design

In order to draw conclusions regarding the extent to which SOLE could be implemented at scale in an attempt to address the lack of EFL teachers in schools operating in geographically remote areas in Greece (RQ1), a quasi-experimental design has been employed. More specifically, for the investigation of the first part of Research Question 2, a pre-test and a post-test benchmarked to the Common European Framework of Reference for Languages (CEFR) (Council of Europe, 2017) have been administered to a group of learners. The tests will be used to measure progress achieved in three language skills pertaining to the study (Listening, Speaking, and Writing) over a period of one school term (i.e. three calendar months) and will enable the researcher to run a comparative means analysis and thereby determine whether a statistically significant difference between the two tests can be observed. Hudson and Llosa (2015, p. 77) remind us that it is when research "aspires specifically to discover causal relationships among manipulated variables" that these designs are particularly called for; in other words, when questions such as "To what extent does the presence/absence/amount of X (independent variable) cause Y (the dependent variable) to change?" are posed within it; a comparative design of this kind which draws on quantifiable empirical data then will enable the researcher to gain immediate and clear insights into the extent to which the intervention has had a significant impact on the attainment of the desired learning outcomes for the group that received it and then draw relevant inferences in relation to the main research question.

In answering the second part of Research Question 2, observational data has been collected from video recordings of the live sessions, which, by the end of the fieldwork, are expected to amount to a total of 64 hours.

3.2. Sample

Due to the aims of the study and nature of the research design, purposive sampling has been selected as the most appropriate sampling technique as it will allow the researcher to assess eligibility for participation in terms of the student population of the schools, the geographical location as well as the resources available. A preliminary a priori power analysis performed using G*Power version 3.1.9.4 indicated that in order to be able to reach meaningful conclusions about the significance of any differences in mean scores on the repeated measures with adequate statistical power, a sample size of approximately 34 participants would need to be tested (based on a statistical power of 80%, a two-tailed significance level of 5% and while looking to determine a medium effect [d = .5, r = .3], as per Cohen's [1988] levels). Learners were therefore selected from a number of primary schools (Years 1–6) located in villages in remote areas in Greece in which English is not currently taught due to lack of a teacher and where English is not the medium of instruction. To address the potential limitations that emerge from this choice of sampling technique, emphasis was placed on capturing maximum location variation and breadth to permit the identification of important common patterns which cut across the sample.

The mean age of the participants who received the intervention was recorded in years and months at the start of the fieldwork testing in November 2018 (N = 47, M = 10 years 5 months, SD = .92, min. = 8 years 7 months, max. = 12 years 3 months). The participants were in Years 6 (N = 18), 5 (N = 20), 4 (N = 5) and 3 (N = 4) during the fieldwork timeframe (academic year 2018-2019). This age range was chosen for two reasons.

First, in Greece the national EFL curriculum prior to Year 3 focuses primarily on the development of pupils' oral communication skills. Their exposure to the English alphabet merely aims to sensitise them to the letters and only constitutes a secondary learning objective, i.e. children up to Year 2 are not expected to go beyond the stage of letter recognition and reproduction, which only involves tracing. Systematic teaching of the alphabet does not begin until Year 3, when children are deemed mature enough to be introduced to the processes of comprehension and production of oral and written English (Dendrinos, 2013). Given that the scope of the present study involves the development of literacy and writing skills as one of the

core objectives of the intervention, it was reasoned that only pupils who were at a level of English competence where these skills were being taught in a more focused and systematic fashion should participate.

Second, Year 3 is an appropriate time to begin a focused yet age-appropriate integrated-skills second language learning programme as by this time children will have generally already acquired the phonological system of the Greek language; having learned and used that system for sufficient time, it can be expected that they will have developed the mental and linguistic capacities and the conceptual maturity to start developing an awareness of the graphic and phonic systems of the English language (ibid.). Some educators and researchers, such as Conger (2009), may point to the 'Critical Period Hypothesis' (CPH) and suggest that the earlier the onset of second language acquisition the faster the rate at which young learners will become minimally proficient. However, the need to align the linguistic objectives of the intervention with those set out in the national curriculum for the sake of comparability called for a more pragmatic approach.

3.3. Criteria for School Selection

Following systematic research, a preliminary short list of schools that were deemed appropriate to support and receive the intervention was made in February 2018. The considerations in the selection process were a non-availability of an English language teacher, school classification and location, the children's ages and access to technological equipment and the internet. With regard to this last criterion, a minimum requirement to participate in the study was that each school had at least one working computer.

In locating these schools, a list was obtained from the Ministry of Education containing details of all the small rural primary school units in the country operating multi-grade classes. 1,174 schools were listed in total, of which 591 were immediately excluded because they were classified as operating with more than two teachers, thereby suggesting a high probability of an English teacher being available in the school.

Next, eight geographical regions were randomly selected, and both continental Greece and the island of Crete were included. Feasibility of carrying out visits to all the participating schools, mandated that smaller islands with only one potentially eligible school be eliminated. The eight regional units selected comprised a total of 117 small rural schools. Of these, contact was able to be established with only 51 head teachers, who were asked about the English language provision and teacher availability in their schools during the school year 2017-2018, and the presence of technological equipment in the school. This process of elimination eventually led to the identification of 11 eligible schools, of which only 8 were able to complete the pre-testing process and hence receive the intervention.

3.4. Participating Schools

All the schools that received the intervention were mixed gender state primary schools in rural areas of Greece operating with a maximum of two teachers each (including the head teacher, whose professional duties in these schools normally also involve teaching responsibilities). As a result, they share multiple common characteristics, as shown in Table 1 below. The schools have been pseudonimised, as have the names of the villages in which they are located. With only one school in each one of the localities that the study went to, this was a necessary step to avoid the schools participating being individually identifiable.

School	Region	Distance from Regional Unit Capital (in km, by car)	Elevation (in metres)	Population (2011 census)	No. of Pupils in Group
Delphi	Macedonia	33	870	408	3
Arsinoe	Epirus	58	1160	396	3
Elaia	Thessaly	11	150	533	3
Marathonion	Epirus	6	20	466	10
Demos	Epirus	12	50	350	4
Minos	Crete	65	110	426	12
Morphe	Crete	24	60	519	8
Palaeopolis	Crete	19	100	654	4

Table 1: Participating Schools which Received the Intervention

Note that for the purpose of the intervention Marathonion was split into two experimental groups due to the relatively large number of pupils and a lack of physical space in the room where the school's only computer was located.

3.5. The Intervention

The intervention began in January 2019 and ended in May 2019. It consisted of twelve online weekly sessions of approximately 45 minutes each and took place via the videoconferencing platform Google Hangouts. The relatively short duration of each session has been mandated by a need to match that of class periods in state primary schools.

During each session, pupils were asked to work in groups in order to perform tasks with the support of a computer and the Internet, including collaborative enquiry and surveying. They explored questions such as '*What makes children happy?*', '*What does your dream school look like?*', while they were also guided through the process of conducting comparative price analysis on a list of everyday food items in order to answer the question '*Greece Vs England: Where is food more expensive?*'. In line with the traditional SOLE methodology, pupils were first shown a short video or picture, which served to activate their schema and stimulate their interest and curiosity about the topic. They were subsequently encouraged to work in groups in order to use the Internet and explore the question that had been posed to them. Due to restrictions in the number of computers available in the schools, pupils were all working on one machine, mostly as one group. Towards the end of the session, participants were given time to present their final products – be it a poster, survey findings or other data they had discovered - orally to the researcher, who was beamed into the classroom through the screen or a projector – and the class teacher, who was oftentimes present to offer support with the technology, as and when necessary. During

that stage, the researcher provided feedback on the pupils' use of language and prompted deeper consideration of the topic with further questions.

Other sessions were less enquiry-driven and more structured in nature and focused on developing the learners' writing skills and grammatical awareness as well as vocabulary use in context. Such sessions took the form of collaborative writing tasks, where the participants were introduced into the various stages of the writing process, and were invited to act on feedback provided on their writing tasks (which they would have already submitted through the online platform). To this end, the participants were guided through the process of revising, editing and re-submitting their work with a view to improving their score. To promote peer-scaffolding and autonomy in the drafting process, the learners were invited to work collaboratively on the writing tasks using Google Documents, and leverage the various internet tools at their disposal when they were uncertain of their language choices.

In order to enable the researcher to obtain comparable results in terms of the participants' learning outcomes, an asynchronous online learning component was also designed to be combined with the live sessions. This comprised a self-paced course series which consisted of five proficiency levels (Beginner – Intermediate), each of which contained in turn an average of 20 lessons. The courses were all mapped to the National Curriculum for English and the lessons in each course were designed such that they matched those in the textbooks used by primary schools across the country. Again, this was done in the interest of comparability.

Each pupil was assigned a level at the end of the pre-testing process and was then encouraged to work her own way through the course at her own pace and in her own time. Importantly, the courses were all gamified in that with every lesson that the pupils completed, they earned stars and were also able to unlock the next lesson and progress through the level. "Gamification" is a relatively new term used by researchers to refer to "the use of video game *elements* (rather than full-fledged games) to improve user experience and user engagement" in non-game contexts (Deterding, Dixon, Khaled, & Nacke, 2011, p. 2426). Previous research has argued that taking game mechanics and gameplay features such as avatars, badges, points, leaderboards, levels, and progress bars and incorporating them into the learning process can trigger positive engagement amongst primary and secondary learners (Mystakidis, Lambropoulos, Fardoun, & Alghazzawi, 2014), while Halloluwa, Vyas, Usoof, and Hewagamage (2018) report that participation in a gamified learning experience encouraged Sri Lankan pupils as young as eight years old to take ownership of their own learning, thus suggesting a shift towards a more learner-driven collaborative environment.

The preliminary analysis that follows is based on observations from the first six sessions only, and the participants' online activity on the self-paced component.

3.6. Ethical Considerations

All research was conducted according to the British Educational Research Association Ethical Guidelines for Educational Research (BERA, 2018) as well as the Newcastle University Code of Good Practice in Research (Newcastle University, 2018), and gained the approval of the Faculty of Humanities and Social Sciences Research Ethics Committee at Newcastle University. Measures were taken to ensure that participants knew exactly what the research involved before consenting. Information sheets were translated into Greek and were provided and discussed with all the headteachers, parents and children, ensuring they had the opportunity to ask questions, that they knew they could withdraw at any time and that their anonymity would be protected.

The children who received the intervention would not otherwise have been attending any English classes in their schools, and therefore the intervention did not introduce learning risks that might have arisen in the case of deviation from normal school practice.

3.7. Limitations

Even though non-randomised observational studies have not traditionally been considered to be equal grade evidence compared with true experiments due to risks such as confounding and bias, a quasi-experimental design was deemed more appropriate in this instance for two reasons. The first is that of feasibility of identifying and recruiting similar micro-schools operating in rural areas where English was being taught as a subject. Second, a counterbalanced design whereby a set of schools that had initially received the innovation would then become a control group during the second half of the intervention period would have truncated the actual length of the intervention by half, thus compromising the chance of any meaningful changes in learning occurring. Even so, possible limitations as regards generalisability of findings should still be considered.

Furthermore, the results gathered come from a relatively small sample size of primary learners, and they may not be representative of learners in other educational tiers and schools from other regions. As the study is still ongoing and the present analysis relies exclusively on data obtained during the first six sessions of the treatment, any conclusions should be treated with caution. Despite these limitations, it is believed that the preliminary findings from this study contribute significant insights into what transpired over the initial six-week period of the intervention and provide a solid foundation to build upon as the investigation continues.

4. Findings and Discussion

Even though the results from the statistical analyses of the tests are not yet available, and therefore the potential effects of the intervention have not been quantitatively measured as of yet, a range of initial insights as to the participants' behavioural changes and their preparedness to self-regulate have indeed been obtained by way of observing the recordings of the first six sessions, and by reviewing their tracked activity on the online component. As a result, this part of the analysis will take a qualitative approach in trying to make sense of and interpreting the data obtained to date.

Following the parents' written consent, live sessions were recorded with the use of the screen casting software *Ice Cream Screen Recorder*. This has allowed the researcher to track behavioural changes over the course of the intervention since the beginning of the fieldwork.

4.1. Social-affective skills

One first observation from the recordings of the live sessions reveals a gradual yet apparent development in the participants' social-affective skills. Indeed, in the first few sessions learners seemed to be facing a certain degree of difficulty in managing the freedom and flexibility that the SOLE setup was affording them, and seemed to be operating in a context of isolation from their peers, with their attention turned primarily to the researcher, who was running the session from the other side of the screen. This often led to the most extroverted and confident child taking the lead, without however knowing how to encourage her peers to contribute to the ask on hand. As a result, what can be observed in those initial sessions is pronounced reluctance on the part of the quieter personalities or less able pupils to participate in the group work.

This should be hardly surprising. As Koutrouba, Kariotaki, and Christopoulos (2012) point out, the highly teacher-centred classroom in Greek state schools allows little room for the cultivation of the affective and social objectives of the teaching and learning process. Instead, the teacher is seen as the sole transmitter of knowledge, which inevitably results in rendering collaborative learning tasks redundant, thus stifling learners' self-activation and initiative.

However, once given the freedom to take control of the task dynamic and once the teacher's presence becomes less pronounced and less intrusive, learners as young as 8 years old seem to become more willing to turn to each other for help when they begin to struggle, and, equally, to proactively offer praise and encouragement to less-able peers. Interestingly, this has become manifest across all groups taking part in the present study. The following dialogue, which occurred during Week 5 of the present research, serves to illustrate how such tendencies become apparent amongst a group of eight-year-old learners who are just learning to spell their first words in English:

(translated from Greek)
Pupil 1: *Miss, have I spelt it correctly?*
Teacher/Researcher: *I can't see it very clearly through the camera, so why don't you go show it to someone who has written it already and ask them if your spelling is okay?*
Pupil 1: *OK… Elena, is this correct?*
Pupil 2: *Let me see… No, your 'l' needs to be longer. Here, look at mine. You need to make this line longer. Go ahead.*

Conversations such as the above and instances of proactive help-seeking – including knowing which peer to turn to depending on the kind of problem – become more prevalent as the participants progress through the programme than they were at the beginning of the intervention.

4.2. Self-regulation

Self-regulation has been defined as "self-regulated thoughts, feelings, and behaviors that are oriented to attaining goals," and as "the self-directed processes by which learners transform their mental abilities into academic skills" (Zimmerman, 2002, p. 65). In the context of the present study, it had originally been anticipated that having mostly been exposed to heavily teacher-driven educational environments where the decision-making process is primarily tasked to the teacher, the learners would struggle to take control of their own decisions and choices. Interestingly, a closer review of the learning analytics data available to the researcher through the application used for the asynchronous learning component, it becomes evident that the children have indeed been voluntarily making their own choices which have been oriented towards attaining their learning goals, without any interference from the teacher. Figure 1 below shows the number of attempts this learner has made at each task and the amount of improvement made between attempts.

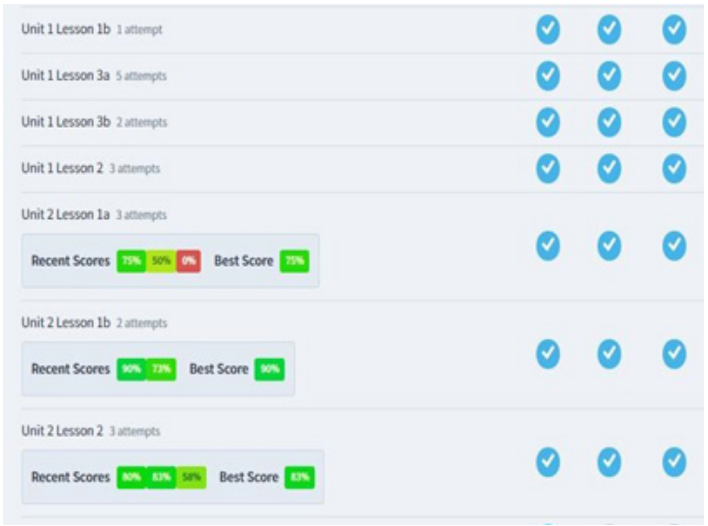

Figure 1: Screenshot from a learning analytics page

This type of behaviour and choices could partly be attributed to the presence of a range of gamification features which seem to instil an element of competitiveness in the participants, who seek to outperform their peers and earn as many stars as possible. On the other hand, this is a rather pronounced phenomenon across the eight groups that participated in the present study, and therefore merits further exploration during the interviews with the participants, which are envisaged to take place at the end of the post-testing process. Indeed, if, once given the freedom and the incentive to take control of their own learning and regulate their own behaviour and choices in order to attain their learning goals, children can move away from an increasing amount of teacher-dependency which is currently permeating the learning process inside the Greek state school classroom, and enable them instead to become more autonomous learners, then, in this regard, SOLE will have to be recognised as containing elements which are superior to the pedagogies currently employed in state schools across the country.

5. Conclusion

The main aim of this study is twofold: (a) it aims to evaluate the potential of SOLE in enhancing language learning in resource-scarce educational settings, and (b) it seeks to provide a pedagogical framework within which computer-supported learning approaches can operate to allow learners greater latitude to self-organise, take responsibility for the direction of their own learning, and collaborate effectively.

The preliminary results obtained from the recordings of the first six sessions of the programme suggest a gradual shift away from patterns of teacher dependency towards a greater degree of preparedness on the part of the learners to co-manage the learning process with their peers and leverage each other's particular skills in order to troubleshoot. Furthermore, personalised data retrieved from the online learning platform which the participants used to complete tasks at home revealed significant amounts of control and autonomy by the participants, who appeared to be actively monitoring and directing their actions towards self-evaluation and self-improvement. Such competencies have often been linked with a high sense of self-efficacy (Schunk, Meece, & Pintrich, 2012) and academic success (Pintrich, 2000). However, at this stage of the analysis it is impossible to establish a direct relationship between students' behavioural tendencies and their subsequent academic outcomes, thus this remains an open issue for the future. Conducting a comparative means analysis of the learning gains across two independent groups of learners from micro-schools operating in regions with similar sociodemographic characteristics can be even further illuminating in terms of the effects of SOLE on primary learners' relative academic success.

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Technologically enhanced pedagogies in Professional Writing

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Abstract

Development of online or hybrid options for academic content often emphasises product over process. Institutions may decide to join the latest movement without carefully considering whether particular content lends itself to such technologies. The question to be asked first is whether students in a specific discipline — business, science, or another — would benefit from technological pedagogies instead of, or in tandem with, traditional offerings. Even though the "classroom" now can be virtually recreated with hyperlinked readings, synchronous chats, and real-time interactions, the instructor must vouchsafe an enriching learning environment. One endeavor across many — if not all — academic disciplines is written communication, through which students explore course content, critically assess meaning, and construct cogent arguments. Applied writing, often termed Professional Writing, weaves through the curricula at Widener University; open-access modules for at-risk students seeking a college education are also being developed with a local not-for-profit agency. Before shifting courses or modules to online and/or hybrid formats directly, Professional Writing faculty are designing, implementing, and assessing various tools: blended course design, online writing resources, and open-access outreach. The core pedagogical issue remains the astute application of technological tools to achieve learning outcomes. This presentation highlights progress by the Professional Writing faculty at Widener University for enhancing pedagogies with technology while navigating climate and culture.

1 TECHNOLOGY AS TROPE OR TRANSFORMATION

Technology needs to be more than the latest trope in education. Like too many other advancements with pedagogical potential, the sweeping paradigm of educational technology teeters on banality. In the last decade alone, for instance, higher education has glommed onto "leadership" and "high impact practices" — buzz terms in the American vernacular of sound bites — as key words required for successful grant proposals, research articles, and tenured positions. These terms are not irrelevant; on the contrary, such terminologies (and sometimes tropes) supply an efficient shorthand to encapsulate pedagogical advancements.

In modern society, the potential of technology to reinvigorate and perhaps revolutionise education cannot be minimised. This potential, moreover, comes at a critical juncture, given the recognised need for transformation of local, national, and global communities of education. The United States system, a cacophony of public and private models, is one that falls short of its promise of equal educational access for all students. Upheavals in politics, society, finances, and ethics exacerbate this shortfall, whose deep root Harkavy and colleagues (2013) at the University of Pennsylvania succinctly confront: "No radical reform of American higher education, no successful education reform."

The European Commission on Education and Culture (2015) highlights that any reinvigoration of educational systems requires not only adjustments for, but also fresh perspectives on, education for non-traditional students along their "[c]omplex learner journeys." Furthermore, increasing numbers of part-time students demand greater mobility (both temporally and digitally) to accommodate their often-interrupted expanses of formal study. Indeed, in 2017, the Lifelong Learning Platform of the European Union called for "a reimagining of education" now.

Technology quickly became poised for a reimagining of most societal endeavours — from financial transactions and airport security to international journalism and interpersonal communication. Yet, any such endeavour can be hurt or harmed by the inculcation of technology. Quicker finances may engender scandals, greater security may discourage travel, unfiltered news may foment biases, and social media may heighten isolation. Its transformational potential notwithstanding, educational technology must likewise be astutely assessed for overt strengths and covert weaknesses. As with information itself, ubiquity does not supplant suitability. Pedagogical technology, therefore, must be selectively harnessed rather than sweepingly applied in reimagining education.

Despite its widespread use in educational settings, particularly in affluent societies, technology has not yet achieved its pedagogical potential; instead "technology is used within and alongside largely unchanged pedagogical approaches" (European Commission, 2015). Yes, a learning curve is to be expected — even for educators. Careful analysis, though, reveals other confounding factors, notably "fragmentation of disciplines, excessive overspecialisation, and the false dichotomy between the arts and sciences and professions" (Harkavy et al., 2013). Even technology itself can be its own limiting factor when investment into a specific learning management system (LMS) constrains curricular design (European Commission, 2015).

In short, "the impact of digitalisation is yet to have a truly transformational effect on education" (Lifelong Learning Platform, 2017). Rather than digitising traditional course materials, courses using technology must focus "on activating and engaging students in a teaching and learning process through a sequence of well-designed learning activities" (Henderikx & Jansen, 2018). Fulfilling this potential requires openness to change in terms of not only pedagogy and technology, but also culture and climate.

2 PEDAGOGY OF PROFESSIONAL WRITING

2.1 Overview of Curricular Offerings

At Widener University, a metropolitan institution in the eastern United States, transformational initiatives abound. Although each must navigate pedagogy and technology, some initiatives (as well as some disciplines) encounter more resistance to evolution from climate and culture than do others. Professional Writing is one such discipline striving to transform pedagogy through technology — despite climate and culture. At its core, Professional Writing is the situational application of communication theory, editorial mechanics, and rhetorical techniques. Typical examples of applied genres of writing include business and technical communication; key is complementarity of writing instruction with content areas (e.g., informatics, nursing, etc.).

Unlike at some institutions, Professional Writing at Widener University has evolved from a patchwork of courses into a defined discipline. Until recently, the program had offered two undergraduate curricula: a certificate of four courses for students desiring substantiation of strong communication skills in their chosen field, and a minor of eight courses for students pursuing communication-focused careers. Enrolment pressures, however, forced an innovative recombination of various advanced courses into one malleable course that interweaves writing skills and discipline content within community experience. (The program continues to offer its fully online graduate course "Professional Communication for Allied Health.")

2.2 Active and Experiential Pedagogies

As an applied field with interdisciplinary roots, Professional Writing fosters incorporation of varied pedagogical techniques. Choices relate not only to course content (e.g., technical writing) but also academic objective (e.g., teamwork). In all courses, communication theory grounds student learning. Key concepts are stressed: awareness of audience, purpose, and context; development of structural strategies; and selective use of rhetorical techniques, notably logos, pathos, and ethos. As appropriate to level

and topic, courses emphasise writing mechanics and visual design. Expectations of communication within a professional environment, however, do not fully mesh with traditional pedagogies of higher education. Although a didactic lecture complemented by slides or handouts might suffice in some disciplines, Professional Writing must model what students will be expected to deliver. Combinations of text and media, for instance, can interest students during content assimilation; subsequently, students may apply content in smaller writing exercises, followed by problem-solving activities for teams. Tailoring exercises and activities to relevant topics augments engagement.

These active modes of learning can be expanded into full experiential projects. Simulating their professional careers, students are challenged to apply what they have learned to practical situations. Rather than assigning a textbook exercise (e.g., social media in marketing), instructors might instead build several assignments around a practicable situation (e.g., proposal, report, and brochure for an area business); this experiential pedagogy, however, can be further leveraged by meeting a community need (e.g., social media campaign for a non-profit agency). For over a decade, Professional Writing at Widener University has connected with community agencies through its "experiential community engagement" model, in which students function as consultants for clients who service the community (Bonk, 2013).

2.3 Extension through Technology

Professional Writing, being an applied discipline, must remain current with societal changes that shape modern careers — notably digital technologies. Availability of distance technologies allows programs to reach beyond traditional classrooms; moreover, these technologies can be adapted for use within classsroom walls. In many academic disciplines, courses increasingly implement hybrid and blended approaches that essentially "flip" the classroom paradigm. Material traditionally covered by didactic lecture, for example, may be delivered digitally; valuable classroom time can then be refocused with active pedagogies.

Simply digitising traditional materials, though, is not fully exploitative of technology's potential:

> Online and blended courses are not a copy of printed courses or face to face lectures, even when they are sometimes videotaped. Online learning should be designed in such a way that the student has a deep learning experience throughout the process of achieving the objectives of the curriculum or course…. Learning paths can be differentiated and personalised according to prior knowledge or specific fields of interests of the students (Henderikx & Jansen, 2018).

While some disciplines easily adapt to a web-based system, the iterative process inherent in writing mandates more nuance; minimally, students need one-on-one feedback, ideally through synchronous interactions like chats and messaging. Nonetheless, re-envisioning delivery of innovative and effective courses must address underlying pedagogies as a priority. At Widener University, the re-envisioning of Professional Writing courses through the application of digital technologies began by examining the underlying pedagogies and continues with periodic feedback and revision. Pedagogy must drive course design; technology is a tool for achieving the desired curricular outcomes.

2.4 Climate and Culture Control

Clearly, technology is not the only influence on education, particularly at the university level. Like many other academic institutions, Widener University, a liberal arts institution, continues to require "general education" in order to safeguard the rich tradition of academia. Broadly speaking, general education aims to ensure that all students earning a degree from that institution are well-rounded in knowledge of the humanities, sciences, and social sciences — key elements of the liberal education model. A potentially competing influence, though, is the growing impetus to integrate skill sets with knowledge areas; as a result, many institutions are reframing distribution lists of approved courses by mapping to learning outcomes, such as quantitative reasoning and critical thinking, within a general education model. But even though written communication remains atop the list for institutions with defined learning outcomes (AAC&U, 2016), resistance to cross-listing general education and Professional Writing courses becomes problematic.

Complications arise, moreover, as curricula require increasing courses and credits; professional disciplines are often restrictive. As extra courses add to already burgeoning curricula, students face an unpalatable and costly extension of study programs. Adding community service and other requirements to the mix may further limit opportunities for applied courses like Professional Writing; too often, turf wars erupt when the focus should be on students (Bonk, 2014). Although several disciplines (e.g., business) include Professional Writing within their curricula, students in other programs may simply be blocked from courses outside the mainstream established by political climate and institutional culture. Fortunately, juxtaposition of pedagogy and technology identifies creative avenues toward achieving educational transformation.

3 PROFESSIONAL TRANSFORMATION OF WRITING

Combining pedagogy with technology has allowed the Professional Writing faculty at Widener University to transform educational offerings, despite a refractory climate and recalcitrant culture. These educational transformations can be categorised along three main themes: blended lessons in hybrid courses, writing assistance through web-based tools, and open-access modules for targeted community groups.

3.1 Hybrid Course Design

With a full-time faculty of one, the Professional Writing program at Widener University relies on a dedicated cadre of adjunct faculty. The faculty group's small number fosters a level of collaboration that has led to incremental pedagogical innovations. And rather than bulk introduction of technological changes, faculty have redesigned course and program offerings with deliberate scrutiny as to which pedagogical techniques are most appropriate for applied writing.

Initialisation of hybrid techniques

In various Professional Writing courses, the principal faculty member faces scheduling difficulties; in essence, these classes need to fit around varying schedules of other curricula. Furthermore, a number of these specialised classes have limited enrolment yet still must be offered. Hybrid technology provides a solution. Essentially, content is divided into two categories: didactic materials and active learning. Audio-files built to complement the main text foster independent exploration of content; informal exercises conducted on-line gauge student progress. By deliberate design, hybrid sessions directly prepare students for in-class activities. Importantly, blended pedagogical techniques mesh with various learning management systems.

Within a blended syllabus, in-person meetings are held less often and more flexibly. As a result, the faculty member wields more leeway to tailor smaller classes that fit otherwise problematic scheduling. Furthermore, courses like Professional Writing that support other academic disciplines must respond to their accreditation requirements. The Association to Advance Collegiate Schools of Business (AACSB), for instance, has a vested interest in guiding education to meet "[e]volving expectations and experiences of the digital generation as they relate to the broad range of management learning and development alternatives that will be available to them" (AACSB, 2018).

Revision of common core syllabus

This blended model capitalising on hybrid technologies was subsequently adapted for the "Effective Business Communication" course required in various curricula. For this course, a common core syllabus was developed by the faculty to balance firm academic expectations with individual teaching styles; this core syllabus was also endorsed by faculty of those curricula requiring this course, particularly so as to ensure compliance with accreditation standards.

Soon, an opportunity arose to explore hybrid techniques nascently used in other Professional Writing courses. The primary thrust for revising the core syllabus was to accentuate digital communications, notably social media; required genres remained correspondence, proposals, and reports. Concurrently, Widener University was upgrading a dedicated technology classroom. The flexibility of movable workstations across "pods" allows rearrangements for teamwork. The instructor's station can display not only faculty materials but also student output. Furthermore, distance technologies can incorporate off-campus guests, such as community liaisons for experiential projects, as well as off-campus students.

Customisation of open-access text

Given defined parameters of content (core syllabus) and instruction (hybrid techniques), the faculty reassessed the core text used in this course. Texts used previously became prohibitively expensive, and an existing text customised from several sources lacked continuity. Hence, faculty searched for an alternate text that would meld with the blended pedagogical model. After a one-semester pilot of an open-access text, faculty selected relevant chapters, trimmed tangential information, and augmented examples and exercises. (As of 2018, all Professional Writing courses have open-access texts.)

3.2 Online Writing Tools

Along with offering online or hybrid courses, institutions bear a responsibility to provide academic services as done for students in traditional courses. For written communication, the common model is a writing centre, typically a campus location with tutors who engage students to practise skills for educational success. Reaching out to today's new students, however, cannot occur just through websites and emails. More critical than technology may be understanding the learning styles of the student populations (Mupinga, Nora, & Yaw, 2006). Simply providing resources in online formats would be no more effective than posting hardcopy flyers on bulletin boards. Thus, the Professional Writing faculty brainstormed permutations of content, design, and layout for a hybrid-facilitated model to provide writing assistance through a cloud-based platform. Interactive, visually based tools were identified for five writing areas:

- Grammar & Usage
- Copyright & Fair Use
- Layout & Graphics
- Digital & Social Media
- Professional Tips & Advice

Despite budgetary limitations, the website was tentatively launched in the fall 2016 semester. The only glitch arose from climate and culture: website administrators would not authorise this resource because of potential competition with the existing writing centre (whose director supported the website). Unlike the administrators, faculty and tutors from both areas considered traditional and online modalities as a partnership. Regardless, a modified website was relocated to a non-affiliated domain. That initial roadblock, though, opened avenues for innovative development. The redesigned website widened to encompass the Professional Writing program, with the identified writing areas subsumed under a broader schema with three resource categories:

- Form & Function
- Tools & Techniques
- Style & Substance

3.3 Open-Content Modules

Pedagogical technologies wield a powerful potential to reach a wider audience beyond the campus: the open-education community. In essence, the term "open" refers to educational materials publicly available under a non-restrictive license (SPARC, 2017). Through this model, institutions can upload course materials for students to access and (in some circumstances) earn academic credit. A completely open model, however, may not be advisable in all situations. Disciplines such as healthcare with the potential to be intentionally or unintentionally misused require careful gatekeeping as part of those professions' social contracts (Bonk, 2017). Moreover, disenfranchised individuals who might best benefit from open education may not even be aware that such resources exist. In these situations, open resources should be tailored to needs of the targeted community, as in the LOOC (Localised Open Online Content) model (Bonk, 2016).

The LOOC model is guiding development of writing modules for open community outreach. Teamed with the director of the College Access Center of Delaware County, a university-affiliated agency advocating for students seeking a college-level degree (College Access Center, 2017), the faculty member strategised a set of online modules for seminar and individual use. The first two modules — audience awareness and writing mechanics — were created as slideshows with linked videos and interactive exercises, with cartoons inserted for engagement with students. In 2018, unfortunately, the University's support for this important agency was cut due to shifts in financial priorities. After some scurrying, the collaboration reconnected through teaming with the Chester Education Foundation, a related agency seeking "to support educational excellence and to promote community revitalisation" (Chester Education Foundation, 2018).

4 ASSESSMENT OF PROGRAM REDESIGN

Two of the adjunct faculty who participated in the program redesign contributed their assessment comments; highlights from their perspectives follow. The first set of comments refers to underlying technology, whereas the second set of comments focuses on pedagogical application.

4.1 Underlying Technology

When a Learning Management System (LMS) is implemented and used correctly, faculty spend less time in the traditional lecture mode format that reinforces a synchronous communication model of information flow in real-time from professor to student…. [In blended courses, faculty] can not only "flip the classroom" as it is now widely known, but post more challenging questions online and create a variety of technologically enhanced online assignments to stimulate learning through the use of an asynchronous model of communication. Faculty who make proper use of the asynchronous time can establish effective feedback loops, adding incalculable value to faculty-student interactions…. Such data can be helpful in providing individualised competency paths for students exhibiting difficulty with the course content, or provide remedial assistance for students who are less prepared to understand the subject matter. A well-designed blended course should inherently require faculty to think about the message and its intended audience, whereby student curiosity is emphasised and critical thinking is rewarded.

4.2 Pedagogical Application

When a Learning Management System (LMS) is implemented and used correctly, faculty spend less time in the traditional lecture mode format that reinforces a synchronous communication model of information flow in real-time from professor to student…. [In blended courses, faculty] can not only "flip the classroom" as it is now widely known, but post more challenging questions online and create a variety of technologically enhanced online assignments to stimulate learning through the use of an asynchronous model of communication. Faculty who make proper use of the asynchronous time can establish effective feedback loops, adding incalculable value to faculty-student interactions…. Such data can be helpful in providing individualised competency paths for students exhibiting difficulty with the course content, or provide remedial assistance for students who are less prepared to understand the subject matter. A well-designed blended course should inherently require faculty to think about the message and its intended audience, whereby student curiosity is emphasised and critical thinking is rewarded.

5 NAVIGATION OF CULTURE AND CLIMATE

As shown with Professional Writing, pedagogy and technology can be change-partners for higher education. Not surprisingly, institutions across the globe are re-envisioning curricula in modes ranging from bottom-up driven by instructors to top-down driven by administrators. A recent study of academic institutions sponsored by the European Association of Distance Teaching Universities (EADTU) noted "that course development with new modes of teaching and learning at the course level are mainly driven by the voluntarism of teachers or small teams, eventually supported by institutional policies and strategies. Their impact is mainly felt locally, in particular units or courses" (Henderikx & Jansen, 2018).

Although an institutional vision can guide and support potential developments, a restrictive climate with rigid culture can obviate the transformational potential of pedagogical technologies, particularly in the reductionist view of the university as a corporation seeking "control of the curriculum in order to generate revenue" (Schultz, 2015). This circumscribed view challenges the nature of the university: "Contrasting narratives about the character of the university are used as weapons in conflicts over the university's purpose, its societal role, and the roles of students, faculty, staff, and administrators" (Catá Backer, 2017).

Of course, financial exigencies of any societal institution — including education — cannot be ignored. For higher education, unfortunately, that managerial perspective has led to prioritising courses and programs enrolling sufficient numbers of students to generate tuition revenue. Enrolment pressures linked to revenue generation, however, can stifle optimal leverage of pedagogical technologies as society accelerates toward diversification. Hybrid courses that blend traditional pedagogies with online technologies may be key in narrowing the "digital divide" that can isolate disenfranchised members of society (Warschauer & Tate, 2018). Open education, moreover, can benefit a diverse society even if not generating funds. Hence, revenue generation alone may detract from the academy's overall mission to serve society.

Nevertheless, just as waves slowly erode walls, faculty daring to challenge tradition can lead to transformative educational models. Despite logistical and financial constraints, the Professional Writing model is again being re-envisioned at Widener University. Elements of several advanced courses have recently been combined into a team-based experience that interweaves writing skills like editing and rhetoric with disciplinary content like business and informatics. Clearly, educating a diverse population relies upon cooperation, not competition, within institutional partnerships. Through navigating climate and culture, faculty can leverage pedagogy and technology to facilitate the transformation of higher education.

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The effectiveness of inter-teaching: Some international evidence

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Abstract

This study compares final grade results across two different cohorts of accounting students (one using a traditional lecture model and the other inter-teaching – an innovative pedagogy). Boyce and Hineline (2002) designed inter-teaching to engage students in their learning and enhance their academic performance. Accounting courses historically have had a record of high failure rates at an offshore campus of an Australian University, in Vietnam. Final grade comparisons were made between students exposed to inter-teaching and those taught under a traditional lecture-tutorial model. The treatments and participants were independent of each other; however, the course material, assessment and instructor, for both teaching methods, were the same. Both teaching methods were measured for impact in relation to academic performance effectiveness and compared for any differences. The students exposed to inter-teaching performed statistically significantly better than those taught under the traditional model. The findings suggest that inter-teaching is an important tool to encourage the development and improvement of student learning performance, increases student accountability for their learning and advances academic performance in accounting courses.

Introduction

This study compares the impact of the traditional lecture and tutorial teaching model (hereafter termed the lecture model) with the inter-teaching method. A comparison was made between two different cohorts of first year accounting and business students to understand the consequences for their learning of accounting at an Australian university campus based in Vietnam. The ongoing learning difficulties experienced by Vietnamese accounting students, their consequential low levels of engagement and their mediocre grades may be outcomes, at least in part, of the lecture model – the main instruction method of accounting courses involved in this study. The accounting education literature describes how the prevalence of traditional pedagogy through the lecture model, has contributed to the poor state of accounting education (Palm & Bisman, 2010; Pathway Commission, 2012; O'Connell, Carnegie, Carter, Helliar, Watty, Hancock, & de Lange, 2015). It is essential to consider investigating alternative teaching models which purport to engage students in accounting education, for example, inter-teaching, rather than reliance on traditional teaching methods which "demand rote memorisation; with students being trained rather than educated" (Carr & Mathews, 2004, p. 93).

Inter-teaching, first developed by Boyce and Hineline (2002) replicates many aspects of behavioural learning approaches developed by the research of Lindsley (1964), Keller (1968), and Pigott, Fantuzzo, and Clement (1986). Boyce and Hineline (2002) defined inter-teaching "as a mutually probing, mutually informing conversation between two people" (p. 220). They developed inter-teaching to involve students in their own learning and the belief that "learning is something a person does, not something that happens to him or her" (Boyce & Hineline, 2002, p. 215). Inter-teaching is primarily concerned with students developing self-learning tactics, for example, learning from each other through small group tutorial discussions and being prepared for effective participation. Students are also able to seek immediate clarification from the lecturer on the areas of discussion with which they are experiencing difficulties. Inter-teaching is a student-centric teaching model which diverges from the traditional teacher-centred lecture model. It attempts to engage students in their learning and has been found to enhance student learning by involving them in preparation, peer discussions, listening, reflection and feedback; all skills considered necessary for students to analyse and evaluate accounting problems (Boyce & Hineline 2002; Saville, Zinn, & Elliott, 2005; Saville, Zinn, Neef, Van Norman, & Ferreri, 2006; Saville & Zinn, 2009; Saville, Bureau, Eckenrode, Fullerton, Herbert, Maley, & Zombakis, 2014; O'Connell et al., 2015). There is an urgent need to find pedagogies in accounting education that allow students to critically think when constructing their accounting solutions (Chabrack & Craig, 2013; McLaughlin, Roth, & Mumper, 2014).

The key research question addressed in this study is, "What is the impact of inter-teaching on Vietnamese student academic performance in an accounting course?" The course known as Management Accounting Business (MAB) was selected because more than 40% of students were failing each trimester.

This study makes three important contributions to the accounting education literature. First, relatively little research has been undertaken to examine how student-centred pedagogy contributes to accounting students' performance in the emerging economies of the world (Saville, 2011). This is considered important because Vietnamese tertiary students are generally viewed as typically obedient and unwilling to question their instructors. They consider the instructor as the main source of knowledge and rarely speak up in class. Vietnamese students are passive recipients, listening to lectures and reproducing memorised information in exams (Thompson, 2009). Thompson (2009) found that Confucian ethics dominate the mindsets of both Vietnamese teachers and students, with obedient students taught not to question from a very young age. It also builds on a gap in the literature by providing academic performance evidence, sourced directly from final exam grades of Vietnamese participants, into factors driving and impeding student learning in the classroom.

The next section of this paper provides an overview of studies into the state of accounting education within universities on accounting education effectiveness; next the lecture model is examined, followed by a review of the studies of inter-teaching and an empirical assessment of the inter-teaching model. Findings are next presented that evaluate students' final grades across two consecutive teaching periods, one based on the lecture model and the other based on inter-teaching. The paper concludes with a discussion of key findings together with study limitations and avenues for future research.

Literature Review

Overview of deficiencies in accounting education

A number of accounting reports in the US (American Accounting Association, 1986; Albrecht & Sack, 2000; The Pathways Commission, 2012), the UK/Europe (Paisey & Paisey, 2001; International Accounting Education Standards Board, 2015) and Australia (Mathews, Jackson, & Brown, 1990; Capellatto, 2010; Evans, Burritt, & Guthrie, 2010; O'Connell et al., 2015) have examined the state and deficiencies of accounting education. All too often accounting students are exposed to ineffective learning experiences because the technical content, instructional methods and assessment of accounting courses have not kept pace with the world in which accounting is practiced. Some researchers have argued that the technical content of accounting courses encourages passive teaching, that is, the predominant use of the lecture model for transferring information to rote-learning students who recite or restate this information in final examinations (Mladenovic, 2000; Jackling, 2005; Springer & Borthick, 2007; Palm & Bisman, 2010; Coetzee & Schmulian, 2012; Jackling, de Lange, & Natoli, 2012; O'Connell et al., 2015). In particular, more effort is needed on "developing the professional skills of accounting graduates, such as communication, critical thinking, conflict resolution and negotiation skills" (O'Connell et al., 2015, p. 10).

Mathews, Jackson, and Brown (1990), conducted a major Australian accounting education review, and described accounting education as being in a "long period of chronic neglect" and in "great need of support and revitalisation" (Mathews, Brown, & Jackson, 1990, p. xix). Albrecht and Sack (2000) in evaluating American accounting education, observed that it had not kept pace with business needs and that universities had not progressed or updated accounting education practises leading to a fall in demand for accounting majors. They suggested that universities are not teaching accounting concepts in the most effective way and alluded to the fact that the lecture model is inefficient and not pedagogically effective. In other words, the teaching of accounting has not substantially changed to meet employer expectations. The findings of the Pathway Commission on Accounting Higher Education (2012) sponsored by the American Accounting Association arrived at a similar conclusion. They found classroom instruction for accounting students removed from the complexities of the "real world" contexts of accounting practice. European accounting students are no different, as they were found to be "exposed to technical material in a vocation-focused way, disconnected from the complex real-world settings to which students are bound", according to Rutherford (2011, p. 142). These findings are consistent with the research of Palm and Bisman (2010) who maintained, in their study of 21 higher education institutions in Australia, that first year Australian accounting courses are poorly delivered and assessed. They indicated that this is because of the technical content of accounting courses which encourages the passive transfer of knowledge, rather than providing learners with user perspective content and activities that encourage construction of their own understandings (Palm & Bisman, 2010).

Despite the adverse findings in many of these reports, it has not paved the way for accounting education to encompass a broader approach to teaching by introducing student-centred teaching pedagogies or facilitating a more engaging experience, generally, for accounting students. The traditional teacher-centred pedagogy, characterised by the teacher standing in front of the classroom conveying information to students, the majority of which is unable to be absorbed, is still predominately the method for teaching accounting students today (Coetzee & Schmulian, 2012; O'Connell et al., 2015). The previous research by Mathews et al. (1990) still reflects the systemic problems in accounting education, according to de Lange and Watty (2011). They maintained that the pedagogical problems with accounting education reported several decades ago "still exist and, in some cases, they have been exacerbated" (de Lange & Watty, 2011, p. 626). In an Australian study by Wygal, Watty, and Stout, (2014), they reported that "there is little direct evidence from the field of accounting education, available to-date, regarding such characteristics or antecedents of teaching effectiveness in the student learning environment" (p. 325). O'Connell et al. (2015) pointed out that academics were questioning the quality of teaching professional skills. They stated institutions needed "strong leaders with vision and engaged academics who are willing to implement strategies for the balance between professional knowledge and professional skills" (p. 55). Regrettably, for the most part, academics have not been able to rise to the challenges that this study has revealed and have assumed an undemanding strategy whereby they continue the status quo or place an over-emphasis on the instruction of technical skills (O'Connell et al., 2015).

Carmona argued that accounting educators should drive accounting education reform through a bottom-up approach, as described by O'Connell et al. (2015). However, implementing student-centred learning settings in the accounting education space is not without significant challenges. Accounting schools are faced with growing student/ staff ratios and an increased use of sessional staff, demanded by university administrators, as government education funding decreases (O'Connell et al., 2015). Introducing more effective educational practices requires time and preparation which can inhibit already time-poor academic research output (Watty, 2007; Watty, de Lange, Carr, O'Connell, Howieson, & Jacobsen, 2013). Academics perceive that research rather than teaching innovations is what will be most rewarded. For example, introducing student-aligned practices involves increased workload for students and instructors, incorporating, for example, pre-class preparation. This makes it all the more difficult for instructors to take on a more demanding teaching practice and, therefore, the lecture model becomes the easiest option (Sturmey, Dalfen, & Fienup, 2015).

Not only are there concerns about the content and pedagogies but also about student satisfaction. For example, Watty et al. (2013) examined 'Good Teaching' from the Course Experience Questionnaire, a national survey conducted in Australia, completed by undergraduate accounting students across programs and universities each semester, and found that accounting students are among the least satisfied of all disciplines with their teaching experience. It is apparent, through teaching methodologies that are teacher-centred, that accounting students are currently experiencing inadequate accounting education. In the next section, the research literature and limitations associated with the teacher-centred lecture model are discussed.

The traditional lecture and tutorial model

Biggs (1979, 1989, 1999, 2012 & 2014) observed that the lecture model encouraged a lower level of cognitive activity. His research demonstrated that meaning cannot be conveyed through the mere transfer of information in a lecture but is shaped by the student's own involvement in learning (Biggs, 2012). Biggs (1979, 1989, 1999, 2012 & 2014) consistently maintained in his research that deep learning is required if students are to process, understand and retain information. This is difficult to achieve in the lecture model. Risko, Anderson, Sarwal, Engelhardt, and Kingstone (2012) observed that students' mind-wandering[1] increased as the lecture progressed. In particular, students' memory recall for lecture material was statistically significant for "questions drawn from the second half of the lecture compared to questions drawn from the first half of the lecture" (Risko et al., 2012, p. 237). A study of mind-wandering by Durantin,

[1]Mind-wandering is defined as the experience of thoughts not remaining on a single topic for a long period of time, particularly when people are engaged in an attention-demanding task (Risko et al., 2012).

Dehais, and Delorme (2015) found participants in their experiment of time on task were not able to stay focussed during the experiment. The implication is that it is difficult for humans to concentrate for any length of time, perhaps especially so during a lecture covering technical accounting matters. Thus, how students retain information, or learn, has strong implications for the way information is taught. While researchers have highlighted the benefits of more cognitive activity through engagement in the classroom it appears that few accounting educators have significantly altered their teaching methods from the lecture model (O'Connell et al., 2015).

Accounting education reform has been discussed for so long without any real change, it is, therefore, open to the initiative of academics to drive changes in their teaching and improve learning outcomes by adopting engaging pedagogies. There have been several studies into the development of engagement teaching pedagogies in an effort to overcome the shortcomings of the lecture model starting with Skinner (1953, 1968), who examined the application of behavioural principles. Keller's (1968) personalised system of instruction and the reciprocal peer tutoring teaching model (Griffin & Griffin, 1998) were examples of the application of behavioural principles in the classroom. Skinner (1968) argued that for substantive learning to occur in the classroom, "students must be engaged in learning by doing, learning from their experience and learning by trial and error" (p. 128). Inter-teaching is adapted from behavioural theories in respect to the classroom and is discussed next. Inter-teaching directly answers the criticisms given in the research by providing an innovative engaging method of instruction that for the majority of class- time has students learning from each other (Boyce & Hineline, 2002).

Inter-teaching

Boyce and Hineline (2002) originally designed inter-teaching to provide "a mutually probing, mutually informing conversation between two people. It would last for 30 to 40 minutes and dealt with the main points in a specified selection of material" (p. 220). Their intention was to improve student learning outcomes in psychology courses which traditionally suffered from poor participation and learning. The following is an example of an inter-teaching session in a Developmental Psychology course developed by Kienhuis (2013).

Students are required to complete the preparation guide questions before coming to class. The guide includes readings and questions that cover the week's learning objectives, so students can participate and be involved actively in peer discussion groups. Tutorials are made up of students working in small-groups discussing the pre-class questions, problem solving and analysing case studies. Tutors follow a standard marking rubric, observing and grading students randomly, on effective discussion, prior preparation and active participation. Inter-teaching discussion grades encouraged the students to attend classes prepared. Towards end of class, students give feedback to the tutors on the more challenging areas of the discussion and these areas of difficulty are clarified in the next class by the lecturer (Kienhuis, 2013).

A key element of Boyce and Hineline's inter-teaching model is Keller's (1968) personalised system of instruction. Keller's teaching method embraced the following components; student self-pacing, student understanding before progressing, motivational sessions and written feedback and the utilisation of peer tutors for grading and comment (Keller, 1968; Foss, Foss, Paynton, & Hahn, 2014). Research consistently showed the success of Keller's model, especially in how it improved student learning when compared to the lecture method of teaching (Buskist, Cush, & DeGrandpre, 1991; Foss et al., 2014). The second component of inter-teaching is a variant of the reciprocal peer tutoring teaching model in which students test each other from questions they have developed (Griffin & Griffin, 1998). Student peer discussions benefit from reciprocal peer tutoring through improved positive reflective knowledge-building, according to Roscoe and Chi (2007).

Reciprocal peer tutoring has demonstrated improvements in academic achievement through the work of Pigott, Fantuzzo, and Clement (1986), Griffin and Griffin (1998) and Bowman-Perrott, Davis, Vannest, Williams, Greenwood, and Parker (2013). Bowman-Perrott et al. (2013) suggested that the successful features of the reciprocal peer tutoring model included increased time for discussion, the repetitive nature of tutoring, a structured approach which incorporates frequent opportunities to reply and the chance to receive ongoing feedback from peers. Inter-teaching's peer-tutoring component, dyadic discussion, which permits students to interact with each other are key to its success (Boyce & Hineline, 2002). In addition, Boyce and Hineline (2002) used the popular precision teaching tool as a third component of their inter-teaching repertoire.

Precision teaching is concerned with the progression of a student's learning, that is, students follow a plan that is changed according to their performance. In their study of precision teaching, Binder and Watkins (1990) observed positive improvements for students when compared to the lecture model, with lower implementation costs for schools. Binder and Watkins (2013), in their review of precision teaching adaption in American classrooms over the last 25 years, stated that this teaching model "may be the most thoroughly validated and consistently effective method yet developed in English-speaking schools" (p. 74). The next section examines the research into the impact of inter-teaching.

Studies into the impact of inter-teaching

Boyce and Hineline's inter-teaching method was first tested for student academic performance by Saville, Zinn, and Elliott (2005) who randomly assigned students to inter-teaching, lecture, assigned reading, and no-treatment control conditions. They reported a statistically significant difference in grades with students in the inter-teaching group recording higher academic results than students in the other group. They concluded that inter-teaching is a superior substitute for the lecture model of instruction. Saville et al. (2005) suggested that the combination of characteristics of an active and cooperative learning environment facilitates learning and results in better recall for students.

Saville et al. (2006) modified their research design to investigate the usefulness of inter-teaching, in comparison to the lecture model, in a 'normal' classroom setting. They reported quiz scores substantially higher in the inter-teaching classes than in the lecture classes (Saville et al., 2006).

In a further study, conducted in a university setting, Saville and Zinn (2009) analysed the concept of quality points. Quality points are awarded (5% of a student's exam grade) based on how well a student's discussion partner performed on particular exam questions (Saville & Zinn, 2009). The purpose of Saville and Zinn's (2009) research was to establish whether the introduction of quality points improved exam scores for undergraduate psychology students. 44 undergraduate psychology students participated, and the research method replicated the study of Saville et al. (2006). They saw no significant difference between assessments incorporating quality points (inter-teaching) and not incorporating quality points (lecture model).

Another study by Saville et al. (2012) examined how low, moderate and high performing psychology students performed when teaching conditions were alternated between the lecture model and inter-teaching. They claimed that exam grades were significantly higher for students with previously low scores, but they also found that exam performance for students with high GPAs only marginally changed when instructed with inter-teaching.

A more recent experiment on inter-teaching by Saville et al. (2014) compared inter-teaching and the lecture model of teaching with 134 students completing three quizzes after the respective teaching methods. The mean scores for inter-teaching were significantly higher compared to the lecture scores. Inter-teaching again produced a decisive advantage over the lectures for the same students (Sturmey, Dalfen, & Fienup, 2015).

Zyak and Paulk (2014), however, found that students did not score higher on exams for inter-teaching sessions and those students had a preference for lecture-based instruction. However, a major limitation was the sample size of 21 students, and according to these researchers, this may have "shifted the mean scores significantly and influenced the interpretation of the effects of inter-teaching or lecture" (Zayac & Paulk, 2014, p. 10).

Studies into student perceptions of inter-teaching

Goto and Schneider (2009) focussed on the merits of preparation guides and whether they positively improved the inter-teaching experience for students. They found over 80% of the 32 students felt inter-teaching preparation guides assisted them to prepare well for class. Students also described how preparation guides made them want to understand the material because they needed to explain it to their peers (Goto & Schneider, 2009). However, students were critical about some of the peer discussions which did not always work as some students had not taken the time to prepare.

Tsui's (2010) research observed that inter-teaching was overwhelmingly positive for student exam grades, class attendance and student satisfaction. Her qualitative study provides many descriptive insights not demonstrated by previous studies. Tsui found that "inter-teaching compelled students to take responsibility for their own learning and gave students control over the teacher's lecture activities" (2010, p. 33).

Kienhuis (2013) examined inter-teaching in several psychology and accounting courses at a large university in Australia. She found that students commented on better engagement associated with reading, pre-class preparation and class discussion where inter-teaching was adopted (Kienhus, 2013). Students highlighted in the post-test survey that they preferred inter-teaching because they found "the opinions of their peers offered a different perspective and the emphasis on self-study gave them a better understanding of the content" (Kienhus, 2013, p. 15).

In a study motivated by an observation that students did not pre-read course materials for political subjects, Slagter and Scribner (2014) described how they effectively implemented inter-teaching for their political courses to encourage student engagement and improve student skills in understanding complex political arguments. They used this innovative teaching method in five courses over two semesters with a larger cohort of students (n = 130); and, through a survey, evaluated its effectiveness, comparing student experiences with similar courses where inter-teaching was not used. The 46 responses were found to be strongly in favour of inter-teaching compared to the lecture model. Students indicated they were more likely to complete the pre-reading for class, with 80% of students strongly agreeing that they read more carefully when they had an inter-teaching task (Slagter & Scribner, 2014).

While there are few inter-teaching research studies, and several by the same research team, they do provide evidence of its success in improving academic grades, and in many of the studies, students preferred this method of teaching because they were involved constructively in their learning. However, of all the articles reviewed, none provided the theoretical underpinning of why inter-teaching was so effective compared to the traditional lecture model. An important contribution of this study to the literature was that student engagement, in an inter-teaching class, is considered a primary reason for inter-teaching effectiveness. In the next section, Deutsch's theories are discussed to understand the complexity of student engagement and how student performance is enhanced. Finn's (1989) theory of participation-identification is also considered influential in understanding recent conceptualisations of engagement, according to Appleton, Christenson, & Furlong (2008). Lastly, Astin (1984), through his theory of involvement, consistently argued that time on task, through involvement with other students, is positively correlated with cognitive development (Harper & Quaye, 2009).

What is evident from the literature of student engagement is that there is not one theoretical framework; rather it is a multi-definitional meta-construct that depends upon the context to which it is applied (Appleton et al., 2008). For a

theoretical explanation of engagement in the classroom, the seminal work of Deutsch (1949a, 1949b) may provide answers through his theory of cooperation and competition. Even though it is not found in the student engagement literature, it is argued that Deutsch's (1949a, 1949b) theory of cooperation and competition contributes to the foundational understanding of how students engage. Deutsch (1949b) describes how student groups in classroom settings interrelate to achieve greater outcomes than they could alone. Deutsch's (1949a, 1949b) theories are critical to understanding the cognitive acceleration that establishes a successful student engagement setting. Deutsch's (1949a) research underlined the importance of understanding the psychological and interpersonal relationships of individuals, in a group and the varying tensions within a group, in order to achieve or not to achieve their goals. He developed a series of hypotheses which linked small group functioning with cooperation and competition and examined "how the tension systems of different people may be interrelated" in order to achieve their common objectives (cited in Johnson, 2003, p. 935). Deutsch (1949a) described a cooperative relationship where the "individuals who are exposed to the cooperative social situation will perceive themselves to be promotively[2] interdependent (in relation to other individuals composing their group) with respect to goals" (p. 138). Deutsch (1949a) postulated that under circumstances of "promotively interdependence goals" (cooperation), X obtains his goal only if other members of the group, say A, B, C, etc., obtain theirs.

In contrast, Deutsch (1949a, 1949b, 2003) viewed competitive behaviour by individuals as not contributing to successful inter-group relationships. In fact, competitive behaviour driven by individual egocentric goals is more important than common goals where the individual is driven by the personal or self-desire to win. In this group situation, only one individual/ party can be successful. In summary, cooperation produces effective communication, forthcoming discussions which are organised and productive, and a willingness to strengthen the power and collaboration of the other members (Deutsch, 2003). Deutsch (1949b) found that in his study of cooperative behaviour that productivity was superior, group-centredness was enhanced, and group feeling was better, when compared to students in the competitive group. Further, cooperative students were affected by the ideas of the other members more than group members competing against each other and were statistically significant at 0.001 with a mean difference of +.78 (Deutsch, 1949b). The evidence from several experiments between cooperative and competitive groups was striking. Discussions of the cooperative group were more insightful, detailed and productive when compared to the competitive groups, according to Deutsch (1949b). Understanding Deutsch's theories assists in explaining why and how student engagement makes inter-teaching so effective.

David Johnson, a student of Deutsch, together with his brother Roger, has extensively researched cooperation and competition theory in the classroom for the last four decades (Johnson & Johnson, 1974, 1988, 1998, 1999, 2009; Johnson, Johnson, & Smith, 2014). Johnson and Johnson (1989) conducted a meta-analysis that compared cooperation, competition and individual learning pedagogies from 1898 to 1989 (185 studies). Their findings indicated that cooperation learning strategies[3] in the classroom were more successful in academic achievement, as compared to competitive and individual learning strategies. The statistical analysis details of their meta-analysis of all studies found that the average person engaged in cooperative behaviour performed at about "two thirds of one standard deviation above the average person operating within a competitive situation; effect size = 0.67 or individualistic effect size = 0.64" (Johnson, 2003, p. 936). Johnson (2003) argues that a cooperative experience facilitates more insight into and use of higher level cognitive and moral reasoning strategies than do competitive "(effect size = 0.93) or individualistic (effect size = 0.97) efforts" (pp. 936-938).

Cooperation and competition theory is supported by a clear theoretical foundation and, through rigorous research studies, it has been validated and confirmed in the educational setting (Johnson & Johnson, 2009; Johnson et al., 2014).

The theory of student involvement developed by Astin (1984) is strongly associated with engagement and frequently cited in the higher education sphere (Harper & Quaye, 2009a). Astin (1984) stated "that student involvement was the amount of physical and psychological energy that the student devotes to the academic experience" (p. 518). His theory closely resembles the cooperation segment of Deutsch's theory, in that, student involvement entails the individual investing their knowledge and emotional energy in other students. Astin (1977) conducted a longitudinal study collecting data on more than 200,000 students which examined 80 student involvement measures and why students drop out. He observed that most student involvement activities correlated with positive changes in the student perspective and understanding. He was of the opinion from the results of these extensive studies that when students are actively engaged their cognitive development is improved in comparison to other methods of teaching. Astin (1984) maintained that the lecture model (subject-matter theory) assigned "students a passive role in the learning process" and stated that it was unacceptable for academics to continue to adhere to a teaching model that disadvantages most students (p. 520).

Astin's theory aligns with the student discussion component of Boyce and Hineline's (2002) engagement inter-teaching model. Inter-teaching has proved that where there is an increase in student involvement, through peer interactions, students' academic performance is better (Boyce & Hineline, 2002; Saville et al., 2006; Kienhuis, 2013).

Finn developed the participation-identification theory from his influential research into student dropout prevention. Finn (1989, 1993) contended that teaching pedagogies that maximise student participation in their learning were essential to minimise student disengagement. Finn (1993) conducted two research projects encompassing 15,737

[2]A situation in which all members of a team can achieve their goals (Oxford Dictionary of Psychology, 2015).

[3]"Cooperative learning is the instructional use of small groups so that students work together to maximise their own and each other's learning" (Johnson et al., 2009, p. 365).

public school students in order to understand students at risk in secondary education. Part one of his study was concerned with the correlation between student engagement and academic success. Finn focussed on participation, in what he termed the operational component of behaviour known as engagement and observed that engagement in the classroom allowed students to develop their social and cognitive abilities and to have positive academic outcomes.

It is argued that inter-dependent groups in which students participate with each other working cooperatively, enhanced their cognition abilities, more than if they were studying alone. The influential research of Finn identified that students participating in the classroom improved student academic performance. Participation and involvement are considered antecedents to student engagement and their cognitive development and may explain why inter-teaching is so effective in its primary function of engaging students in the classroom (Jarvis, Halvorson, Sadeque, & Johnston, 2014). Inter-teaching adopts behavioural techniques to model student characteristics of involvement, participation, and learning from their peers as an enhanced learning technique with arguably better outcomes than the passive listening-lecture model. It is argued that the theoretical foundation of student engagement, explained through the works of Deutsch, Johnson and Johnson, Finn and Astin, drives the effectiveness of inter-teaching. It is this relatively simple phenomenon of students taking responsibility for participating in the learning process through their own learning, and from learning with each other, that is the essence of student engagement.

This summary of prior research into inter-teaching effectiveness and theories of engagement supports the conclusion that inter-teaching outperforms the lecture model both in terms of academic results and student involvement, participation and engagement. Notwithstanding these positive results, shortcomings about inter-teaching studies have also been highlighted in the literature. Firstly, the empirical evidence is rather limited with many studies related to psychology courses, which used relatively small, convenience samples (Saville, Cox, O'Brien, & Vanderveldt, 2011). Accordingly, Saville et al. (2011) suggested that "researchers should test inter-teaching across a range of disciplines to determine if similar positive outcomes were warranted" (p. 160). Secondly, with a few exceptions, inter-teaching studies are confined to tertiary institutions in the US. Thirdly, there is only one known study of inter-teaching in a developing country (Wheaton, O'Connell, & Yapa, 2016).

Research Questions And Hypotheses

The prior research emphasises an urgent need to modernise accounting education. There is a pressing need for research into engaging pedagogies, such as inter-teaching, which is an effective behavioural teaching method, because it is focussed on increased academic engagement, learning, and satisfaction in the classroom.

The hypothesis compared final exam grade marks between both teaching models. Reference is made to inter-teaching research that has found improvement in student grades in psychology courses (Saville et al., 2014). However, there are no known studies of pedagogies that specifically target academic performance improvement in accounting courses for Vietnamese students. To address this research gap, the final exam grade performance, under both methods of teaching, were examined. The null and alternative hypotheses are written, as follows: If t1 = the tests following the lecture mode of instruction and t2 = the tests following the inter-teaching mode of instruction for the Management Accounting Business (MAB) population, then the interest is in testing the null hypothesis:

H_0: t1 ≥ t2

against the alternative hypothesis:

H_1: t1 < t2 or

H_0: Inter-teaching does not achieve improved pass rates, compared to the traditional lecture model experience for undergraduate accounting students taking the MAB course.

Or the alternative hypothesis:

H_1: Inter-teaching achieves improved pass rates, when compared to the lecture model, for undergraduate accounting students taking the MBA course.

Research Method

Procedures

Data was collected on academic performance (grades from two final exams conducted from different MAB cohorts across two semesters). One group of grades collected related to groups subject to the lecture mode. The second group of grades collected related to groups subject to inter-teaching. Table 1 summarises the procedure of this within-subjects.

	Semester 1	**Semester 2**
Teaching mode	Lecture model (LM) Treatment 1(TM1)	Inter-teaching model (IT) Treatment 2 (TM2)
Final Exam	Students complete final exam	Student complete final exam

Table 1: Research procedures.

Table 1 illustrates the research procedures where students are exposed to the lecture model (LM), testing the effect TM1 (treatment 1) at the end of semester 1, 2015. Then, a second cohort of students were exposed to a different teaching method, inter-teaching (IT) and tested again TM2 (treatment 2). The student individual exam scores were categorised and coded to avoid identifying individual students and allowing anonymity, as a condition of ethics approval.

Participants and Data Collection

Primary data was collected from final exam results for MAB for two semesters in 2015. The population for comparison of final grade examinations included all undergraduate

students who took the final exam for semesters 1 (n=244) and 2 (n=147). The two instructors used were experienced academics having taught in the accounting program for several years. The same teachers were used for both semesters. That is, they taught the lecture model in semester 1 and the inter-teaching model in semester 2. More importantly, they had both received training in inter-teaching because it is very different to the lecture model. The training consisted of workshops which were conducted by staff with experience in inter-teaching.

Demographics	Frequency		Percentage (%)	
Semester	**1**	**2**	**1**	**2**
Gender				
Male	137	64	56%	42%
Female	107	90	44%	58%
Age Profile				
18-25	230	145	93%	94%
>25	14	9	7%	6%
Grade Point Average (MAB all students)				
	2.13	2.12		
Grade Point Average (MAB female students)				
	2.35	2.30		
Grade Point Average (MAB male students)				
	1.97	1.86		
Bachelor of Business Accountancy	26	16	14%	10%
Bachelor of Business Economics and Finance	63	34	22%	22%
Bachelor of Commerce	145	96	58%	62%
Others	10	8	6%	6%

Table 2: Demographic profile of students

Demographics of respondents

Table 2 described the demographics of students enrolled in the MAB accounting course for semester 1 and 2.
All students in the study for semester 1 and 2 were 18 years or older with the preponderance of students less than 26 years of age (S1 93%; S2 94%). All students were business students with the majority studying for the Bachelor of Commerce Program (S1 58%; S2 62%) and Bachelor of Business Economics and Finance Program (S1 22%; S2 22%). The students are 95% Vietnamese nationals who are considered homogeneous and culturally similar (with the remaining 5% students being Koreans, Japanese and French). The grade point average of all students enrolled in the accounting course is consistent across the two cohorts ruling out the probability that the differences found are due to variances in the quality of the semester 1 students versus the quality of semester 2 students. However, there was a difference in gender between semester 1 and 2 with semester 2 showing predominately less enrolled male students. There was also a material difference in female and male grade point averages for both semesters. To rule out causal bias arising from these factors, 2 by 2 factorial ANOVA analysis comparing the means across the two cohorts was conducted. You will also note that the population for comparison of final grade examinations included all undergraduate students who took the final exam for semesters 1 (n=172) and 2 (n=147) is different to that outlined in Table 2, this variance is due to some students not sitting the respective final exams.

Data Analysis And Findings

The independent variables are the lecture and inter-teaching methods of teaching used in the respective classrooms. The dependent variable is the final grade marks.

An Independent Samples t-test (one-tailed) compared the lecture model final test grades from semester 1 with the final test grades from inter-teaching for semester 2. The tests were conducted to verify (or otherwise) the hypothesis H1 that inter-teaching improves grade performance of MAB accounting students. Assumptions of Independent Sample t-test such as normality of data distribution, the variance of the two treatments and cases independent of each other were all satisfied (Merola, 2015).

Grades	Lecture model	Inter-teaching
N	244	147
Mean	54.40	78.72
Median	58.00	87.50
Std. Dev.	23.36	20.62
Skewness	-.442	-1.365
Kurtosis	-.784	1.399

Table 3: Independent Sample t-test for lecture model and inter-teaching model

Table 3 provides the descriptive statistics for the lecture and inter-teaching modes.
It should be noted that the population size for final grade exams is larger for semester 1, but this did not impact the descriptive or Independent Sample t-test findings. It should also be highlighted that both population sizes for final grade analysis are smaller than the number of students enrolled because some students enrolled did not sit the final exams in Semester 1 and 10 students did not sit the exam in Semester 2.

Table 3 shows that the mean for the lecture model 54.40 is less than the mean for inter-teaching of 78.72. T test results indicated that the mean difference between scores of the lecture and inter-teaching mode were statistically significant ($t = 9.483$, p-value < 0.05); therefore, H_1 is supported.

Discussion and Conclusions

This study evaluated the effectiveness of the lecture model versus an inter-teaching delivery method for an accounting course presented to first-year under-graduates from a developing country, namely, Vietnam. Results showed that inter-teaching appeared to have a strong positive effect on students' final exam grades. Our findings provide the first known direct comparison of the lecture model versus inter-teaching in which students were subjected to the same instructors, course materials, lectures, and exams in a Vietnamese setting.

The interest in this study was to compare the grade outcomes with the findings espoused by Saville et al. (2005), Saville et al. (2006) and Saville et al. (2014). Findings support earlier works by Saville et al. (2005), Saville et al. (2006) and Saville et al. (2014) that inter-teaching can have a highly positive impact on student performance. The studies reviewed

compared grade scores which confirmed inter-teaching grades outperformed the lecture model of instruction. Further, a recent unpublished study by one of the authors (Wheaton et al., 2016) established from student survey responses that students perceived discussions, working with their peers and student feedback were improved in an inter-teaching session. Consistent with these findings, Kienhus (2013) found students commented on better engagement associated with reading, pre-class preparation and class discussion where inter-teaching was adopted (Kienhus, 2013).

Student comments from the post-test survey showed they preferred inter-teaching because they found "the opinions of their peers offered a different perspective and the emphasis on self-study gave them a better understanding of the content" (Kienhus, 2013, p.15). Students reported improved satisfaction, compared to the lecture model in three of the five courses, with "students responses (ranging from 56.0% to 76%) describing that they 'somewhat more engaged' or 'much more engaged' inter-teaching sessions" (Kienhuis, 2013, p. 15).

Findings show that inter-teaching improves understanding and retention of complex accounting information. Students are involved on a much deeper level than is possible in the lecture model scenario (Saville et al., 2014). The underlying strength of inter-teaching in the classroom is the cognitive improvement of each student, as demonstrated through their superior grade performance. Findings indicate that accounting education should move towards inter-teaching, yet, there appears little impetus from within academia to adopt and implement research findings concerning pedagogical improvements (Wygal et al., 2014; O'Connell et al., 2015). Wygal et al. (2014) noted that the accounting fraternity has actively promoted teaching and curriculum reform; however, they found little evidence of implementing teaching effectiveness in the student learning space.

This study challenges the 'status quo', advocating student learning practises in accounting education that develop deeper learning. The application of the appropriate teaching method is a critical condition of student academic performance as demonstrated in this study. It found that the academic performance of students is enhanced when students are prepared, involved and participating in class discussion groups. These are the components of inter-teaching, considered essential for the effectiveness of student-centred learning and enhanced performance of students.

This study makes important contributions to accounting education literature. Firstly, a major contribution to the literature is that inter-teaching represents a formidable substitute to the lecture model for teaching accounting courses. Largely because it is an all-encompassing teaching model as this study found, inter-teaching engages students from preparation, being involved in small class discussion groups and getting feedback from every lesson. These are the components considered essential to being engaged in the classroom, and are the mechanisms that drive the effectiveness of inter-teaching and academic performance (Boyce & Hineline, 2002). What also became apparent from this study is that the application of the correct teaching method is a critical condition of student engagement. It is argued the theoretical foundation of student engagement, explained through the works of Deutsch, Johnson, and Johnson, Finn and Astin, drives the effectiveness of inter-teaching. It is this relatively simple phenomenon of students taking responsibility for participating in the learning process through their own learning, and from learning with each other, that is the essence of student engagement.

There are some limitations to widespread adoption of inter-teaching. Implementing inter-teaching as an alternative teaching model for accounting schools on a large scale may be more labour intensive compared to the lecture model of instruction because of the preparation. Considerably more preparation is required of the academic for the inter-teaching session, for example, constructing preparation guides involves considerable developmental time. Further, explaining the changes to lecturers and students in the process of conversion to inter-teaching takes time and patience. Kienhus (2013) reported that lecturers found it a challenge to adapt new learning materials and provide clarification each week. The inter-teaching studies reviewed in this paper did not exceed 35 students in class size. However, inter-teaching procedures for educating a large number of students per class ($n > 100$) may be possible (Jarvis et al., 2014). Other limitations are that several of the studies are from the same primary author (Saville et al., 2005; Saville et al., 2006; Saville & Zinn, 2009; Saville et al., 2011; Saville et al., 2012; Saville et al., 2014), and for that reason may not meet the criteria for evidence-based research, according to Sturmey et al. (2015). Future independent replications like this study might change that conclusion. Integrity of this study was paramount, staff training and inter-teaching procedures closely followed the Boyce and Hineline (2002) model. The research method may have restricted conclusions about fundamental relationships to this study. It is suggested that comparisons of teaching models should be conducted with randomly chosen students to allow more meaningful conclusions for the wider population of MAB accounting students. The limited sample of students confined to the Vietnam setting may limit wider conclusions.

Turning to avenues for future research, more investigation is needed to investigate the 'large class approach' for inter-teaching accounting courses. Additionally, inter-teaching research should be conducted in advanced courses in other business disciplines and examine more variables. For example, variables that could influence the effectiveness of inter-teaching include learning styles and motivation. At the cognitive level, trans-active memory can stimulate group members with informed knowledge to a greater degree than an individual could access on their own, according to Wegner, Giuliano, and Hertel (1985). It would be beneficial to focus future research at the cognitive level. Deutsch (1949) and Biggs (2012), in their investigations of student learning, all cite better retention and faster conception of problem solving when students work together in groups. The trans-active memory studies in which group members are stimulated with informed knowledge have shown that results are more positive than those of an individual studying alone, warrant further research.

In conclusion, this article has presented inter-teaching, an engagement teaching model, as a preferred method of instructing accounting students. The overall conclusion is that inter-teaching has significantly contributed to improvement in student academic results. Accounting education change has been an ongoing agenda item that has been very slow to embrace reform. Academics have a responsibility to begin the transition to drive change and incorporate student-centred models like inter-teaching. Contemporary employers require employees who will be innovative and questioning. It is therefore imperative that the education of accounting students moves from the mere acquisition of knowledge to innovative teaching models like inter-teaching, so that students have the ability to conceptually shape their own knowledge, a critical factor for the success of their professional accounting career today.

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Forensic science and student mobility programs in the Indo-Pacific region: Unveiling the potential of an international and intercultural project in forensic science education

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Abstract

Forensic science is the application of science in a criminal investigation or court of law. Crimes and forensic investigation have always been associated with human society. As an interdisciplinary field, forensic science incorporates areas of both life sciences and social sciences. Until the beginning of the 1900s, forensic science was self-taught and carried out exclusively through law enforcement agencies. In recent years, with the success of crime drama television series, an increased global interest in forensic science-based university courses has been observed. The prevalence of global issues such as international crimes and mass disasters has catalysed the need for international collaboration and to remove global barriers within forensic science. To prepare students for the world of work, it is pivotal that forensic science curricula address the needs of the present-day society and the requirements of the forensic providers (laboratories and law enforcement agencies). The present manuscript describes the first forensic science international curriculum between Australia (Murdoch University) and Malaysia (Universiti Kebangsaan Malaysia/UKM Forensics), possible through the New Colombo Plan of the Australian Government. The course outlined here, comprehensively comprised of lectures, workshops and mixed group crime scene simulations, provided Australian and Malaysian students with an authentic, intercultural and cross-jurisdictional learning experience to acquire work-ready skills.

Introduction

Forensics is the science of associating people with places and events, the application of science in a criminal investigation or court of law (Houck & Siegel, 2015). Since the dawn of history, crimes and forensic investigation have always been associated with human society. In fact, the term "forensic" originates from the Latin "forensis" ("of or before the forum"; Rendich, 2010), honouring the ancient Roman era in which both sides of a criminal case were presented in the "forum" (Rendich, 2010), which was the centre of the day-to-day life in Rome. The forum provided a meeting place for public speeches, criminal trials, gladiator matches and commercial affairs to happen. In this setting, the fate of the case and people involved was decided simply by favouring the individual with the best argument and delivery (Geraci, 2011). Standardised forensic practice considering the correct and consistent application of the scientific method, protocols and procedures, is only a recent achievement. Starting in the 16th century with the forensic pathology studies of Ambroise Paré, Paolo Zacchia and Fortunato Fidelis (Jones & Johnstone, 2011), followed by the chemistry studies by Carl Wilhelm Scheele in the 18th century (Smeaton, 1986), and the observations in the fields of ballistics, anthropometry, fingerprints and forensic entomology performed by Henry Goddard, Alphonse Bertillon, Sir William Herschel and Jean Pierre Mégnin, respectively, during the 19th century (McDermid, 2015). In 1888, medical doctors were asked for the first time to interpret wound patterns on the victims of Jack the Ripper (Bucholtz & Lewis, 2015), but it was not until the 20th century that forensic science, in general, established itself and became largely regulated within the process of criminal investigation (Bucholtz & Lewis, 2015).

With or without the scientific twist, investigation and mystery have always caught the public's attention and fascinated their imagination. The first crime fiction-like narrative is dated 429 BC, and it is the Greek tragedy "Oedipus Rex" by Sophocles, which is focused on the search for the murderer of the previous king (Sophocles & Dawe, 1982). The first confession of murder, instead, can be read in the biblical Book of Genesis: Cain murdered his brother Abel and confessed to God (Holy Bible, Book of Genesis). Since the 19th century, several murder mystery stories have been released, but it is only in the last twenty years that the science behind the investigations has become a sensation. With the rise and success of crime drama series such as "Crime Scene Investigation" (CSI), television has become saturated with forensic science and investigative shows, giving rise to a new phenomenon colloquially known as the "CSI-effect" (Heinrick, 2006). The "CSI-effect" is the belief held by popular media that lay jurors' understanding of forensic science and investigation can be influenced by crime drama television shows due to their perceived realism of the narrative licence taken by screenwriters (Heinrick, 2006). These misconceptions surrounding the process of investigation and the potentiality of the forensic science have become particularly problematic in court: one study comparing CSI viewers and non-CSI viewers found the viewers to be more critical of forensic evidence presented and 11% less likely to convict than their non-viewer counterparts (Schweitzer & Saks, 2007). Another consequence of the "CSI-effect" is the glamorisation of forensic science, the forensic scientists and the general role of law enforcement in the society. The side-effect of this has been an increase of interest in forensic based courses in recent years (Heinrick, 2006). Although a lot of popular crime dramas like CSI are American, the popularity and consequently the "CSI effect" extend internationally, and an increased interest in forensic science courses has been documented across Australia. A study performed for the Australian Council of the Deans of Science on the statistical pattern of STEM in Australia from 2002 to 2015, indicated a 256% growth in full-time equivalent Forensic Science students (from 193 in 2002 to 688 in 2015) (Dobson, 2018).

Until the beginning of the 1900s, forensic science was self-taught and carried out exclusively through law enforcement agencies, while formal training and specialised courses were non-existent within any university settings (Bucholtz & Lewis, 2015). Forensic science formally developed into an academic discipline when Professor R. A. Reiss at the University of Lausanne (Switzerland) pioneered the first forensic science curriculum in 1902 (Bucholtz & Lewis, 2015). This innovative curriculum ultimately led to the introduction of criminalistics and police science into Universities during the 1930s (Bucholtz & Lewis, 2015). Nowadays forensic science courses are still integrated with the training of law enforcement, but they can also be undertaken on their own at both undergraduate and post-graduate levels in several universities.

In Australia and Malaysia, forensic courses were introduced in 1994 (Bachelor of Applied Chemistry in Forensic Science at University of Technology Sydney; Lewis, 2005) and 2000 (Bachelor of Science (Forensic Science) (Hons.) at Universiti Sains Malaysia; University Sains Malaysia, 2018), respectively. In Australia, students can either pursue a specific bachelor degree majoring in forensic science (single major) or pair it with two or three majors (double major or triple major), typically in a complementary field of science (e.g. chemistry, molecular biology, laboratory science, biology) or a course of another nature (combined degree e.g. criminology, crime science, information technology, media). Furthermore, in Australia, specific postgraduate degrees (Honours, Certificate, Diploma, Master) are offered. In Malaysia, instead, the only option is to undertake a Bachelor of Forensic Science with Honours course. To note, in both Australia and Malaysia, enrolment is based on minimum entry requirements set by the universities.

As an interdisciplinary field of study, forensic science incorporates different disciplines such as those that would typically fall under the umbrella of nature and life sciences (e.g. biology, entomology, chemistry, toxicology, and anthropology) and those within the social sciences (e.g. criminal justice, criminological psychology and criminology). While according to the public opinion "Forensics is a highly specialised career and there are only a few employment opportunities in the occupation" (Dobson, 2018), typically, at an undergraduate level forensic science students will be exposed to many scientific disciplines. This allows the student to obtain a diverse range of skills that start at the scene of a crime and carry through to its end in court. This encourages the development of research skills and critical thinking,

learning about procedures, interpretation of the evidence, technical reports and court appearance. Additionally, soft skills acquired (e.g. initiative, independence, teamwork, communication and problem solving) are transferable to a considerable number of jobs, broadening the expertise of forensic science students and expanding employment prospects beyond the traditional career paths of forensic investigation or law enforcement (University of Hull, 2019). At the post-graduate level, forensic science students are trained to become a specialist in one of the above-cited disciplines or field of study.

To prepare students for the world of work, it is pivotal that forensic science curricula address the needs of the present-day society and forensic providers (law enforcement and laboratories). This also reflects the call for a focus on work-integrated learning and employability currently dominating the higher education sector in Australia and the UK (Bennett, 2016). The research confirms that to identify and develop the skills and attributes needed to navigate post-graduation pathways, higher education students need timely and informed support. Graduates assert that the lack (or under development) of these skills and attributes is one of the most critical disadvantages encountered by graduates transitioning into work (Bennett, 2016).

Indeed, the forensic science community has ongoing obligations to adapt and evolve as obstacles and opportunities present themselves. Therefore, issues within forensic science need to be continually challenged and reflected in the course structure and the educational model. With the prevalence of global issues such as mass disasters (e.g. boat sinking, plane crashes, tsunamis, earthquakes) and international crimes (e.g. piracy, suspicious death of people in a foreign country or in international waters) (Lewins, 2016), it has catalysed the need for international collaboration and to remove global barriers within forensic science. Although there is a clear need for forensic scientists to learn to work across jurisdictions and cultural barriers until now the higher education sector has failed to provide this in their current curricula. The New Colombo Plan (NCP) project "Breaking down barriers for justice: an intercultural approach to Crime Scene Investigation" (referred as #BreakingBarriers herein, as the social media hashtag used to promote the project on social media) represent an innovative model of forensic education aimed to integrate the teaching of technical and scientific skills as well as understand cultures, religions, and different ways to approach crime scenes working together in a mixed team. Participants experienced other ways of knowing and practising forensic science, expanding their world view. It also ensured that the students would learn to look beyond their local or national perspective in the field simulations (Cary, 2006). Overall, this project aimed to meet the needs of the students and the profession, by engaging in authentic experiences that aim to produce 'employable' forensic scientists (Herrington & Herrington, 2006).

The goal of this manuscript is to present the first forensic science international and intercultural experience where Australian and Malaysian forensic science students gathered together for a teaching and learning experience in forensic science. The project took place for the first time in June 2018 in Malaysia, financed by the Australian Government NCP mobility program and organised in collaboration between Murdoch University (MU) and Universiti Kebangsaan Malaysia/UKM Forensics (UKM). The 2018 pilot project facilitated five MU student participants, while the following editions (2019 and 2020) saw a doubling of the intake, with ten students per experience. The structure of the short course, as well as the logistical aspect and the student feedback, will be discussed. This course was a practical work-integrated learning experience that implemented an internationalised curriculum, to integrate intercultural perspectives and applied authentic pedagogy (Wiggins & McTighe, 2012).

Project details

The New Colombo Plan (NCP) program is an initiative of the Australian Government which aims to lift knowledge of the Indo-Pacific in Australia by supporting Australian undergraduates to study and undertake internships in the region (Australia DFAT, 2019a). The NCP is a mobility grants program, for which the bottom-line is the collaboration between an Australian University and a University within the Indo-Pacific region. The two institutions are required to develop a project that will see Australian students moving to the Indo-Pacific University, that will host the students and the project. Students of the Indo-Pacific University may or may not be part of such a project.

With regards to the NCP, the MU-UKM #BreakingBarriers project is the first international course in forensic science that has promoted collaboration between Australian and Malaysian institutes, students and staff. This included the opportunity for Australian students and academic staff to travel to UKM Forensics in Bangi, Selangor, Malaysia. The project was a two-week intensive course focused on the collaboration between the institutions and the forensic science students of both undergraduate cohorts. The unique internationalised curriculum aimed to integrate intercultural and global perspectives into higher forensic education, enhancing the skillset and cultural competency of graduates and staff through academic mobility (Leask, 2015).

Project description

A crime or disaster scene may occur in locations that are cross-jurisdictional and may involve victims of different nationalities. In such complex situations, forensic experts and law enforcement agencies of different nationalities and with different skill bases need to communicate and collaborate. In this NCP project, Australian undergraduate forensic students were provided with the unique opportunity to apply knowledge for their studies to investigate mock scenarios in Malaysia, working alongside fellow Malaysian undergraduate forensic students. This experience exposed Australian students to the application of the best practice in forensic science across different geographical regions, under different laws and regulations. Furthermore, Australian and Malaysian students were provided with the opportunity to work with individuals from different backgrounds and cultural groups, overseen and trained by local investigators and forensic experts. This project provided forensic students

who will become forensic experts (e.g. DVI, Disaster Victim Identification experts) to cooperate with overseas colleagues and to become forensically aware across cultures in the application of crime scene analysis. This project is constructively aligned, drawing upon collaborative learning experiences to facilitate a more informed cross-cultural understanding in the field (Biggs & Tang, 2007; Johnson, 1998).

Student recruitment

Student recruitment required the selection of five (for the 2018 pilot edition) or ten (2019 and 2020 for the following editions of the project) MU forensic students. In terms of MU students' selections, the initial step included an advertisement on the MU website, with details of the course to prospective forensic students. MU eligibility to apply was defined as undergraduate students enrolled in Forensic Biology and Toxicology entering their final year of study, students with a particular interest in crime scene investigation practice, positive and proactive attitude, open-minded and adaptable to new situations, environments and team. Furthermore, MU students also needed to address additional criteria to meet NCP requirements (e.g. be an Australian citizen aged 18-28 years). As an expression of interest, applicants were asked to submit a written statement conveying why they wanted to participate in the course. Students were subsequently shortlisted by suitability and invited to interviews. During the interview, MU students were asked a series of questions on their statements and what they hoped to gain from the experience. After assessment of suitability, each candidate was to understand possible language barriers, differences in culture, food, risk and work policies they may face. The final selection was narrowed to those who would make a good ambassador for MU and Australia. The applications and the interviews were assessed by the MU academic project leader, who shortlisted and identified the right candidates for the experience (Australia DFAT, 2019b).

UKM students participating in the project were the whole cohort of the third year of the Bachelor of Forensic Science (Hons.) (24 students per cohort) registered for the short CSI course (NNNX3182 Crime Scene Investigation II) at UKM, which is offered from July-August each year. This course was an extension of the course offered earlier in the semester, NNNX3232 Crime Scene Investigation I. However, five students from the cohort were selected to coordinate the activities with MU students. This selection specifically involved English language assessment, personal drive and availability.

Pre-departure preparation

Prior to departure, Australian students were invited to attend cross-cultural training designed exclusively for NCP recipients. The training session addresses cultural, social and differences in communication style between Australia and the Indo-Pacific host country. Such sessions aim to teach students how to be a good ambassador for Australia, while also providing workable strategies for departing students for immersion into the host culture from day one of arrival. The sessions are intended to support the future endeavours of participants. As part of the pre-departure preparation, NCP Australian students, as well as their project leader and MU representatives, were invited for a visit to the Consulate-General of Malaysia in Perth (WA) and a meeting with the Education Attaché of Malaysia in Perth, WA (2018) and the Australian High Commission to Malaysia in Kuala Lumpur (2019). Meanwhile, students at UKM had already undertaken a basic course in CSI during the previous semester, i.e. NNNX3232 Crime Scene Investigation I. Participating students were briefed on course content and activities which involved mixed groups of MU and UKM students. As non-English native participants, UKM students were encouraged to improve their interpersonal skills by using English in teamwork activities and formal or informal communications.

As this represented the first international and intercultural project in forensic science education, it received media attention in both Australia and Malaysia. Project leaders as well as students were hosted in several radio programs and featured in national newspaper and website (Hiatt, 2017).

Project development

The #BreakingBarriers project was developed as a mixture of lectures, seminars, workshops, site visits, laboratory work and hands-on individual learning or as groups, designed to provide participating students and staff with unique learning and teaching experiences. Edelson et al. (1999) outline the importance of authentic learning as "authentic activities provide learners with the motivation to acquire new knowledge, a perspective for incorporating new knowledge into their existing knowledge and an opportunity to apply their knowledge". Hung, Tan, and Koh (2006) explain that authentic learning allows engaged students 1) learn in spite of an ill-defined problem, 2) experience uncertainties as well as the social nature of science, 3) enables learning to be driven by demand to apply current knowledge, 4) obtain experience in a community setting in which practices, knowledge, resources and discourses are ultimately shared, and 5) to draw on the expertise of their pairs and advisors in area which they need to develop. Field-based simulated scenarios providing hands-on learning and were to be a core component of the #BreakingBarriers project to provide students with valuable authentic experience.

The coursework aimed to broaden participants understanding of the law and the investigation protocols in the Indo-Pacific region and be better prepared to participate in cross-jurisdictional forensic investigation, such as a mass-disaster in which DVI units of different countries work together; as such, the course was to have a keen focus on multidisciplinary and intercultural components. As the students and staff in #BreakingBarriers come from a diverse background, it was not only important to embrace intercultural learning/teaching, but it was pivotal to make the learning/teaching accessible. Aspects considered when developing the syllabus can be separated into two categories 1) the learning/teaching experience 2) accessibility of content.

The learning-teaching experience considered the incorporation of regional and international case studies, multidisciplinary course work, multicultural, religious and complex ethical components with both a region-specific and a global focus, and inclusion of industry professionals and academics, both local and international. As per accessibility of teaching and learning facilities, English was used as a common language, but a basic Malay language training was provided upon arrival. For the whole duration of the project, translation and clarification of colloquial terms or idioms were provided, if/when needed.

Forensic coursework project

The ten days of course work involved crime scene simulations, student discussions and presentations, learning visits, lectures from academics and industry professionals including the former head of Royal Malaysian Police CSI, Malaysian Coast Guard, forensic pathologists, odontologists, entomologists and DVI experts of both Malaysia and Australia. An open discussion about the difference between the Australian and the Malaysian sheets was driven by the students, proposing a final perfect blend between the two.

A core component in the #BreakingBarriers project was the crime scene simulation (CSI), these were extremely beneficial for understanding the complex and multidisciplinary nature, as well as the general requirements of an investigation. It is noteworthy that during their course of study, MU undergraduate students are not provided with experience in a mock criminal scenario, therefore this was the first hands-on experience that allowed them to collate the knowledge obtained in their former studies. The short course contained two distinct CSI simulations. The first scenario was a maritime scenario, a crime happened on a boat, facilitated by the Malaysian coastguard (Malaysian Maritime Enforcement Agency, MMEA), utilising mannequins used to simulate human victims. The second scenario was focused on body decomposition in the wood (UKM "body farm"), with animals (rabbits) displayed in different ways and investigated at different stages of decomposition. The crime scene scenarios were set up to allow students to work together, apply skills and formulate conclusions. Learning visits and lectures saw students and staff travel to Polis laboratories, The Wildlife Forensic Laboratory, Hospital Serdang; covering multidispensary course work i.e. forensic investigation, toxicology, digital forensics, document analysis, ink analysis, impressions analysis, odontology, pathology, entomology, aquatic forensics and mass disaster protocol.

Cultural experience within the project

As part of the NCP philosophy, besides acquiring technical skills, Australian students are granted the opportunity to embrace the Indo-Pacific culture. Authentic experiences of this sort become an "episode of learning" in itself, engaging students and allowing them to concentrate on worthwhile skills and practical strategies (Wiggins, 2011; Wolf, 1989). The MU cohort also had the opportunity to interact with their fellow students from UKM outside of the educational setting, taking part in a range variety of social and cultural activities to build relations for the present and the future. Australian students were invited to discover cities like Kuala Lumpur and Malacca, as well as joining the cultural tradition of Eid Mubarak, wearing traditional clothing and acquiring Malaysian cooking skills.

Student assessment

MU and UKM students were marked separately. MU students were assessed on their engagement during the unit, from the pre-departure activities to the writing of the self-reflection diary after the experience. Engagement makes students responsible for their own learning and enables them to massively gain from the experience; while also teaching students soft skills like teamwork, effective communication and making them accountable for their own performance (Parsons & Taylor, 2011; Wolf, 1989). MU students were asked to prepare two public presentations, the first one at their arrival, introducing themselves and their background, and a final one. In the last, students were asked to give an account of the experience, things that worked and identifying areas where there is room for improvement in the future. Additional study components required MU students to keep a personal journal/study log and answer several questions before and after the trip, under the form of a self-reflection diary. Self-reflection is a process that gives students opportunities to stop and be reflective about the learning that has taken place (Davies, 2013). It has been proven that self-reflection can naturally activate further engagement with learning material, deepen learners' understanding of the topic and reinforce independent thinking and in that way create an effective learning environment (Park, 2003). Specifically, for this experience, the study log drew on a standard structure of higher education learning. Before the trip, the questions were asked: a) Why you wanted to participate in the project? b) Expected return from the study experience; while after the trip: c) How do you think the international experience will help your future career? d) Has the experience helped you identify an area you would like to specialise in? e) Provide specific examples of how the experience has put you in a better position for applying to jobs after graduation.

For the UKM students, the whole 2018 cohort was assessed based on their performance in crime scene simulations with MU students, plus additional final group presentations and crime scene reports. Particular attention was given to the peer judgements on teamwork and to the self-assessment ability in collaborative group work (Sridharan & Boud, 2019; Sridharan, Tai, & Boud, 2019).

For the 2019 cohort, instead, activities with MU students were not part of the final assessment for UKM students due to limited capacity at the MMEA to conduct mock CSI. Only ten students out of 24 students were randomly selected to join mock CSI with MU students. However, UKM students were evaluated based on rubric assessment to assess their ability, including feedback from MMEA officers as instructors.

Discussion

The definition of internationalisation varies considerably across literature. However, a commonly accepted interpretation comes from Knight (1994), who describes internationalisation of higher education as "the process of integrating an international and intercultural dimension into the teaching/learning, research and service functions of the institution" (p. 3). Mechanisms of internationalisation include the curriculum, various academic activities, recruitment of international students or staff/student exchanges (Knight, 1994). Other elements of internationalisation include organisational factors such as annual planning, policy and reviews (Knight, 1994). The underlying motivation of internationalisation in higher education is immensely complex, and many factors – not necessarily mutually exclusive – may be considered (Knight, 1994). The motivation differs between developing and developed nations (Tran & Dempsey, 2017); for some countries, internationalisation of education may be motivated by engagement, cooperation, economic, political, sociocultural, humanistic, developmental or academic factors (Knight & Wit, 1997; Tran et al., 2014). Internationalisation philosophy is different for different countries. For Asian countries, internationalisation of education can be underpinned by the desire to develop a more qualified workforce (Tran & Dempsey, 2017) or intercultural understanding and engagement on a national and global scale (Tran et al., 2014). For other countries like Australia, instead, the focus is engagement, cooperation (Beazley, 1992; Tran et al., 2014), tackle global challenges (Beazley, 1992) as well as commercialisation and marketisation (Tran & Dempsey, 2017). The reason for choosing one of the aforementioned underpinning factor over another is depended on the institution, resources and the relevant mandate (Knight, 1994).

With regards to forensic science and law enforcements, Australia and Malaysia both have university-level forensic science courses that prepare students to apply to work predominantly in forensic industry (laboratories) and law enforcement agencies (e.g. national and federal Police and Coast Guard) that train officers to work mainly within the territory. In situations of mass disasters that see (or suspect) victims of both nationalities, DVI experts and officers of these countries gather together to investigate the case. Examples are the investigation following the tsunami in Thailand (2004) and the plane crashes of MH370 (2014) and of MH17 (2014). While experts investigating such cases are typically not afforded the chance to meet for training purposes before the disaster, in 2019, a collaborative initiative saw officers of the Australian Border Force (ABF) and the Malaysian Coast Guard (MCG) came together for the twelfth time under the "Red Back Operation" (Australia Border Force, 2019). This is a week-long combined patrol that takes place along the waters of the Malacca Strait, combating maritime security threats including people smuggling and human trafficking. This operation is a great opportunity to affirm the important relationship that exists between Malaysia and Australia. Furthermore, and more importantly, it allows the ABF and MCG to be better prepared to effectively deal with the broad range of maritime security challenges we face, both independently and together as partners. To the knowledge of the authors this is the only combined forensic program between Australia and Malaysia. Similar programs are not available outside of a military or law-enforcement setting.

#BreakingBarriers as an NCP guided project endeavoured to promote engagement with the Indo-Pacific region, enhance knowledge and create "work-ready graduates" (Australia DFAT, 2019c). Furthermore, MU and UKM both identified cultural understanding and academic factors as core imperatives. The mechanism by which this was achieved is through student/staff mobility as well as the implementation of an internationalised curriculum. The aim of internationalisation in education is not to standardise the curriculum, simply incorporate intercultural perspectives (Mihut, 2017), share the teaching and learning experience, ideas and resources, which is of clear interest in higher education.

A 2015-2016 systematic study conducted by the Centre for Studies in Higher Education interviewed more than 100 universities, community and government leaders to gauge their perceptions of the Australian university sector (Lacy, Croucher, Brett, & Mueller, 2017). The study was specifically focused on the present and future opportunities, issues and challenges and recognised 32 facing Australian universities, of which participants viewed internationalisation to be among the top four most important for ensured health and growth of the sector (Lacy et al., 2017). In addition, there was a noted increase in recognition of the importance of internationalisation for higher education, especially at an undergraduate level (Lacy et al., 2017). As well, a survey conducted by the European University Association survey of staff across 46 countries and 451 institutes found that 92% of respondents believed internationalisation enhanced both the learning and teaching experience at their University (Lacy et al., 2017; Sursock, 2015). Through internationalised curricula and/or specific experiences during their course of study, students can gain qualifications that are of value globally and can be later used to expand their job prospects (Lacy et al., 2017). As a symbiotic relationship internationalisation allows students and staff to contribute to the global initiative whilst being shaped by it. While in excess of five million tertiary students per year are moving globally for education (Hénard, Diamond, & Roseveare, 2012), mobilisation of forensic students is still extremely limited.

Gacel-Ávila (2005) believes that internationalisation of higher education relies on three distinct factors: a) its acceptance as an integral, central, and fundamental part of educational policy that can improve the quality and relevance of education, implemented through comprehensive strategies to help transform educational systems to meet the needs of a global society; b) the strategic role of international academic cooperation in globalising solidarity among nations and establishing a true global citizenry; and c) more attention paid to the theme of internationalisation in educational research.

Such factors were totally fulfilled by the cooperation between MU and UKM for the #BreakingBarriers NCP program, as students of both Australian and Malaysia were exposed to learning activities of great needs in the global nowadays

society (factor "a" above (Gacel-Ávila, 2005)), improved the understanding of each other's backgrounds and customs (factor "b" (Gacel-Ávila, 2005)) and put the bases of their future work in an international set up (factor "c" (Gacel-Ávila, 2005)).

A groundbreaking moment of the whole project, and arguably the most valuable aspect of #BreakingBarriers, was the practical CSI simulation in mixed groups. During the CSI simulation, students were able to bring the theoretical techniques learnt during the undergraduate coursework into a practical 'real world' simulation. Although the value of conventional lecture-learning is not to be overlooked, the simulation provided an interactive experience able to thoroughly enrich and enhance the understanding of both scientific concepts and the importance of certain soft skills such as teamwork and effective communication with your CSI team which are pivotal competencies required when working alongside other people, either students or colleagues.

Additionally, the intercultural nature of the simulation allowed Australian and Malaysian students to gain an understanding, as well as an appreciation for different aspects that need to be considered with working with individuals of different cultures, religions, heritage, age and gender; students confirmed that this experience helped them to develop an understanding and the skills to be able to recognise and respectively accommodate the differences to ensure the smooth function of the simulation groups. This authentic and immersive learning experience provided skills that will be highly transferable and immensely valuable moving forward in the forensic community and in general in the world of work (Perry, 2004). By providing a culture of practical, hands-on experiences, students gradually become more inquisitive and active in their own learning – solving problems, developing communication skills with their peers and cultivating sustained shared thinking. A great work of planning is required but staff members to create an authentic and immersive learning environment, can be time-consuming and strenuous for educators; however, the benefits are endless. The real environment, compared to book-based learning, is of a great stimulus to enhance the students' senses and give life to real experiences and encourages the students to be engaged. Immersive learning, especially in an international setup sparks discussion, exploration, discovery and contemplation, that will reflect on their own thinking (Chawla, 2019).

Conclusion

The prevalence of global issues such as mass disasters and cross-jurisdictional crimes has catalysed the need for international collaboration within the forensic industry. To prepare students for the world of work and provide them with an industry-ready skillset, it is pivotal that forensic science curricula address the needs of the present-day society. This article described the first forensic science international curriculum between Australia and Malaysia. The course outlined is a transformative approach to teaching, which inspires learning by providing students with an engaging, dynamic and authentic cross-jurisdictional and intercultural learning experience to acquire work-relevant skills. Lectures and workshops by international industry experts throughout #BreakingBarriers provided the theoretical basis for mass disaster response and international crime investigation, scaffolding the learning. Thereafter, practical CSI simulations acted as a stimulus for learning, providing students with the opportunity to implement prior knowledge in an authentic environment, working alongside future forensic experts from a diverse cultural background and different disciplines. In this context, problem-based learning skills – a combination of collaboration, cooperation, knowledge sharing and independent work – are integral to foster the development of the students to be work-ready (Helle, Tynjälä, & Olkinuora, 2006).

It is indeed a new era in forensics, and while not every forensic student will end up being employed abroad, many will work in a multicultural work environment, or in positions/companies which collaborate on a global scale. Forensic scientists will find themselves facing new challenges with a global element. Therefore, to prepare for the interconnected world, future generations of Australian forensic experts need to learn to work together in different countries, beside colleagues with different cultural backgrounds, making internationalisation imperative for 21st-century education (Gacel-Ávila, 2005).

For several universities worldwide, there are plans to dramatically increase their global impact, creating a meeting point for innovation, study, research and business. MU and UKM being both situated in the Indo-Pacific zone, aim to extend their global reach in international education, improving the collaboration in the region. For MU, this will be achieved through strategic appointments, introducing a more internationalised currculum and "porous borders", enabling students and staff to enhance their international perspective, creating global forensic citizens who are equipped to embrace an interconnected and more interdependent world. For UKM, instead, intentions are to welcome more foreign universities to participate in their programmes.

International forensic programs and projects are crucial in our modern, interconnected society as it provides students with strategic skills to meet the requirements of a world with no barriers. Students participating used the experience as a trampoline to commence their career as forensic officers or to continue in their study focusing on research in forensic science. In both cases, this can be attributed to the enrichment of their CV. With such a positive outcome, both MU and UKM aim to continue and improve such projects in the future, breaking down the barriers of the old school forensic science education and embracing an innovative and authentic way of learning.

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The Play's the Thing… an introduction to the Special Section on "Pedagogy & Play in Teaching Today"

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There is a moment in Act 2, Scene 2, of *Hamlet* where the titular character declares that the "play's the thing wherein I'll catch the conscience of king." In this moment, Hamlet is wrapped up in developing a plan, a scheme, to catch out what he believes to be the King's guilt in his father's murder. And he wants to catch him out, to call him out, through the medium of making insinuations about his complicity through a stage play… a play within a play. As odd as this might sound, I would argue it is a fitting point to begin a consideration of how the dynamics of a pedagogy more informed by play and the ludic aspects of life could begin.

How, or why, is that? Why does it make any sense to start from Hamlet's suspicion? It is because today it is very easy to find ourselves wary of even more invitations, which are often demands, that we should participate more, think outside the box more, develop a different approach to the ways we work and interact. Today we find that there are ever-increasing competition for our attention, from the nature of overwhelming media environments, to the demands of our working lives. Or, as Franco "Bifo" Berardi suggests in his book *Precarious Rhapsody* (2009), the problem is that while cybertime is infinite, the capacity of our bodies clearly is not. Thus, we find ourselves exhausted, and rightfully sceptical of attempts to extract even more labour and value from us, even when it comes dressed in the form of fun and play. Sitting here, writing this introduction on Boxing Day, 2019, I can feel this tension acutely, as I'm torn between my desire to be a good worker-academic and finish my given task of writing this introduction, and wanting to go keep developing my FIFA20 Ultimate Team Squad (which I can say with confidence is pretty stellar).

In other words, the problem is that we want to play, but it is becoming increasingly difficult to do so. All work and no play makes Jack a dull boy, as Jack Nicholson might remind us. In truth there is no war on Christmas, but there is a war for our attention. And what that produces is a condition where it becomes difficult to truly engage, to develop that kind of deep-seated interaction only requiring itself, that play demands. We are always there, but not there, at the same time. This is what Melissa Gregg describes in her book *Work's Intimacy* (2011) as "presence bleed," or the particular

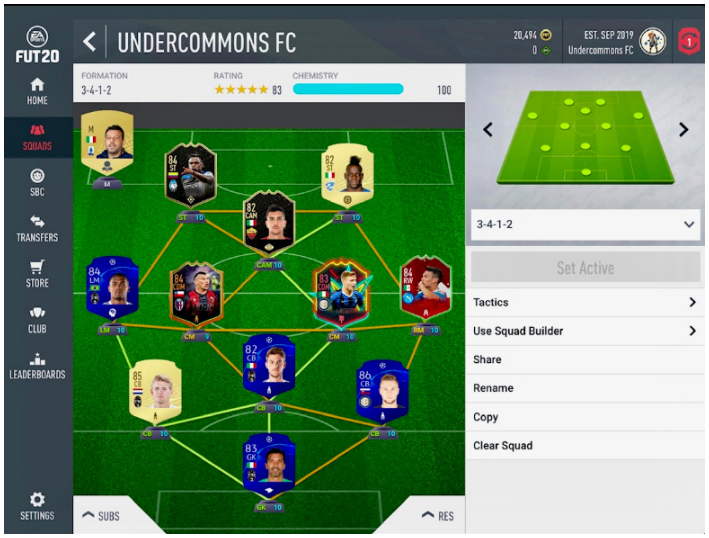

Figure 1: Undercommons FC, FIFA 20 Ultimate Team companion app team management view.

ways that digital and communication technologies facilitate this dynamic of being there / not there. And this is an experience that is quite common, from the way we find ourselves checking our emails after business hours, or always being attentive to our phones. Gregg argues that while this dynamic has been common among upper level management for quite some time, in more recent history it has become more widespread across a much wider range of knowledge workers. Based on this, she suggests that "it is no longer simply the 'creative,' cutting-edge or highly paid positions that require an always-on dimension. Rather, it is typical in the most mid-range and ordinary kinds of information jobs regardless of status or financial compensation" (2011, p. 46).

This dynamic of having 'no time / no space' seems especially present somewhere like Singapore. This was pointed out by Agnes Chew, who observes that while Singapore has the world's 10th higher per capita gross domestic product, ranks lowest worldwide in terms of job satisfaction, and that Singaporeans face the longest working hours (2018). Chew makes an argument for there being a close link between long hours and job dissatisfaction with a corresponding increase in concerns over mental health and wellbeing. In other words, yes, there are great riches being created, and

social conditions are improved, but not in all aspects. We are richer, but stressed out, unable to play. This is why the Institute for Precarious Consciousness has suggested that today, the dominant affective structure is precisely one of anxiety (2014). There are great riches being produced, but in ways that have only been intensified and amplified by problems of overwork and stress.

But let us leave these larger questions of work and the economy behind and return to the classroom. But can we? Thinking about Melissa Gregg's concept of presence bleed, we can see that this clearly does not just apply to our working lives, but has become highly evident in the classroom as well. This can be attested by any teacher who has found themselves having to compete for their students' attention against a veritable army of digital devices, not to mention all the demands of students' lives as well. I would argue this is a huge problem for teaching today, precisely because the best learning occurs when people are deeply engaged in learning. The problem is, this is what is blocked off and prevented, or at least made very difficult, by all these distractions and anxieties. For the vast armies of the overworked, over-stimulated, and over-anxious, play is precisely the space for really engaging in studying a topic, idea, or practice – not for an outcome, a mark, but simply for the value of it in itself.

This is what Stefano Harney and Fred Moten gesture towards in *The Undercommons* (2013) when they claim that studying is the one thing you can't do in the university today. How is that? How does that make any sense? While it is admittedly counterintuitive, it is based on Harney and Moten's rather idiosyncratic theorization of studying, which for them is any collectively pursued activity that is done for its own merits (rather than a more common sense notion of study as preparation for exam or something similar). This is why they argue studying is impossible in the modern university, as every activity has already been mapped against league tables, learning outcomes, and degree classifications. We're encouraged to go to university so we can stumble through it to get a degree, not because we have a deep-seated love of a subject or a practice. That kind of perspective blocks off any deeper sense of engagement.

And this is what brings us back to the questions of the role of play in pedagogy and teaching today. In Johan Huizinga's classic definition (2014), play is play precisely because it is the opposite of work. It is outside of everyday life. This sense of play is much closer to deep learning than an approach that dutifully wades through countless PowerPoint slides and memorizes information only to regurgitate it on the exam, only to forget it afterwards as soon as possible. When we started to work on organizing the "Pedagogy & Play in Teaching Today" symposium, the idea was to find ways to explore drawing on histories and more playful teaching practices, fully aware of the constraints they're under, as ways to transform and revitalize the classroom. The idea was to find ways that play can be used as a tool for opening other ways to learn and interact. That could take the form of gamified lab simulations that Bina Rai, Tan Hui Shin, and Leo Chen Huei explore in this issue of JALT. Alternately, we can find elements of learning in the broader dynamics of gamification that Yeo Xi-Wei explores.

I can think of a number of examples of this from my own teaching practice, but I'd like to briefly mention two in particular. One involves an advanced marketing module. I had assigned the students to read a case study about the use of child slave labour in chocolate production in the Ivory Coast. But this time, rather than giving the students a set of questions about the reading to discuss in class, I decided to set up a role playing exercise. In order to do that, I divided the class up into groups, with each group taking on a different role from the case study, whether the accused company, or as an NGO, a competing company, or government body. And then I simply asked the groups to think through what they would do and why. While every teacher dreads when a classroom has no response to a given brief, this had the opposite effect. Within five minutes, students were debating, with great intensity, about the merits of their plans, which ranged from a competing company trying to make good on the other company's misfortunes to groups arguing for a guerrilla insurrection against a government that was clearly unable or unwilling to protect its own citizens. Almost needless to say, this was a much more intense response than for most classroom exercises.

The second example comes from a postgraduate module I was teaching this year, on the nature of creativity and organizations. For this module, I did not want to fall back on simply describing the various approaches that organizations attempt to use to foster creativity amongst their members, I wanted to attempt to at least partially use some of these approaches in the running of the module itself. Given that I have long been interested in the use of escape room games as team building exercises, I figured it would be interesting to bring the class to one that had recently opened in Colchester. The idea was the students would take part in the escape room and then, that we would use that experience as a basis for thinking through the development of creativity in organizations. Much like the previous example, people engage with this more intensely than they would have normally in the classroom, and I could see quite different patterns of engagement, as well as leadership and problem solving, emerge.

Figure 2: University of Essex immersive learning trip to Escape Rooms, Colchester.

All of the materials presented in this special section attempt to, in different ways, engage with questions of play and ways to develop this deeper and more meaningful

engagement. The members of the design house and roleplaying consultancy Curious Chimeras would point out that these examples worked not simply because they brought play into the classroom, but more importantly, because they came out of understanding what the students were bringing to the classroom and attempted to shape the interaction in ways that worked for those students. Likewise, the discussion with arts manager Juliana Lim and bookstore owner Kenny Leck in this JALT issue tells us that if we want to keep open a space for being able to make art, which in many ways is based on the same dynamics of interaction as playful deep learning, it is because we have found a way to sort out structures and organizational practices that allow us to have that space and time. And this brings us back from the classroom to the wider dynamics of the economy and society today, where someone like Pat Kane (2005) suggests that we are seeing a shift from an overly serious Protestant work ethic to what he describes as a 'play ethic' as the main motivating factor. Likewise, this is what Daniel Pink suggests (2010) when he claims that workplaces are moving away from a model based on motivating employees through the use of carrots and sticks to jobs that are more dependent on creative, disruptive, and self-motivating workers who focus on developing autonomy, mastery, and purpose in what they do.

In other words, play is precisely the thing where we can reach the ear of the king, where we can find the voice to persuade the sovereign, even if indeed that sovereign is only ourselves. We do not balk at the reality that we will have to, as the cliché goes, work hard in order to play hard. Rather, the question is more one of who will get to determine the rules under which our play happens. This reminds me of the game "Calvinball" from the comics Calvin & Hobbes. In Calvinball, there are no fixed rules. But that does not mean there are no rules at all. In Calvinball, the game itself becomes the making up and changing of the rules, which is to say, playing with them. The game becomes the constant making, unmaking, and remaking of the game itself. It is a game that is always playing with the boundaries of itself and what is possible. Ultimately, that is what I would like to suggest we can get from turning to questions of play in our teaching practices: to learn and draw from a range of different approaches to learning and teaching that will help us expand what is possible in our practices, and beyond…

Figure 3: The wonders of Calvinball (*Calvinball*, 2007).

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Bringing play back into the biology classroom with the use of gamified virtual lab simulations

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Abstract

Our study evaluated the integration of gamified laboratory (game-lab) simulations and virtual reality (VR) technologies into the biology curriculum in order to provide an engaging and interactive way for Gen Z (born after 1995) students to learn and understand key biology concepts in a simulated environment. We hypothesised that the students will have fun, learning through play and exploration of lab skills that may not be possible in standard educational settings. Our research question was, "Do VR game-lab simulations lead to an increase in a) student knowledge of DNA-based technology, b) intrinsic motivation to study key biological concepts, and c) self-efficacy in an introductory biology course?" In our study conducted at the Singapore University of Technology and Design, the freshmore (ages between 19-22) cohorts were randomly divided into three groups, control (n = 180 students), VR game-lab simulations experienced on a laptop (desktop VR, n = 180 students) and experienced using a headset (immersive VR, n = 90 students). The classes assigned to the control group were taught using the prior method (PowerPoint slides/chalk and talk). The biological concept covered was consistent in all groups and was the polymerase chain reaction taught using a crime scene investigation scenario. Data collected showed that the desktop VR group of students achieved the greatest improvement in quiz scores after the simulation as compared to controls and immersive VR. This correlated with the significantly reduced response times taken for quizzes too for the desktop VR group. This may be attributed to the fact that the desktop VR was a longer simulation, with in depth theoretical wikis and descriptions of relevant theory. The survey results revealed that the majority of students perceived that the simulations improved their learning of DNA-based technologies, were motivated to complete the simulation and felt more confident at the end.

Introduction

Higher education is transforming to remain relevant to the next generation. The newest students are changing the way schools serve and educate them (Global Research & Insights, 2018). A generation that rarely reads books or emails, breathes through social media, feels isolated and stressed but is crazily driven and wants to solve the world's problems (Du Plessis, 2011). Students from Singapore, which is a developed country, express these traits and hence, there is an urgent and unmet need for novel educational tools and teaching resources to improve students' engagement and learning outcomes. The Generation (Gen) Z (born after 1995) students at the tertiary level learn in a unique dynamic way and it is crucial for teachers at all levels to re-invent online learning resources to suit their style of learning. This will enable educators to continue to engage, motivate and re-instill the joy in learning.

The Gen Z in developed countries grew up playing computer games. They do not engage with textbooks that are static, text-based and rote. Based on the recent statistics of Pokémon Go players, the digital preferences of Gen Z is substantiated, with the greatest number of players (46%) aged between 19 and 29 years old (Forbes, 2016). Pokémon Go was a local phenomenon. To keep up with this digital revolution, teachers need to find online resources such as blogs and wikis that get them beyond the plain vanilla curriculum in the textbooks and come up with creative classroom set-ups (Cilliers, 2017). The development of educational games have disrupted the education sector and changed how students learned (Dichev, 2017). The Gen Z needs fast delivery of content with complex graphics. They are kinesthetic, experiential, hands-on learners who prefer to learn by doing rather than being told what to do or by reading text. Learning is no longer a spectator sport for them anymore (Rothman, 2016; Dauksevicuite, 2016).

Sibley, Nikula, and Dinwoodle (2017), reported about a group of graduate students who tried out a computer-based simulation based on an International Market course. This simulation aimed to transfer skills from classroom to workplace. The simulation succeeded in arousing greater behavioral and emotional engagement among students. It has also helped students develop cognitive understanding of the topic and boosted theoretical ability to apply theoretical knowledge to real life situations. In a separate study by Cózar-Gutiérrez and Sáez-López (2016), a group of graduate students pursuing a degree in primary education participated in a computer-based simulation activity called MinecraftEdu. This is the educational version of the virtual world game Minecraft. Most of the students agreed that gamified simulations made the subject more interesting and that the activity promoted active participation and better engagement with content.

Research regarding the effectiveness of games for science education is only beginning to emerge (Fleischmann & Ariel, 2016; Lynch & Ghergulescu, 2017). Sadler, Sonnet, Coyle, Cook-Smith, and Miller (2013) reported the implementation of a 3D biotech educational game (Mission Biotech), wherein gaming features were highlighted. A higher learning outcome, particularly with lower-level students, was observed. Notably, researchers from Denmark (Bonde, Makransky, Wandall, Larsen, Morsing, Jarmer, & Sommer, 2014) showed a 76% increase in learning outcomes by using a gamified laboratory (game-lab) simulation compared to traditional teaching, and a 101% increase when used in combination, suggesting an untapped potential for increasing the skills of science students and graduates. This study was tested on university students who were biology majors and the simulations were used in class as part of curriculum time. To the best of our knowledge, there is no evidence if a similar level of improvement to learning outcomes can be achieved for non-biology major students, whose motivation for studying biology may be lacking.

The gold standard approach towards teaching introductory biology to undergraduate students in the majority of higher education institutions adopts a combination of lectures, tutorials and laboratory (lab) sessions (de Jong, Linn, & Zacharia, 2019). Lectures and tutorials offer an effective means of transferring key biological concepts to students in a classroom setting. Lab sessions, on the other hand, provide crucial hands-on training of biological techniques designed to reinforce and apply concepts learnt in the classroom. Due to the limited lab time, cost of conducting lab class and facilities, students have to often work in groups and share research equipment and data. This compromises students' learning. It was shown that a better method of teaching is to stimulate the real experience in order to achieve the highest level of knowledge retention (>90%) (Dale, 1969). The idea of virtual labs is gaining traction (Makransky, Terkildsen, & Mayer, 2016; Jones, 2018) and virtual labs were voted as one of the top 10 emerging technologies in 2014 (Homes, 2014).

The primary aim of our study was to integrate game-lab simulations and virtual technologies into our biology curriculum in order to provide an engaging and interactive way for Gen Z, biology non-major students to learn and understand key biology concepts in a simulated environment. The specified game-lab simulations in this study were chosen because of its comprehensive, well-thought lesson plan that includes concepts in biology embedded in real world scenarios. It provides students all of the support needed to complete the lesson themselves in the form of immediate information via hints, feedback, theoretical wiki pages and test yourself questions at every stage. We hypothesised that the students will have fun, learning through play and exploration of lab skills that may not be possible in standard educational settings. In particular, students will find the gamification component and VR character of the simulations engaging. Our research questions were, "Do game-lab VR simulations lead to an increase in a) student knowledge of DNA-based technology, b) intrinsic motivation to study key biological concepts, and c) self-efficacy in an introductory biology course?"

Materials and Methods:

Approval from Institutional Review Board (IRB)

The study was approved by the IRB at the Singapore

University Technology and Design (SUTD) (Approval No: 18-172).

Experimental Design

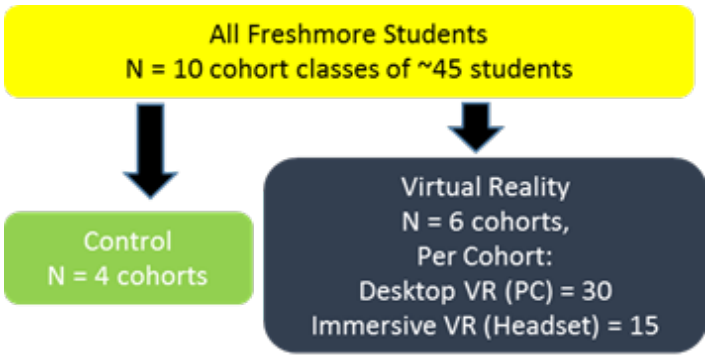

Figure 1: Diagram of the experimental design for the study.

In line with SUTD's unique pedagogy, our students were divided equally into cohort classrooms (~45/class), where all the lessons were carried out in their freshmore year (ages between 19-22). Unlike teaching in lecture theatres, the cohort classroom set-up at SUTD created a unique environment for carrying out research in pedagogy. The game-lab simulations were a part of the compulsory teaching curriculum for the 10.006 Natural World (Integrated Chemistry and Biology) module, and they were evaluated during week 10 of Term 1 of the freshmore year. In our study, the cohorts were randomly divided equally into three groups, control (n = 180 students), virtual reality game-lab simulation (desktop VR, n = 180 students) and immersive virtual reality game-lab simulation (immersive VR, n = 90 students) (Figures 1 and 2). The teaching team of instructors for 10.006 were experienced and had taught this lesson previously.

Figure 2: Photographs of students engaged in the (A-B) desktop and (C-D) immersive VR.

The game-lab simulation (Polymerase Chain Reaction Lab) that was evaluated in this study was developed by Labster (2016; Figure 3). In this simulation, students were thrown right into a crime scene where a murder had taken place. To investigate the crime scene, students' first task was to collect blood samples in the hope that the murderer had left traces of their DNA. Students will then proceed to the lab to analyse the DNA collected using a PCR kit and gel electrophoresis to see if they can identify the murderer. The classes assigned to the control group were taught using the prior method (PowerPoint slides/chalk and talk). The classes assigned to the desktop VR groups were taught using the gamified simulations integrated into the lesson material. For the classes assigned to the immersive VR groups, the students were taught using the game-lab simulations with VR goggles, again integrated into the lesson material. Hence, students in the immersive VR groups experienced the full 3D gamified virtual lab.

Figure 3: Screenshots of the polymerase chain reaction virtual lab simulation from Labster. https://www.labster.com/simulations/polymerase-chain-reaction/

Lesson Plan

The lesson plan for the two-hour cohort class, including the breakdown of the duration is illustrated in the following Figure 4.

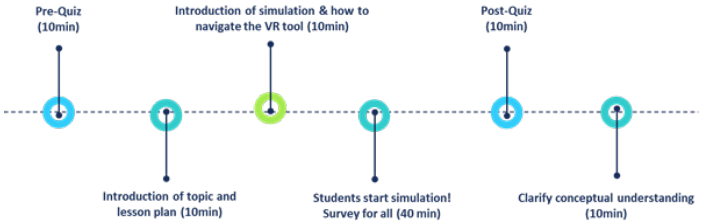

Figure 4: The lesson plan for the 2h cohort class for desktop and immersive-VR groups.

Measurement of Student Learning Outcomes – Quizzes and Response Times

Pre- and post- quizzes (with ten multiple choice questions that help students develop conceptual understanding) were used to compare the differences in acquired understanding and knowledge of the topic between the controls and experimental groups. This method was an adaption of the ConcepTests developed by Crouch and Mazur (2001). Students were required to individually complete a pre-quiz before attempting the activity and the post-quiz immediately after they had completed the simulation. Both quizzes were delivered via our university's learning management system, Blackboard, and we extracted data (scores and response times) directly from the grade center. Response times to the quizzes were automatically captured via Blackboard as the total time taken by the student from the moment he/she clicks start until clicking submit.

Student Feedback Surveys

All surveys were conducted anonymously and on a voluntary basis. Student feedback surveys were collected from experimental VR groups at the end of the simulations via three ways.

Survey 1: At the end of the simulation program, Labster has an embedded set of five questions as follows: 1. I gained relevant knowledge by using the simulation. 2. I found the simulation motivating. 3. I feel more confident about my lab skills after the simulation. 4. I feel that I can apply what I have learned in the simulation to real world cases. 5. In general, I was pleased with the simulation. Students are provided with four options – completely agree, agree, disagree or completely disagree, and took a minute to complete the questions. Labster refers to the compiled results of the survey as "Course Impact". There was a total of 131 students who responded to this survey.

Survey 2: We created our own student feedback survey within Blackboard to collect more data on the students' perceptions of the game-lab simulations, and if students perceived that it supported their learning. It consisted of seven multiple-choice questions (MCQ), adapted from Makransky et al. (2016). The MCQs were designed to assess any perceived improvements in self-efficacy, intrinsic motivation, knowledge gained and interest in biology. The MCQs were attempted according to the following scheme; 5 points for strongly agree, 4 points for agree, 3 points for neutral, 2 points for disagree, 1 point for strongly disagree. The questions asked were as follows; 1. Performing the simulation of the laboratory techniques added to my understanding of concepts of DNA technologies. 2. I would like gamified laboratory simulations to be used more in teaching. 3. Game-lab simulations can be a good supplement to regular teaching. 4. It is motivating to learn the concepts of DNA technologies through a scenario that resembles the real working situation of a forensic scientist. 5. It makes course content more interesting to work with real world examples. 6. It was interesting to use gamified laboratory simulations. 7. It is a good idea to use gamified laboratory simulations before trying out a real biology laboratory. Students were given five minutes in class to answer the survey MCQ questions, immediately after completing the simulation. There was a total of 109 students who responded to this survey.

Survey 3: We included two open-ended questions into the survey within Blackboard. This was to gather student opinions outside of what was collected in the second survey. The questions were as follows: 1. Do you have any general comments about the game-lab simulations (e.g. advantages/ disadvantages)? 2. Do you have suggestions on how to improve your experience using game-lab simulations for learning biology? Students were given five minutes in class to answer the survey open-ended questions, immediately after completing the MCQs. There was a total of 74 and 67 students who responded to questions 1 and 2 respectively.

Statistical Analysis

All data is presented as mean +/- standard error of mean. A Student's t test or one-way ANOVA with Tukey's post-hoc test was performed as appropriate to determine the statistical significance between control and experimental groups. A p value of > 0.5 was considered to be significant.

Special Note

We provided students from control groups a chance to attempt the simulations after the classes for the experimental groups were completed. The VR gear was set up for any student from the control group who wanted to try it out on one of the afternoons during term time.

Results

Student Learning Outcomes – Quizzes and Response Times

The mean pre- and post-quiz scores from the control, desktop and immersive VR groups are shown in Figure 5. The average scores of the pre-quiz were comparable between the groups (control: 74.7%, desktop VR: 69.3%, immersive VR: 70.0%), suggesting that the students had a similar background knowledge of the topic before the introduction of the game-lab simulation (Figure 5A). After teaching the topic to the students, the average scores of the post-quiz were significantly ($P < 0.0001$) higher for students in the desktop VR group (91.6%) compared to the students in control (82.2%) or immersive VR group (79.1%) (Figure 5B). The average scores of the post-quiz for students in the control and immersive VR group were comparable and not statistically different. Based on the cohort class, control teaching using the traditional (prior) method or immersive VR resulted in a modest 10-13% improvement between the pre- and post-quizzes (Figure 5C). However, students in the desktop VR group achieved a significantly increased score improvement (range: 10.7-56.5%, mean: 32.2%) as compared to either control or immersive VR groups.

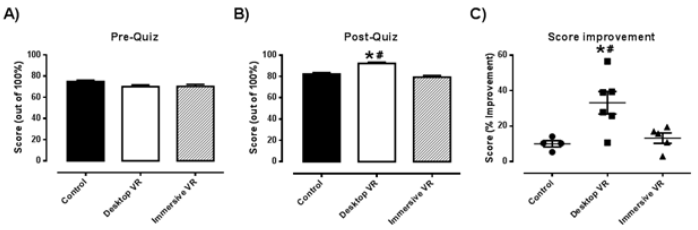

Figure 5: Mean quiz score achieved by students (A) pre- and (B) post-treatments. (C) The percent improvement in quiz scores demonstrated by class from the three treatment groups. Data shown as mean ± SEM. N = 141 (Control), N = 113 (Desktop VR), N = 64 (Immersive VR). * Significantly different to control; # Significantly different to immersive VR.

The average time taken for the students to complete the pre-quiz was found to be different between the groups. Specifically, students from the desktop (range: 3.67-5.36, mean: 4.12 min) and immersive VR (range: 3.41-4.26, mean: 3.76 min) groups completed the pre-quiz with significantly less time compared to the students from the control group (range: 4.54-6.37, mean: 5.08 min) (Figure 6A). However, after teaching the topic to the students in class, the average time taken for the students to complete the post-quiz was significantly reduced for students in the desktop VR group (mean: 3.09 min) as compared to the students from control (mean: 4.95 min) and immersive VR group (mean: 5.64 min) ($P < 0.0001$). The average time taken for the students to

complete the post-quiz for students from the control and VR groups were comparable (p> 0.05) (Figure 6B). Overall, the students from desktop VR group took significantly less time to complete the quizzes in comparison to the control group. Interestingly, students from the immersive VR group took more time to complete the quizzes in comparison to students in the control or VL group (Figure 6C).

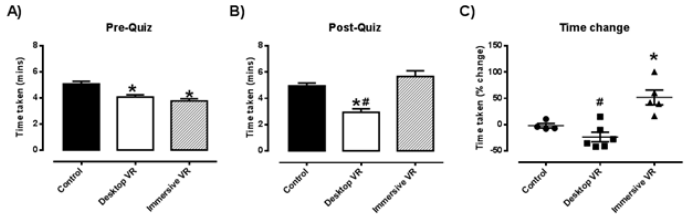

Figure 6: Mean response times (min) taken by students (A) pre- and (B) post-treatments. (C) The percent improvement in response times demonstrated by class from the three treatment groups. Data shown as mean ± SEM. N = 141 (Control), N = 113 (Desktop VR), N = 64 (Immersive VR). * Significantly different to control; # Significantly different to immersive VR.

We further divided the students into three groups based on their pre-quiz scores to determine if the game-lab simulation was more effective in improving learning outcome for students with or without prior biology background. Students with pre-quiz scores of less than 40% was classified as low (little to no prior biology knowledge), pre-quiz scores between 50-70% was classified as medium (some prior biology knowledge) and pre-quiz scores of more than 80% was classified as high (strong prior biology knowledge). Within the control group, students exposed to traditional teaching resulted in significantly increased post-quiz scores for the low student group (~33%). The magnitude of this increase was much lower (~13%) for the medium score student, and there was no observable effect for high score students (Figure 7A). The post-quiz scores were significantly increased for both the low and medium scores for students in the desktop VR group, in contrast to the control group. Notably, there was also a slight but significant increase in post-quiz scores (~10%) for the high score student (Figure 7B). Similar to the control group, there was a significant improvement in post-quiz scores for students from immersive VR groups in the low score students. It was noticed that there was a progressive loss of this improvement for the medium and high score students (Figure 7C).

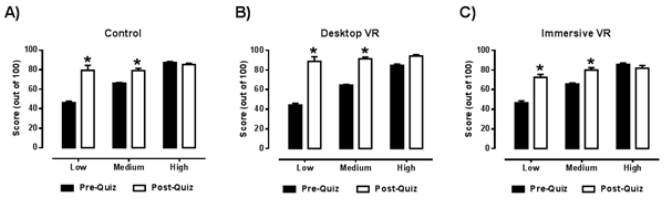

Figure 7: Mean quiz scores achieved by students from the three treatment groups, (A) Control, (B) Desktop VR and (C) Immersive VR. Students were divided into three bands, low (n<50), medium (50>n <70) and high (n>80) based on their pre-quiz scores. Data shown as mean ± SEM. N = 141 (Control), N = 113 (Desktop VR), N = 64 (Immersive VR). * Significantly different to pre-quiz.

To gather students' learning experiences of using the game-lab simulations, five survey questions within the Labster simulation were immediately posted after their session (Figure 8A). More than 90% of the students responded positively to the survey questions and agreed that the desktop VR simulations were effective for them to gain knowledge, found the simulation motivating and perceived self-efficacy (Figure 8B).

Survey Questions
1. I gained relevant knowledge by using the simulation.
2. I found the simulation motivating.
3. I feel more confident about my lab skills after the simulation.
4. I feel that I can apply what I have learned in the simulation to real world cases.
5. In general, I was pleased with the simulation.

Figure 8A: List of five survey questions that were asked within the game-lab simulation (desktop VR, via Labster).

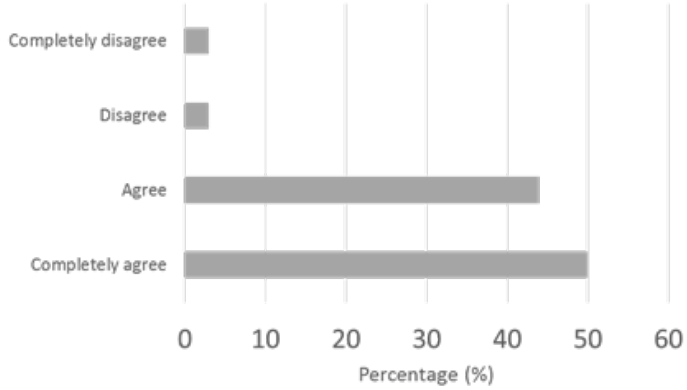

Figure 8B: Course impact based on student survey responses to the questions in (A). Students were provided with four options, completely agree, agree, disagree and completely disagree (number of respondents = 131).

Survey 2

The second survey consisted of seven multiple-choice questions assessed via Blackboard to capture students' learning experiences of using both the desktop and immersive VR. It was noted that about 90% of the students agreed that the game-lab simulations were a good way to learn concepts in biology and found them interesting and motivating. While the majority of students agreed that they would like to see more simulations used in the teaching course, there were 27.4% who strongly disagreed. In general, an average of 8% of the students remained neutral to the use of the simulations for learning in class (Table 1).

Survey Questions	Strongly Disagree (%)	Disagree (%)	Neutral	Agree (%)	Strongly Agree (%)
1. Performing the simulation of the laboratory techniques added to my understanding of concepts of DNA technologies.	0.86	1.71	9.40	41.9	45.3
2. I would like gamified laboratory simulations to be used more in teaching.	27.4	6.84	11.1	23.9	29.1
3. Gamified laboratory simulations can be a good supplement to regular teaching.	0.86	1.71	8.55	37.6	49.6
4. It is motivating to learn the concepts of DNA technologies through a scenario that resembles the real working situation of a forensic scientist.	0.86	0.86	5.13	38.5	54.7
5. It makes course content more interesting to work with real world examples.	0.86	0	5.98	27.35	64.1
6. It was interesting to use gamified laboratory simulations.	0.86	0	7.69	37.6	53.9
7. It is a good idea to use gamified laboratory simulations before trying out a real biology laboratory.	0.86	1.71	6.84	32.5	57.3

Table 1: Student survey responses to multiple-choice questions posed immediately after desktop and immersive VR treatments (via Blackboard). Students were provided with five options: completely disagree, disagree, neutral, agree and completely agree (number of respondents = 109).

Survey 3

Students were encouraged to pen down their general comments, including advantages or disadvantages that they envision based on their experience with both the desktop and immersive VR as a learning tool. Representative examples of students' comments for both simulations are grouped together in Table 2. It was noted that more advantages were highlighted by the students for the desktop VR as opposed to the immersive VR simulations. Similarly, there were minimal disadvantages listed for the desktop VR. We also collected

feedback on how we could improve the students' experience with the use of VR simulations as end-users and have placed representative comments into Table 3. There were some very useful suggestions on how to design the simulations to be even more engaging and interactive, for e.g. including real-world consequences of the players' actions, including a voice-over, subtitles and possibly a Sandbox VR.

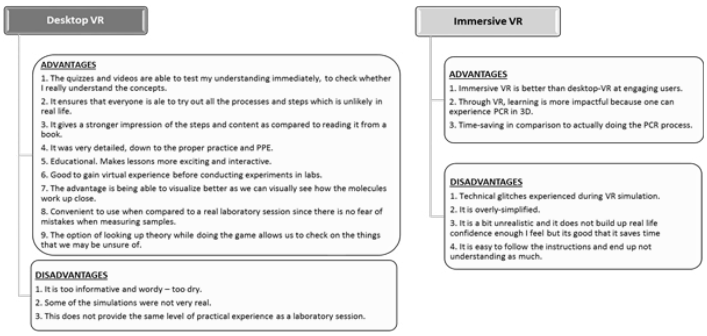

Table 2: Representative student survey responses to a short question posed immediately after desktop VR and immersive VR treatments (via Blackboard). Question: Do you have any general comments about the game-lab simulations (e.g. advantages/disadvantages)?

Students' Responses
1. It'll be good to show the consequences of the player's actions (e.g.: cross contamination) that affects the results and judgment of the player.
2. There wasn't enough time to look through all the videos and complete the stimulation within the time given.
3. Perhaps more of the molecules and processes could be gamified for better understanding of the mechanisms
4. More explanation in some areas would be nice, like how the gel works
5. Have a playback button. For VR after they speak, there is no chance for you to repeat what they say.
6. More obvious instructions on how to start.
7. Had to restart the game as I didn't know what to do at the start, ended up messing around and the game bugged out and didn't allow me to proceed.
8. More interactions can be added into the game such as when collecting pipette samples.
9. Maybe can do a voice over or have more engaging music.
10. I cannot finish reading on the LabPad sometimes because the instructions were going on, and I'm brought to another scene before I'm done looking at the LabPad.
11. Perhaps it will be better if the VR can have more mandatory quizzes and questions.
12. It will be better if we are able to use VR so we can see the movements of cells, the molecules and systems in 3D. Which helps us to visualize and understand what is going on
13. Maybe we could input some subtitles and sub headings for the names of (enzymes, processes) for better learning stimulation.
14. Would be great to have a sandbox lab game to mess around with experiments.
15. With or without real-life examples, I think looking at how molecules interact, it will be beneficial for our understanding.
16. More well-thought plot with better animations.

Table 3: Representative student survey responses to a short question posed immediately after desktop and immersive-VR treatments (via Blackboard). Question: Do you have suggestions on how to improve your experience using game-lab simulations for learning biology?

Discussion

In accordance to SUTD's unique curriculum, it is compulsory for all of our first year students to complete foundation science subjects, including introductory biology. Being an engineering and design-centric university, the undergraduate students have limited background and are possibly less inspired to study biology. It is sometimes challenging for the educators to keep the students engaged and motivated in a biology class. In addition, the traditional methods of teaching do not seem to appeal to our kinesthetic Gen Z learners in Singapore. It was also not possible for our students to have multiple lab training sessions like their counterparts enrolled in a life science degree program due to time and budget constraints in the biology curriculum. This created an urgent and unmet need for novel educational tools and/or teaching practices to improve students' engagement and learning outcomes for non-major subjects, in particular biology at SUTD.

We evaluated a possible learning solution where students could discover DNA-based technologies using a gamified virtual reality lab simulation. We hypothesised that learning via this approach would be well-aligned to Gen Z's inherent characteristics and our students in Singapore who are tech savvy and love computer games. Our rationale for this approach was based on the following advantages that we identified for using a simulation as a learning tool: 1. The gamification aspect included an interesting story line with fantastic visuals and virtual reality effects that made the simulations fun and engaging for the students. 2. The simulation was carefully chosen to match the key concepts of the lesson for the specified week. 3. The simulation was comprehensive and included test-yourself-MCQs and relevant theoretical information in the form of Wikipages. Students could only progress through the activity if they could answer the questions correctly. This provided them with immediate and useful feedback of their learning. 4. The simulation was a real-world problem that the students could relate to because they would have watched or heard of criminal science investigation on the television or social media. 5. The simulation was easily accessible via the SUTD's learning management system and available 24/7. 6. Students could work at their own pace and made mistakes in a safe environment.

In our study, the cohorts were randomly divided equally into three groups, control, desktop and immersive VR (Figures 1 and 2). For the classes selected for VR, 30 students (desktop VR group) were instructed to remain in class to experience the game-lab simulations on their own laptops. The students took about 30 to 40 minutes to complete the simulation. There were a couple of students in every class who experienced technical difficulties such as not being able to load the simulation (mainly Mac users) or not being able to progress, even though they had completed what was required and had to restart from the beginning. We had requested for our university educational technology specialist to be present in class to resolve these issues and had emailed the students prior to class a list of Labster system requirements as well. It was also noted that because our students were non-majors in biology, they struggled a little and spent some time following the sequence of certain lab techniques such as pipetting. Feedback from instructors were gathered real-time and they found that their classes which were usually very distracted and noisy became atypically quiet as the students were fully immersed in the simulations. The students appeared self-motivated and adequately challenged to complete the activity and find the murderer!

The remaining 15 students from each class were randomly selected to step outside into the attached think tank room to experience the immersive VR using the Samsung Gear headsets. There was one instructor and one research assistant present to assist the students. We first confirmed that none of them had any adverse health issues with regards to the use of the VR gear. Then, the students were debriefed on what to expect, how to progress throughout the simulation and how to operate the controls on the headset. We assisted the students in putting on the headsets. In the first class, students were provided chairs to sit on but we soon realised that they were crashing into one another. We removed the

chairs from the subsequent classes and they experienced the simulation standing up, which worked out better. The students from the immersive VR group took about 20-30 min to complete the simulations. A couple of students had trouble progressing along the simulations and they were assisted by the instructors. In most of these cases, we had to restart the simulation for them. Instructors shared that it was evident that the students were excited to have been selected to do this activity and were completely engaged throughout the simulation. There was a concern raised that a couple of students may have rushed through the simulations, which may have limited their learning outcome.

Our results indicated that there was a clear positive learning outcome with the use of VR game-lab simulations as part of a lesson in an introductory biology course for undergraduates who were pre-dominantly non-majors. It was not surprising that the majority of the students agreed that the simulation was a good way to learn concepts in biology and found it interesting and motivating. This finding was similar to other studies, for example the one by Cózar-Gutiérrez and Sáez-López (2016), where a group of graduate students pursuing a degree in primary education participated in a computer-based simulation activity called MinecraftEdu. Most of the students agreed that game-lab simulations made the subject more interesting and that the activity promoted active participation and better engagement with content. If we made reference to the Self-Determination Theory (SDT) (Ryan & Deci, 2000), it takes into account our innate psychological needs for competence, relatedness and autonomy. It was evident that all of these three elements were embedded in the design of the PCR Lab simulation. The students satisfied their need for competence with optimal challenge and progress feedback throughout the simulation. Students were in control of and could determine the outcomes of their actions (autonomy) as a result of the storyline and different possible scenarios. The need for relatedness was satisfied as the students were playing the game together in a classroom setting. Students completed the simulations at different times and were actively interacting with one another throughout the process. We evaluated the desktop VR students' perceived self-efficacy via several questions in the survey, such as "I gained relevant knowledge by using the simulation." I feel more confident about my lab skills after the simulation." "I feel that I can apply what I have learned in the simulation to real world cases." Students agreed or completely agreed to the above statements, which indicated that using VR game-lab simulations for learning biology had resulted in an efficacious outcome.

The improved learning outcomes, as compared to control groups, were clearly seen with the students who experienced the simulations using their laptops. The students who experienced the simulations using the headset, on the other hand, achieved learning outcomes similar to control. This indicated that there was learning as expected, however not as significant as the desktop VR group of students. There could be several reasons for this observation. Firstly, the PCR Lab simulation on the headset was shorter in duration than the desktop version. This meant that there was less information available in the form of wiki pages describing the processes of DNA-based technologies. There were also fewer conceptual questions throughout the simulation. Secondly, there were several students who were excited and eager to complete the simulation on the headset and subconsciously rushed through it. We aim to manage this better in the next run. Thirdly, because students had the headsets on, it was challenging for us to monitor their progress to ensure that they did not miss out on anything. Learning biology in this manner could have also overloaded and distracted the learner, resulting in less opportunity to achieve learning outcomes as recently reported by Makransky et al. (2019). Having said this, students from the immersive VR enjoyed the experience and would like more of such simulations in the future as indicated by the survey results.

In conclusion, we report that undergraduate students from SUTD found the gamification component and VR character of the game-lab simulations engaging. These VR game-lab simulations lead to an increase in student knowledge of DNA-based technologies, specifically PCR and gel electrophoresis. Students were intrinsically motivated to study key biological concepts and perceived self-efficacy in achieving the learning objectives. It must be noted that this study was carried out in Singapore, where the majority of students at the tertiary level are digitally-oriented as they had access to digital devices from a young age. Hence, our approach may work well in developed countries with a similar demographic. In the future, we would like to consider the use of stand-alone VR headsets, instead of the ones used in this study that required Samsung mobile phones. This may, in the long run, result in cost savings and will streamline the process. It will also be interesting to conduct a longitudinal study to determine if the learning outcomes achieved from the simulations translate into better laboratory performance in an actual laboratory environment after a week and possibly result in deep learning and better application of the knowledge acquired after one term.

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Learning inside the magic circle: An interview with Curious Chimeras

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Abstract

Gaming cultures, much like Rodney Dangerfield, don't get no respect. Instead they are commonly blamed for a range of ill effects, from juvenile delinquency to moral panics around Satanism and gambling. This is part of a broader cultural constellation that devalues the place and importance of play in our lives. One of the key impetuses in organising the "Pedagogy & Play in Teaching Today" symposium was precisely to argue against these pre-conceived negative associations with play, instead exploring the ways that play is integral to learning and teaching. How can we find ways to draw from the engaging dynamics of play, and bring them into the classroom environment? With that idea in mind, we invited the members of gaming consultancy and design house Curious Chimeras to deliver the symposium keynote session. This interview with the Curious Chimeras was held the week after the symposium as a way to follow up and expand upon the materials presented.

Stevphen Shukaitis (SS): How would you introduce or describe what Curious Chimeras is or does to people who not yet have had the opportunity to come across it?

Curious Chimeras (CC): Curious Chimeras are predominantly a design house. We design tabletop games. We also do consultancy work for people who want to bring game elements into their work or their environments. Now and then we also do events. We run weekly tabletop RPGs (role-playing games). Sometimes people ask us to do very specific theme events for certain occasions. We've done birthday games, art events, and children's party games. Things like 'my wife is really into D&D (Dungeons & Dragons) and she wants to play a level six character. Can you make an entire game about this level six character?' We've gotten strange requests, but it's been mostly the design aspect. Being a design house is forefront, but what we apply the games to depends on what we are trying to say. If one requires a certain voice or vision that we want to share, or if it's what the client would like, we basically pursue that. Sometimes we joke that we construct and peddle certain very specific shared hallucinations.

Illustration 1: The logo of Curious Chimeras.

SS: I like the idea that you're peddling shared hallucinations. It's interesting that you describe yourself as a design house. Usually when I think of a design house, I think of a company that's hired to produce advertising campaigns, or who work on product design. It sounds like your approach to design is a different kind of cultural concept which is also a kind of shared hallucination.

CC: Yes. Ultimately when you think about a game – and it's not so easy as it sounds – there are a lot of things to consider. Someone comes in with a key objective. How do we turn that into a game that would achieve that very objective, while keeping in mind things like balance? Keeping in mind the players? Keeping in mind certain other themes that they want in it? Everything that we've done is a specific design for a specific objective. It's similar to product design, but with a game.

SS: Would you say it's like designing a world or designing an environment?

CC: Generally when we design roles or games, or the premise of a game, we don't go into specifics. It's part of constructing the shared hallucination. We give them key words and everything else is co-constructed with the audience or the players as well.

There are a lot of prompts in the situation. It's a bit like you throw a little bit of start-up culture, but aimed to a situation. A lot of work also involves making the situation as bounded as possible. When we go into a house that we have designed an event in and make it a game that we're playing part of our job is to separate the magic circle outside from the magic circle inside (Huizinga 2014). We also work to dissipate the boundaries so that people have something to take home. That's the one that's actually the key aspect of contact shift. It's what we notice to be sometimes the hardest aspect of the work because it means we're transporting people from one place to another but they didn't actually physically move that much. And then we have to bring them back from where they are to the moment. It has certain aspects of theatre and performance because it has that whole journey back and forth, using curiosity – hence our name – and using imagination. Seeing multiple perspectives and points of view.

In terms of design, most of the time it is somewhat like advertising: you want people to go towards a narrower range of feelings about something. Like wanting to associate this product with glamour. This service is associated with this kind of lifestyle. Whereas our approach is also about creating those shared associations and feelings through the games. Then we skirt around the edges of these keywords and themes and hope that people have some feeling of closeness to it.

SS: But the whole thing about shared hallucination is that it's something that's not complete initially but that it's completed through the interaction and realisation by the people who play. It's almost like you don't need to fill up everything you need to fill up enough so that people could realise their own ideas and desires in the shared format of the game-space.

CC: Yes. You need to nurture and be inviting to people to co-create or to share, especially in cultures where that might make people less comfortable. They'll be worrying about whether they will be judged. Will people think they're not creative? Sometimes that's a challenge for us. These days it's not as much. Maybe we've found more friendly crowds or more reception. People no longer have that much of a hang-up.

SS: In some ways that mirrors shifts within marketing practice itself. You can see that in the shift from making a factual claim about a product or service to more contemporary marketing where we're talking about co-creation with user communities or aspects of the experience economy. It's a similar dynamic based around creating a shared platform or space that the audience, or consumer, complete, more so than fully elaborating and describing a product.

CC: Yes. With marketing, we talk about experience, selling an experience. People are not so much interested in material items anymore. They want to feel part of a brand experience. What we are selling in that sense ties in with that idea of the shift in marketing as well. That now people are going towards experiences. Games are more the experience than other things people do for 'corporate bonding,' like to going to escape rooms, or creating a terrarium together. Whereas previously it was a barbeque, something quite fundamental. Now we see a shared creation process is taking place.

SS: Who would you say are your main influences? What made you to say 'let's create this thing and we'll call it Curious Chimeras and we'll do this?'

CC: In some ways it's because of the creature, the mythical beast itself, the chimera, which has multiple heads. What would be really scary? Let's put them all together. Goats are scary. They head butt people. Lions are terrifying. Dragons are always scary. And snakes, they're terrible. Let's put them all into a beast. It's an impossible beast. It's full of dangerous things. It embodies something that is transgressive, but can be many possible things. A chimera is a creature that has multiple aspects of different creatures put together. That drew us to the heretic crest, that logo.

That aspect of mutation, of hybridity, is very important. We would like – through the course of the work and the services we provide, the products we design – to encourage people to think. The process of playing and collaboration with others, or communication, is what leads to a creation of a stronger strand of cultural processes, which leads into a new set of perspectives, a new set of ideas. Especially in a context like Singapore where we have a chimera beast as a national logo as well. We have a merlion which is something that can't exist. It's an impossible beast. But we still think of it as a lion with fish parts. While the chimera, is it a lion? Is it a dragon? Is it a goat? There's a mammal-reptile aspect. We like the fact that it's a bit more democratic but still organised as a chaotic beast.

SS: Why did you want to create the Chimeras as a project, company, organisation? How would you describe it?

CC: It didn't really start as a company. Curious Chimeras it was more a collective of friends, a play community to work people who normally would really benefit from play in some ways but maybe they don't have the access. We started with a community focus. It became harder to run it as it went on simply because there's negative perceptions about play. You have adults telling kids they can't play because they need to worry about exams. We're lucky because many in the play community we had were educators. It was educators saying 'this is good for you. Playing can make you more creative. Playing can help you with maths because you're solving math problems when playing a role-playing game.' That was an easier sell but it was very hard to sustain. That's when we sat back and thought about how to find a sustainable way to do what we're doing, how to bring this across to a larger group rather than being essentially a neighbourhood non-profit that was self-funded.

SS: One of the things that Becky Shelley said at the symposium was the importance of play is understood very clearly in early childhood education but less so in secondary or university education (Shelley, Ooi & Brown, 2019). The way you describe this scepticism around the value of play reminds me of *The Golden Compass* (Carraro & Forte, 2007). The film, and presumably the book it's based on, revolves around children and their daemons, which are animal familiars that represent a part of every individual's spirit. But as they go through school, they lose their daemons. Or perhaps more accurately, they are stolen. To draw the comparison here, it's almost like play is this daemon that gets taken away. Why is there a certain point where we can't have it anymore? Why do people think that play stops becoming important in learning?

CC: We don't know. When you look around, a lot of people are still playing. They are indulging in sports. They play on their phones and play PC games. For our community, we're playing a lot of tabletop games. But somehow along the way, the idea of play became separate from learning and education. The surrounding conversation of what is a child, what is an adult, has to come in here. Our understanding of this has shifted greatly in different historical phases, particularly after the industrial revolution.

Play falls into typography as well in terms of how we understand the difference between children and adults. People will say play is something you can do as a child because you don't have responsibilities. Once you have responsibilities, you can't play. But once you have the ability to fulfil responsibilities, you can play because there are casinos. You want to bet, you want to gamble, this is the right of the people who have achieved it because they have succeeded in adulting. Play is a distraction to many people, particularly those who stress that education must be very serious. Assignment rules are meaningless in themselves. You do them so that you can do better in exams. They don't actually care whether you learn anything, but for most folks, they are just pushing through it to get the degree. When you are inside that worldview, there's very little space for playfulness.

Figure 2: Alanna Yeo presenting at the Essex-Kaplan Symposium on Pedagogy and Play in Teaching Today, with Stevphen Shukaitis in the background.

SS: But there's this aspect of play, or language of play, that is less about play as a separate activity and more about play as an attitude to what you are doing. That's why you can have a playful approach to something serious. But it's interesting how that's rendered in the official language of education, for instance in learning outcomes. We always know at the end you will do this. Rather than saying 'we are going to explore these materials and maybe we don't know where we're going to end up with. We'll see where they go.' That's a different attitude of not needing to get a certain place, an exploratory attitude where you're going to make something and see what it does but not necessarily being set that it has to do a certain thing. I've always associated that with more of a deep learning approach where you want to engage with something for its own sake rather than an end program, whether that's a test score or a degree.

CC: That's why we're obsessed with the idea of having range of mobility. Like having play in the limbs, having play in a similar situation. Possibility space is something which is very much at a premium in this cultural context of Singapore. Like very often, you get very low key messaging that if you don't do this, these are the negative consequences. For a society like ours which is very prone to anxiety, there are people who are anxious and thus don't like surprises because they could be bad. Play works on the idea that it's okay if it's bad. We have this idea of 'I'm good enough to play this as a game without letting it affect me.' That's the mentality of discipline and focus that comes from being a professional gamer.

These are two very different mental states. One is 'I'm a citizen and my country is very dependent on the global economy. If things screw up, I'm screwed up, everything is bad.' Very nervous. Compare with an approach that says 'yes, I am in control of myself in a situation where I can't control the situation, I can control myself and I can play well no matter what.' Those are two very different things. You can use play to teach people to approach mastery, to develop this kind of high performance. But the first one obviously is for the general crowd, maybe they're not that high level, so you can't afford play. You have to do the serious stuff, you need to follow what's already been done. There's a tension there between high and middle performance.

SS: But more than just performance, there are questions about imagination and its role. Historically, there were earlier ideas, for instance, people are not creative, only God is creative. Therefore you shouldn't even talk about imagination because that's really not the domain of human action.

CC: Our role is to live through and discover through science and reason what has been established for us. It's another metaphor. Because creativity is saying 'let's make a new ship.' Whereas they are like 'let's submit and find out what ship is there for us to use within our domain.' Those are two different metaphors.

SS: Going back to what you were saying before about shared hallucinations. Perhaps it's the difference between a co-producer mindset versus a consumer mindset. There you can see the difference between someone who expects, or wants a world to be made for them, versus an approach based on wanting to build worlds together through shared interactions of players, fans, and the community more broadly.

CC: We live in a very transmedia world now. Let's say if I was a 14-year-old watching a Marvel movie, and I like to sketch. I'm posting my sketches on Tumblr or Instagram. My co-production process is me reconstructing an imaginary relationship between two characters. Maybe that becomes canonised in the next film. There are parts of gaming communities who strongly dislike that way of approaching media. They really hate teenage girls' way of consuming pop culture media.

There's this Marvel character, Ms. Marvel, Kamala Khan, the Pakistani American girl. There are people who hate her and people will love her. A good portion of the anger towards that character is fuelled by racism and Islamophobia, the idea 'we need to protect Europe from evil influences.' And there's this anger that Marvel would be developing characters and stories that could reflect experiences beyond the typical youngish white male demographic. When you look at geek communities, it happens in role playing games as well.

SS: For what it's worth I think Ms Marvel is an amazing character and I'm looking forward to seeing how her story develops. Strangely that story somewhat mirrors what you were saying in terms of whose perspective and ideas are valued, in the sense that the 2013-2014 "Inhumanity" storyline involved an expansion of Earth's Inhuman population. And that leads to the 2016 "Inhumans vs X-Men" storyline, which ends with the Inhuman Royal Family abdicating their thrones and ceding leadership to a Chinese peasant girl. I find the possible storylines coming out of that much more interesting than constantly rehashing the 'superhero canon' and its tropes endlessly.

CC: To go back to the conversation about these games and imagination, the way people can be conservative in their imagination. You have people who spend significant time and resources, not on generating and creating any content but instead on creating opinions about how content should be curated and maintained. This is the canon. This is how a game should be done. And you have other fans who produce transmedia works, who make new works, rather than argue about how best to police things.

SS: In certain ways, we're back with Allan Bloom and arguments around literary canons, debating what should be included, and how dare you include these other people (1994). It's similar. Maybe Allan Bloom is a cop ultimately. But let's shift topics. Let's say if you were going to talk to teachers who were considering introducing gaming elements into their teaching practice. What would you suggest? Where would you suggest they start to think about?

CC: The games versus gaming elements distinction is important for us. They are different. We talked about gaming in the classroom versus games for the classroom. How would people be introduced into this? One of the things to do is

we would recommend first of all to not force it in. Go for it if you think that is something that you feel that you naturally gravitate towards. And if you do feel that way naturally then I would assume that you, the teacher, are familiar with games in your everyday life. You enjoy these games, that's why you want to bring them to the classroom. Having this in mind, one of the best things that we can do first is look at the games that you play with a bit of distance and think about why you play them. Think about what is it you enjoy about these games and how can you translate that into a different environment versus trying to force something in for the sake of trying to liven up the classroom. Ultimately, we believe that the power of games is motivation and the simulation that they can win. But if you force it, none of that is going to happen. The students are not going to be happy to do it, and it's going to be frustrating as well because the audience is not picking it up.

There's two key aspects here. One, of invitation, and the other of facilitation. Whatever we do has to have a basis in invitation. The person who does invitation has to know whether the guest would be happy with whatever they're going to be invited to do. For teachers, this is a bit harder because teachers have authority. You can't exactly go around as a lesson plan saying 'hi guys, we would like to do this or not do this?' Part of it is to adopt the teacher mindset where you get to point B but getting to point B, there's A1, A2, A3, A4. Then the games are all different to engage different approaches to get to point B, perhaps for people who are shy. They can use an anonymous game so you don't have to be the one putting it out there. Maybe for people who have a more expressive flair, something which requires you to repackage so it activates different learning capacities. The design approach for the teachers who want to use gaming in classrooms would be not designing a game first, but instead to look at your student community and make a game around those people. There's a rule that's very different for analogue games and digital games. For us as tabletop game designers we work in the analogue realm. There's a rule in D&D proposed by the writer Monte Cook. He says there is no table that is more important than your table right now when you are the game master. You are not making a game for the performance of everyone, you are making a game for your group. In today's transmedia world where streaming is very popular for roleplaying games, a lot of new players and game masters are focussed on looking cool, on getting more clicks on YouTube or Twitch. And there's a bit of old school approach for who the audience is intimate.

And it's the same for teachers. You should be trying to make a game that is good as a game that will work for everyone – but if you have a student who is a little bit weird and disruptive in class – it's better to keep him in mind. To facilitate a proper process rather than to say 'hey, we have a good game. The fact that we didn't play the game in the way it's supposed to be played means you are a bad student, you're a bad player.' That kind of language and approach is very force fitting. For us as a design house, using an artisanal approach, we look at the situation, look at the audience, look at the people involved, and make something that fits them. It always has to feel inviting. It has to be coached in terms of initiation. The facilitation is through doing this we'll be able to get you to something. The teacher has to think and know what they are trying to achieve. Does this facilitate understanding of Singapore history better? Does this facilitate understanding of creative industries better? There are many skills that teachers already have. It requires working with what teachers already have rather than throwing what teachers have away over towards newer approaches.

SS: That reminds me of a few years ago when I was visiting the University of Groningen on the day the third-year undergraduate liberal arts students were presenting their final projects. I was most impressed by a group of about ten students who collaborated to design and code a computer game about energy markets. The way it worked was that you could choose to play as an energy company, using renewable or fossil fuel sources, or as a political party or an NGO. And based on your position you could undertake actions intended to achieve benefits for yourself, whether that would be influencing government in certain directions, or responding to shifts in consumer demand and prices, or even the effects of weather on energy markets. I ended up spending a few hours playing this game. It was immensely impressive, all the knowledge that had to be brought together to create this game, which ranged from understanding energy markets and political dynamics, to the coding and design of the digital interface of the game. Obviously not one person, or even a few, would have all those skills. But together a group of around ten students was able to create a functional and enjoyable game.

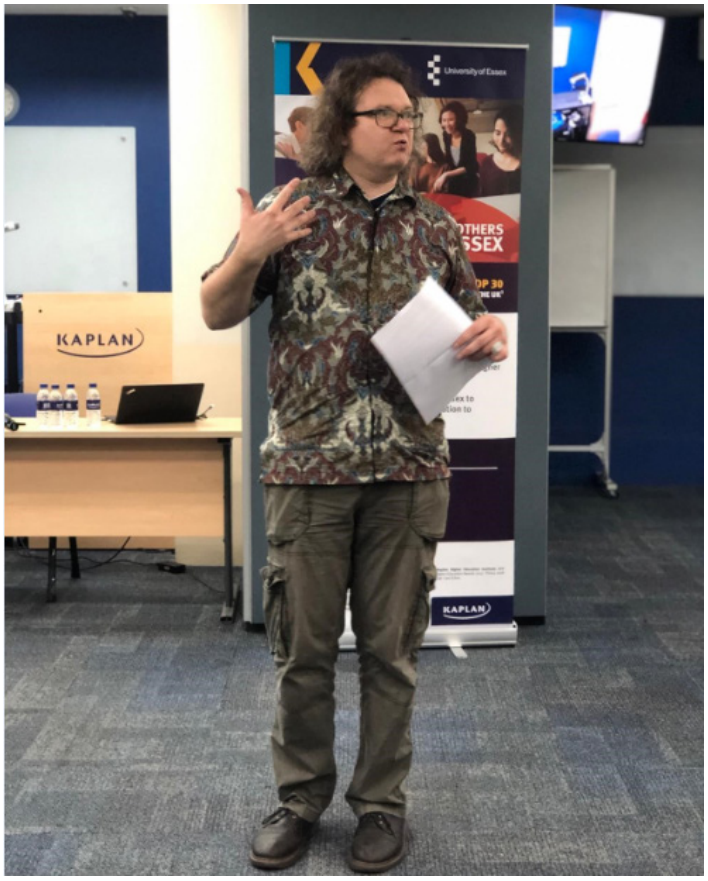

Figure 3: Stevphen Shukaitis presents at the Essex-Kaplan Symposium on Pedagogy and Play in Teaching Today.

CC: There is a difference in games, like what we talked about earlier, with both implicit learning and explicit learning. That's an example of a game with explicit learning objectives.

We want to talk about energy markets and the interplay between energy markets, consumers, and government. But there are also games with implicit learning objectives. For instance, Pokémon Go, it's supposed to be a game about catching Pokémon. You walk along the real world and things like that, but implicitly you learn this place is a gym. Here's something important about the sculpture. In the game itself, it has pictures of that sculpture with a description of what that place is. The implicit idea to is go out and walk and meet new people and talk about your game.

With the energy markets game in order for the students to make that they first need to know understand the area, or multiple areas. It's a very good appraisal tool as well. It goes back to what Carl Sagan says, that before you can make apple pie from scratch, you have to make the universe filled with apples. Makes sense. Before they can make a game about energy markets they need to know the dynamics, processes and the way that it works. Implicitly in the process of making the game there's a lot of learning taking place. They are learning about coding and human behaviour, what factors lead to people making certain decisions.

Different kinds of games train different attributes and skills. First person shooters explicitly train aim. They explicitly train reflexes. See, click. But we also know as more and more generations of E-sport athletes are getting put out to pasture many of the skills don't last. The clicking doesn't last. But if you can get these older players to become coaches then they become very good at strategy. You should do this, you should do that, keep on training, to explicitly learn aiming skills. The implicit learning is more focused on developing strategy, team management, resource management, and stress management. There's a lot to reflect on two sides in terms of what is it that you want them to learn as the people playing the game. What is it you want them to learn after they play the game?

SS: As an undergraduate, I did a module in international diplomacy and our exam was to play a game of the board game Diplomacy. At the time I thought it was silly, but looking back on it, I can now see that you actually had to understand dynamics that were the main focus of the module. You were learning about negotiations between countries, with gauging and acting on national interests strategically. And so if you paid attention to the principles about those things in the classroom that could inform how you played the game. In that sense, as a demonstration of knowledge acquired through education, playing the game filled much the same function as writing an essay or taking an exam.

CC: The phrase we have in Singapore is for someone to be exam smart. Essentially you will become very good at task mastery and working within a context of a certain grading format. [In Shao's teaching experience] we had some assignments that students felt to be unfair because those notions were disrupted. We gave them assignments which were go to a place in Singapore within a given list including Golden Mile, Lucky Plaza, Peninsular Plaza, and places where there were large foreign diasporas or migrant workers. Go into the place, reflect on it, and write about your experience. Write 800 words of what you felt and how did this help reflect on issues and identity and migration. The two lectures before that were on ethnicity and migration. If the students got it as a larger structure, they were able to see how these connected.

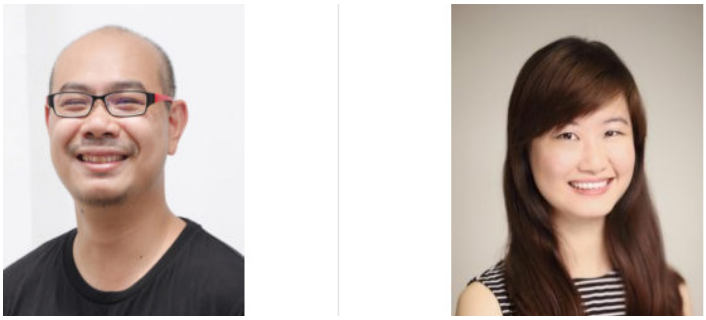

Figure 4: Tan Shao Han and Alanna Yeo (Curious Chimeras, 2018).

SS: In other words, you're suggesting drawing on those sorts of approaches when it's sensible rather than forcing it. In that sense, introducing a more playful approach to the classroom requires not just understanding where the students are coming from, but the teachers just as much. And only by doing that can you make it invitational.

CC: Maybe it's something about not really learning for teachers, but more certain aspects that need to be in place for play to happen. We need to know what the game is for, but we don't need to know how the play goes. A lot of stress in game masters who are new to role playing games is they want people to do certain things. And they try very hard to force you into a certain narrative structure. It gets even worse if they come in from creative industries. It's quite surprising. Some like to force people into a three-act structure. Very contrived. Now you feel bad, but then you'll feel good later. It works for digital games. But if you're in front of a person and attempt to enforce certain expectations on the gameplay, then the person's engagement drops. That's the same for learning games.

Once engagement disappears, and when you realise there's no link between your action and the outcome, there's no link between your learning, your feelings, and whatever is put in front of you… then the buy-in drops from the teacher and from the student. You are left with a poor overall experience. We've observed that happening in workshop sessions. Someone comes in and the instructor doesn't put himself into the perspective of the teachers. Then you can see a subtle shift in their faces. They disengage and turn to doing my marking in the background. We've all seen that face before. Teachers are a really tough crowd. When teachers take out their marking, it's very stressful when you're in front of them. And they're a tough crowd because of the demands placed on them. That's why invitation, engagement, and facilitation are very important.

SS: Which goes back to again why it's about interaction design.

CC: Yes. Experience design, direction design. Especially for tabletop games. Ultimately for electronic games, no matter how open the open world is, it's still a railroad. The difference is just how wide the tracks are.

SS: That was the part about *Fallout 4* that I found really frustrating. I kept wanting to create a way to work between the Underground Railroad and the Institute, but the game's structure prevents that from being possible. Admittedly that's pretty farfetched within the narrative, but so much else teeters on that edge of being unbelievable, why not?

CC: You can find the wide walls of design that surround you. It's an open world but essentially it's a design mediated universe which you have no choice but to be an object inside. For tabletop games we get away with being gonzo in our approach. Anything goes on tabletop if you have a game master who is ready to take on all of those. It's more of a dance in tabletop. The difference is that you can improvise a story as you go along rather than having it already coded, with all possible options mapped out.

SS: Well there goes all my cherished illusions about open world games.

CC: And it's also about different skills. We praise video games based on their stories because to some degree video games follow from the format of cinema. People will say that this game has a really gripping narrative, because we are consuming at the same level as a film, a book, or a comic. When people say they really like role playing games because of the stories we can respond that's very nice, but you do know that 50% of that is the writer and another 50% is what the players came up with as a response to that? It requires metaphors of creativity and ownership of creativity. In a Triple-A video game, the director is very important. They come up with that vision for how you are going to move. In a roleplaying game, that vision is useful but also not as useful as a collaborative aspect. A lot of what works in role playing games is being okay with your vision not coming to pass. There are many game masters who have a great number of players for the first one to two years of their career… but then it drops off because their stories are always the same. It goes back to designing the interaction based on where the participants are. Ultimately tabletop roleplaying games have a lot more collaborative emphatic co-working opportunities than digital games.

SS: Perhaps as a way to wrap up, are there any key values or concepts that you work with that you'd like to bring out that haven't come up yet?

CC: Co-creation was a big one for us. The idea of co-creation, the idea of artisanal games that we make. Let's say we get clients come wanting to start a conversation about advertising campaigns and designer houses. Every industry has its work practices. The way advertising new homes has them as well. There are creatives and people at the back thinking about text. There are norms about what works well, and what doesn't. In other words, there are a lot of craft specifics there. For us, for designing artisanal games, the craft perspectives come from interplay and interaction. Different disciplines can bring about different foci. And bring about different approaches. For us, the degree of intimacy in the situation is art as well. If you weren't there at this playing, but you were there for another, things will be different and that is okay.

There is a range of acceptable experiences. We want people to have a positive experience. But we don't expect that all players need to come away with a particular experience, otherwise it's a failure. This is a dividing from other game houses. We align ourselves with the understanding that it's okay to have different takeaways. We've been to game design talks where people come in and they talk about Skinner boxes. They talk about how you use game items and game cursors and debugs to manipulate characters or people. For us, there's something inside that rises up instinctively against that kind of approach.

In our approach, we've drawn from art history and culture in Singapore. There's a quote from the playwright Kuo Pao Kun where he says "with the great systems everywhere and people becoming gadgets in these systems, there is actually an innate need for people to find themselves" (2001, p. 110). And for Kuo Pao Kun that's the role of art, that it has the power to make us not so much part of the system as ourselves again. We can make new systems to make sense of things. For us that was always an inspiration, the idea that 'let's not fall into other people's systems but make new systems that don't dehumanise people.'

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Challenges of the independent cultural economy in Singapore: A masterclass with Juliana Lim and Kenny Leck

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Abstract

Surviving as a cultural or artistic worker in the city has never been easy. Creative workers find themselves celebrated as engines of economic growth, economic recovery and urban revitalisation even as the conditions for our continued survival becomes more precarious. How can you make a living today in such a situation? That is, how to hold together the demands of paying the rent and bills while managing all the tasks necessary to support one's practice? How to manage the tensions between creating spaces for creativity and imagination while working through the constraints posed by economic conditions? In a more traditional workplace, it is generally easy to distinguish between those who planned and managed the labour process and those who were involved in its executions: between the managers and the managed. For creative workers, these distinctions become increasingly hard to make. Today, the passionate and self-motivated labour of the artisan increasingly becomes the model for a self-disciplining, self-managed labour force that works harder, longer, and often for less pay precisely because of its attachment to some degree of personal fulfilment in forms of engaging work. In September 2019, the first University of Essex and Kaplan Singapore Masterclass was held, featuring presentations by long-time cultural policy worker Juliana Lim and BooksActually owner and co-founder Kenny Leck, which explored these issues and more. The master class investigated how cultural workers in the modern metropolis manage these competing tensions and demands. This is an edited transcript of that seminar.

Stevphen Shukaitis (SS): Can you tell me about how your career developed and experiences you've had with the arts and creative economy?

Juliana Lim (JL): I'm Juliana and I'm 69 years old. I worked for 40 years, from 1973 to 2013, during which I was a public servant. I began my career as a senior civil servant, making policies for aviation, metrology, telecommunications. As young officers you're sent around to different ministries to experience the different sectors. But after about seven years in the Ministries of Education, Communications, National Development, I ended up with the People's Association in 1979 where I managed the cultural troupe. The PA cultural troupe was started in the mid-sixties as a post-independence strategy promote social cohesion and to enhance the quality of life for Singaporeans, especially the heartlanders. These artists were the earliest full-time professional artists in Singapore.

There were eight sections – a military band, bagpipers, a contemporary dance group, a Chinese orchestra. Then, there were part-time groups – Indian drama, Malay dance, Chinese drama and a children's choir. My job was to stage events around the year in the heartlands – road shows, Christmas rhapsody, Chingay Parade, the lantern festival. That's when I began to 'play' stage director, costume designer! I was very 'interfering' once I got bitten by the bug. I was posted next to the Ministry of Culture, I then dug my heels into arts management and chose to stay in the arts sector for the next sixteen years. I declined postings to other more important ministries, such as the Ministry of Finance. I think my career suffered from foregoing all the high-profile postings. I chose to stay in the arts.

Figure 1: Juliana Lim.

I really believed in what I was doing and eventually ended up as the General Manager of the Singapore Arts Centre Company which was founded in 1992, to develop the Esplanade Theatres. I spent a total of 12 years developing it, from 1986, with the first user brief, appointing the first theatre consultant, the first cabinet paper, until the ground breaking in 1997. Thereafter, I crossed into Singapore Pools, one of two funders for the Esplanade project. There I was lucky to land in the community funding portfolio. I did all the nice things. My colleagues earned the money through gaming while I managed the distribution of the profits to sports, charity, community, and the arts. A lot of my career was spent making grants for artists, for sports, and for charities. That was a sum total of my experiences. From those experiences I honed my knowledge of how, when you're giving money, what thoughts go through your mind. How do you negotiate with your applicant to create a win-win situation? I retired in 2013 when my first granddaughter was born, so I could travel more freely to see her. I have volunteered in the arts from the time I joined Singapore Pools in 1997 and continue to do so. I became President of the Richard Wagner Association (Singapore) from 2014-18 and in October 2016, we produced *The Flying Dutchman*. It is Wagner's opera, a beautiful opera and it was fully staged. I also volunteered elsewhere, here and there. That's the sum total of my career and what I'm currently doing.

Kenny Leck (KL): I'm Kenny. I'm slightly younger. I went from founding and running a bookstore, and from there it was a natural progression to go into publishing. It's always been part of my upbringing. And parts of it also – I guess I can't use the word desperation – but things fell into place where I could start. The only real official cert that I have is actually O' Level cert because I dropped out from the poly. Technically in terms of what our education system is or the society is, a person of this educational attainment shouldn't be running a bookstore and be running a publishing arm. But for me, it was a natural progression. By luck things fell into place. My folks encouraged me to read. They were okay with me buying books. They brought me to libraries. Everything came as one. And before National Service, I started working at a bookstore and after National Service, I ended up working at another bookstore. And so that fell into place. At some point in time you realise 'hey, why let a retail chain make the money when you could probably make the money yourself?' I stumbled into it. Literally the next day, two and a half years later, I started BooksActually. And less than six or seven months down the road, we actually had a bookstore. And we are still stumbling our way through fourteen years later.

The publishing was also born out of stumbling through. We didn't expect to want to do publishing. We realised that there were a lot of manuscripts out there. There were quite a number of writers that have been writing but their manuscripts has no place to go to. And we knew them as friends through the bookstore. We would stock up the books that were either self-published or by another publisher. At a point in time, we realised that 'hey, why not we try our hand at it?' Now there's no turning back, fortunately.

Figure 2: Kenny Leck

SS: There's something quite interesting about that stumbling through. You can see that as well, for instance, when you look at the rise of independent record labels in the UK during the 80s. These were labels that basically came out of nowhere, but then ended up putting out music by bands who became super influential, bands that became huge. But the interesting thing about these indie labels is they were run by people who didn't have training in management, didn't have training or a background in the existing recording industry structure, but they had crazy dreams and said 'I want to do this.' And then they did it and it worked, probably through a lot of sweat, tears and frustration. Maybe aiming for more than you're qualified for but aspire to is not such a bad strategy after all. That sounds like stumbling as well, but stumbling that led to great success.

Thinking about those kinds of shifts in arts and culture, how would you say the setting for arts and culture in Singapore has evolved over the years? Juliana made reference to producing events for heartlanders which is a very specific term or category in Singapore that I'm not totally clear on, but which seems to be quite important. Can you describe how things have changed over the past fifteen to twenty years?

JL: Actually it hasn't changed.

KL: Art is for everyone.

JL: Basically, there's the idea of arts for art's sake. What does that mean? You watch it simply because you love it. When I watch opera, I get goose bumps. But truth be told, there are many agendas for art promotion. When Singapore was a new nation, in 1965 – even 1958, when we became independent from the British – arts was a means to promote social cohesion. You would stage Malay dance, Indian dance, and Chinese dance, to create mutual understanding, to create social cohesion. And you have arts events to make people's lives better because you were living in a kampong, or in a very small flat. Basically, if you go to see a show, it makes your life more enjoyable.

The purpose of the People's Association, as I experienced it, was to go out there and entertain the public. And today it's the same thing. There's no change. More money is poured into arts plus. Arts plus refers to arts for the community which doesn't always equate to the pursuit of arts for excellence, although it should. A lot of money is poured into arts in Community Clubs (CCs), art in the parks, because it's about making life more enjoyable for people. It hasn't changed. It justifies government funding for the arts but it is double-edged because then arts that are more difficult to access, don't get much money because they say it's only for the elite. It's not so simple or straightforward.

SS: What's been your experience, Kenny? The general impression of your work is that you've been one of those people who have been responsible for putting Singaporean literature more in public view than it was previously.

KL: For us it's literary arts. But the bookstore and it's this lifespan, it has always been a confluence of the fairest discipline of arts. Earlier before the session started, we were talking about The Observatory, which is a local band. They actually performed at the bookstore for us, an acoustic session. Running a bookstore, we are at the crossroads where we've gotten the meet the musicians. There's a visual arts artist called Speak Cryptic. He's a close friend of ours from way back. He did the wall mural art for us outside the bookstore. When we got the chance to connect up with artists from different disciplines, it gave us, the people who are running the bookstore, small little peeps at what they are practicing and what are probably their needs, their wants, and their difficulties. Subconsciously, it impacts the way we put together our programmes, the things that we publish, even up to how certain decisions are made. That's helped a lot. We know that different artists appeal to different demographics. If you're talking about The Observatory's music, you are going to appeal to a narrow segment of people. But if you're talking about, say, a wall mural painting like Speak Cryptic, it appeals to anybody and everybody because it's very accessible. And I think, to me, that's what art is. It's for everybody, if possible. No matter how esoteric or narrow-scope, that's what arts I think is about. It's about discovery. You might not know that you like it at first, but who knows, after coming into contact two or three times?

JL: Growing on you.

KL: Yes. Take your first impression of western opera. One thing is that it's very high brow, but who knows? It's still an art form and technically, it's an art form that could be enjoyed by anybody and everybody. And it doesn't matter what background you are from in that sense. Whether, let's say, someone who is from a lower income background, would they have the chance to enjoy it? And if, let's say, arts funding is bringing that particular production to the heartlands.

Figure 3: BooksActually.

JL: That's a good point. I was just thinking, it's double-edged. The tendency for people to think is that arts for the general public can be of a lower quality than arts in the theatre. I'm against that. I think we should give everybody quality. The trick for artists is how to make what is esoteric accessible. Wagner operas have never been produced in Singapore. There have been orchestral concerts, but never an opera. If you mention Wagner, people think of his fascist connections. Our challenge was to make *The Flying Dutchman* accessible. This opera runs two and a half hours straight. There's no interval! Our way was to introduce puppetry. The overture is about ten minutes long. Traditionally, the curtains are closed during the overture. In our version, the curtains were open and through *wayang kulit*, Indonesian shadow puppetry, we were able to enact the back story of the Dutchman, that he made a pact with the devil that until he sailed around the Cape of Good Hope, he would not die. The whole stormy scene was all enacted through puppetry[1]. The audience, even first time opera goers, remarked that the overture whizzed by, that they didn't feel its length. The challenge is to give the larger community high-quality art, as high as in the theatre but make it accessible. That to me is the trick.

As to whether opera is elitist, I was in Korea in 2015 to watch *The Flying Dutchman*. We went around to see who else did what and how they did it. The day after, the hotel hailed a taxi to fetch us to the airport. The driver asked me "Madam, were you here for business?" I said "No, I was here for opera." The driver asked "Did you see Faust last night?" "No," I replied, "I came to see Wagner." Then, he said proudly, "My wife sings Violeta in La Traviata." It wasn't the kind of conversation you'd expect to have with a taxi driver. And all through the journey to the airport, he kept switching radio channels. "Here you are, Madam, Wagner. Here you are, Beethoven." This was a Korean taxi driver! Who says opera is for the elite? It's for everyone. It's just getting over the hump. The producer has to do his part or her part to make it accessible. That's what we're here for. Not to make it secretive and mysterious and esoteric so we feel that we're special. It's to make it accessible because everyone deserves to enjoy it. That to me is the thing.

SS: Isn't there a difference between making something accessible and thinking that every piece has to speak to everyone?

JL: The attempt has to be made by the arts manager to create the production, to give the audience a choice. Turn the stone over and see whether you like it. If you don't, it's alright. It doesn't matter, there's always something else. But give them a chance to turn the stone over, to check it out. Otherwise you don't deserve the arts funding. Arts funding is for making artistic choices available to the public, not for your own private enjoyment. That to me, for me, is the mission. I feel strongly about this.

SS: In some ways you and Kenny occupy slightly different positions in the ecology of arts production, whether you're directly making or publishing versus creating infrastructure that supports the arts. Would that be a fair characterisation?

JL: Yes. I think Kenny is the artist whom, if I was still in Arts Ministry, I would make it my job to enable him to succeed.

KL: The bookstore has been around for fourteen years. We started publishing around the midpoint, around our seventh year. But at the beginning, after a year and a half, I had met a publisher. He is dormant now in his publishing, but he was a very good publisher and a very good editor. These days, within the literary arts scene, I always say that there's three main publishers: ourselves, Epigram Books, and Ethos. If you're to put these three editors – our brains – together, we can't beat him. In that sense, he was that good as a publisher in terms of supporting Singaporean authors. It might be that their voice was still very raw but he could edit their works to make them better. What I learned most from him back then was nothing to do with assessments or business, but purely those things that matter in literary arts, fiction, poetry, prose, novels, and so forth. Most of the publishers do tend to rely on the arts funding, the grants system.

My lesson with that publisher was that if I decide to start publishing, he said to not take arts funding. For him there were two factors behind that. One obviously was the term itself, censorship. When you take funding, it's not just a government thing. If you want to take funding from anybody, there's always strings attached, limits to what you can do. That's what funding is about. It's about giving that money and then making sure that money is used for the benefit of as many people as possible. My takeaway from this publisher, and this was the biggest takeaway, is that arts funding is a crutch. And what I've seen in the last fourteen years, to a certain extent, it has become a crutch. On first view, it's a crutch that's provided by the government, but when you go deeper, the crutch is actually very much embraced by the artist themselves, by the publishers.

[1] For a video of this, see https://www.youtube.com/watch?v=acsnDmPVGic

I've seen works that got rejected by another publisher because the grant was rejected, and suddenly that author has nowhere to go. And the reason why the grant wasn't given wasn't due to content. It was because the publisher had taken a certain amount of grant over that one year. There's always a certain amount capped. And suddenly the author is caught in limbo and of course there's not enough publishers in Singapore. And if we say 'no' and the other publisher says 'no', then there goes that book. As we went on, we realised that we'd be on better footing by not taking any grants. And that's what I think we've done since day one when it comes to publishing, where we try our best to do what we can in that sense.

It's very difficult because it consistently puts you in that survival mode. Technically I'm an artist but I'm also super pragmatic. The numbers come first. I have to make sure the numbers don't just balance. They cannot put us in a riff. And every single thing that I do, the numbers come first. For lack of better word, it's a key performance indicator (KPI). I've got to make sure that that exists in the best optimum way as possible, every single day. And if I don't do that as the base, I can't be an artist. The majority of Singapore artists have to understand that. If you decide that you can't wear that business hat, then have someone wear it for you.

JL: I should respond to this, as I was a grant-maker. I agree with him entirely. As a grant maker, whether I was in the government service or in a private organisation, I'm afraid that there are strings attached, but we tried to negotiate win-win partnerships. There was a time in the past when censorship decisions did not rest with Government arts managers. There was a censorship board that was separate from the arts ministry. And we as arts administrators tried to be the ombudsman. Whenever the censors censored the artist, we tried to find a way out for the artist. Today it is different. Today the arts council also assumes the role of censor. But I think that for me as a grant maker, I'm not censoring, I'm making...

KL: The parameters?

JL: It's how we go about making interests overlap. That means all parties – funder, producer, and audience – win. I'll give an example in Singapore Pools. We used ideas from the management guru Michael Porter. He talks about shared values. It's where you do a deal and both sides win. Nespresso and Vodafone were held up as examples of this model. Vodafone is a cell phone company. Vodafone created a very simple phone to enable the farmers in Africa to monitor the weather conditions, because you need to know the weather conditions for your crops to thrive. They sold simple phones and then farmers received the knowledge they needed. Now that's win-win, right? There's no censorship. It's two parties coming together to do something which both of them actually benefit from.

I was in Singapore Pools. That was my job. I had this wonderful job of just creating schemes where I could match up interest of the company as sponsor, the applicant, and the people whom they existed to serve. We even went to the extent of doing deals for them with other parties. We used our strengths to bargain on their behalf with other parties. That's what I mean. But of course, they have to carry the sponsor's logo. There was the condition though we dispensed with this in certain circumstances. We had to justify giving you the money. But we don't take away from you. We enhance what you have. And the partnership enhances the company's image. That's what's I think we should look at doing.

And it's all about finding creative solutions. I'm often approached to help fundraising. I'm a volunteer. I don't make a single cent from anything I do. But the calls I get from artists, whether it's orchestra, opera singers, theatres, or bands. The main issue is about how to raise funds. It's all about branding. What is your brand? What do you represent? Go find an advertiser that fits you so you can represent them. You become their face because your personalities overlap. That's a win-win. The product needs to advertise. It needs a face for that advertisement. You become its face. Go find companies and products that overlap with your personality, your audience, and your interests. That's how I would do it. As for censorship, I'm afraid, when it comes to religious harmony, I think there's a case for it. It's a question of how far to go. I would wish grant makers to think along these lines! of looking for and enriching both sides, not just one side.

KL: We see the grants internally for ourselves in our own experience. It could become a crutch in that sense because once the grant has been lowered or it has been dispersed to more people, then of course you might not get funding for your particular work. Then you get skipped over and then you'll feel the pinch. You'll feel that you can't practice your art. Going back to the Singapore arts scene: we are the most well-funded in terms of grants. In the grant system, we have the largest amount of money that's given to an artist. You'll be hard pressed to find better in cities like London or Paris, at least speaking about literary arts.

Figure 4: BooksActually's cat.

We have this thing called the Arts Creation Fund. It's intended for already established artists, those with an established track record. You put in this grant proposal to say that you need to work on a work for at least twelve months. And you know you'll work full time as an artist painting, or composing music, and so forth. If you do that, take a year off, then what about your daily expenditure and your monthly expenditure? You let the government know what is your monthly estimated expenditure, whether you're paying a mortgage or your livelihood expenses. You have your receipts to back you up. They will issue out a stipend to you. You get a grant for a full year and then you can do what you do as an artist.

I'll give you an example on when this didn't work so well. It was with a novelist. He's one of the nicest people I've met. He has been awarded the creation grant twice. If this was bitching online, you would say that he has lived off taxpayers for twenty-four months. But at the third round, when he tried to apply for it again, he got denied. And he was quite bitter about it. He went online to talk about it. It reached to the point where someone from National Arts Council (NAC) needed to have a sit down and talk with him and explain to him why he didn't get it.

I talked to him and said 'do not be so entitled. I support you as a writer. As an artist I think you are a very nice person. You might be unhappy.' The way he posted it publicly was that 'now that I've been denied this grant, I can't produce this novel as an artist, so we are now poorer for it.' I told him to not act in such an entitled way because what about the other novelists in all the other part of the world? Those that do not get a grant, they still produce a book. And that could be a very isolated incident, but it points towards a broader difficulty. The grant system works, to a certain extent. In theory it works, but I think, it's the people who are using it that are not using it in a way that is conducive for arts at the moment.

Let's say, as an organisation, I take a major grant. A major grant lasts you from three to five years. And if I take it after my sixth and seventh year, by right I should be weaned off it. I should have been profitable. I should be sustainable. I should be able to exit from a major grant and then do things on my own, whether annual fundraising through a gala dinner or other means. But more often than not in the literary arts, it doesn't exist at all. Nobody has exited it yet. At the moment, when the funding gets lowered, gets turned off, then you hear that noise when that happens. I think it has to go both ways. I mean, yes, there are moments when of course, even though we don't take grants for publishing, we also work very closely with the National Arts Council.

I sit on a committee for Buy Sing Lit that has been running for three years. And we do have that communication almost on a weekly basis on what is going on in literary arts. And more often than not, you realise that person on the opposite side is just doing his or her job. They are just doing their job and you are doing your job. And I think for me, it's how can both sides again meet at a certain point and figure it out, find a solution together.

JL: Did you know that when Singapore first began to industrialise they had a thing called pioneer status. The companies from abroad investing money here to start a factory would get a thing called pioneer status for five to ten years where they get tax breaks and low cost land. When I was developing artist assistance programs in the 1980s I tried to develop them to be multi-demensional in my approach. That means we give them space, both for performance abd rehearsals, the annual grant for a sense of financial security, plus help with the administration. Pioneer status, after about five to ten years, would be withdrawn because the expectation is the company would then have taken off, made some profits and built a surplus. Now I wonder whether that model was fully applicable to the arts. or whether we had not used it properly? I don't know.

I thought at the time that it could happen. I always tell art companies to develop different business centres. You've got the production arm which would always lose money. You've got the education arm and that can be a cash cow. All the schools have funds for theatre in education programmes. For a while when it began, I heard that we were short of suppliers. And there are many quacks out there, people who are just event managers out there delivering arts programmes. I keep telling my artist friends, why don't you tap that market? Money is flowing, there's a demand and not enough supply. Why won't you make that your cash cow? Engage qualified staff to run the outreach programme in the schools and that revenue will then pay for your productions.

You've got to have some kind of a business development plan. That this part is where I'll lose money. With production you'll always lose money. There's no two ways about it. And then there's the other arm, the theatre, in the education arm, which is a cash cow. Because the schools need programmes. You need to develop simple syllabus to talk about composers! Artists and arts groups have to find that balance. That's how I think you can survive. You run classes, you teach this and that. You need to have a revenue stream to support your productions.

SS: There's a funny story about the composer Philip Glass. When he was just starting out he had a side gig of installing dishwashers. One day he's installing a dishwasher in someone's house who ends up being the *New York Times* art critic. And while he's working, the art critic recognises and asks him what's he doing there, to which is response is 'I'm installing your dishwasher, please leave me alone so I can finish doing that.'

Figure 5: Group photo from the Essex-Kaplan masterclass.

JL: Well that's how to survive. Some artists are married to wealthy spouses. Their spouses are their cash cows but even then there's a limit to what they do. Other artists keep jobs with steady incomes. And now I have to confess. All my career, I've been preaching that to be professional, you must practise full-time. Now, I say don't go full-time. Do a job that earns you a steady income to protect the integrity of the arts you believe in. Because if you're a full-time artist and you've got to turn out lots of paintings to make your living, you will become a factory. I've seen it happen. You may be the best of artists. Some very well-known ones, they found that something was saleable and started to reproduce. It's just different colour, one boat less, one flower more. They undermined their reputation. So, protect your art by doing another job that earns you a steady income. You don't have to be rich but preserve your integrity as an artist. That's what I tell all my artist friends now. Don't go full-time.

SS: You were taking about the importance of artists understanding the aspects of business, which is important because if you don't, then you're going to end up being disciplined by not understanding it. Perhaps the flipside of the question is for people who are studying accounting, business, and management: what would you say to someone who is coming from that side of the world about how to approach questions in art management and funding in careers? What would you say to people who aren't in the arts but have a removed relationship to them?

KL: It's good to have accounting knowledge. When I was in poly, I was an accounting and taxation student. I was there for two years. That knowledge is useful. These days when everything is outsourced, the accountant does it. Then they'll come back to you with a report. And I remember, the first few years, the accountant was surprised that I understood the numbers. And I studied taxation, which allows you to know how to reduce your tax bill at the end of the day. Everything comes together. Whatever you're studying now and whatever you decide to do later, whether to work in a bank or eventually in an arts organisation, everything downscales at some point in time that the things that you learn, that knowledge doesn't go to waste.

JL: People in finance are very important because you help artists to be prudent, to get value for money. Basically, you help the artist to manage their limited resources. But all I ask is that you learn to love the arts. Then when you assist them, you have more empathy for them. Because sometimes, benefits are intangible. Beauty is intangible. If you try to be too hardnosed about it, you might actually destroy a lot of things.

KL: Artists have temperaments. When I deal with authors, some will say 'are you sure this manuscript, if you publish it, it can sell?' I tell them 'your job is to write, my job is to help you sell.' My job is to brand you and then brand the book and then help it sell. If it doesn't sell then there's a lot of other factors at play. Maybe your manuscript is just really that bad, but we just happened to publish it. Or that particular time, that novel, that short story is just not well received. There are different factors. But your job should be to write it and my job should be selling it. You shouldn't be worried about whether it sells or not. You should be more worried if it sells really well. Am I going to be big enough to help you make it into a best seller?

JL: Let me offer one more suggestion. I may become very unpopular with the institutions teaching arts management as these days I tell arts management students to find jobs in other sectors. I tell them to not fret if they can't find good jobs in the arts sector. Why? I'll tell you why. Armed with my arts management background, when I joined Singapore Pools, I could influence who they engaged to design their publicity collaterals. I could influence who they engaged to perform at their annual Dinner and Dances. They usually engaged pop artists. I brought in opera singers. I was in a position to try to re-shape the taste and aesthetics and I did it to the best of my ability. To be truthful, some of my colleagues were resistant, said 'you arty-farty person, you don't understand the taste of our customers.' I didn't really but I tried and succeeded to some extent. So if you are arts management trained and you join a corporate organisations, or whatever, you can import your network of artists and influence who they engage to do the collaterals and whole host of other things. You become an arts evangelist. You're going out into the non-art sectors to influence their taste. And you'll create jobs for artists. If I need gifts for overseas visitors, I go buy Kenny's books or I go to the museum and buy something designed by an artist. You may face some nonbelievers but you've just got to persist!

SS: What you're saying is if you put yourself out of your comfort zone, you might end up somewhere more interesting, somewhere more productive? You wouldn't have thought to go there to begin with, but in the end you can do more.

JL: Yes. Actually, you are more useful. I realise that the colleges justify their Arts Management courses by talking about demand in the arts sector, but we need arts managers, too, in the non-arts sectors. But I really think more jobs for artists will be created, if the arts managers permeate non-arts organisations. And you people on the finance side, please don't ask why it costs so much more. Because they are artists, they are not run-of-the-mill designers.

When I meet young arts managers, I tell them they don't have to work in the arts. Go work in corporate organisations where you can actually shape the taste of the man in the street. You know how many CEOs can be so high-powered but have poor taste? If you go and see what art they hang on the wall, many have under-developed taste. In Singapore Pools, I faced my colleagues who called me arty-farty and they got upset with me for trying to influence marketing collaterals. You will face some nonbelievers, but you've just got to persist because otherwise you can't do anything useful.

SS: You can stumble into things, or stumble through thing, that you wouldn't have anticipated. What Juliana is saying reminds me of the ideas of the Artist Placement Group, who worked in the UK mainly during the 1960s and 1970s. One of their key ideas was that 'context is half the work.' In other words, the space where they developed their craft was just as important as what they did. They developed this approach by finding ways to place artists working

Figure 6: Stevphen Shukaitis and Benediktas Spinoza.

in corporations and government departments. Their practice became to use their artistic skills and influence and change those environments. But trying to bring those skills and abilities to other spaces, whether corporate or government, has its own challenges, especially if it goes against their existing patterns and practices of working.

KL: That creates a challenge for someone applying to work in those places with an 'unorthodox' set of skills. I don't think immediately when they look at your resume they would just strike you off. It's actually the entire current environment of this not willing to see further. You can have an applicant who comes from fashion management background and is going to apply for PR, but the people who are doing the assessment now, maybe they don't see the fact that there might be potential for you to see other solutions in doing PR. Unfortunately, it is the nature of the working environment that we are not geared towards moving out of our comfort zone.

Now I've been running BooksActually for fourteen years. During that time I've had many conversations with friends and acquaintances. At the bookstore we will always encounter people who have thought of running a bookstore, but just never got around doing it. I've a circle of friends and acquaintances who decide that they want to run their own business. Either they're too jaded by corporate life, or they just want to take a leap. And the first thing I ask them, 'will you choose to run a bookstore or run a cafe or something that you really want?' There are instances where someone just wants to make the leap, but has no idea what they want to do. And then they tell you, 'I always thought of running a bookstore but I'm going to open a cafe or a cake shop instead.' And I ask why. They say because the bookstore is a stunted industry and bookstores are closing down. And I tell them 'maybe you want to look at the numbers from the Ministry of Trade Industry.' How many F&B businesses open in a year? Around 300-odd and another 200-odd close in a year. And the bookstore, I've run for 14 years and we've been in the black since our fourth year onwards.

It's that willingness to really step out of your comfort zone. That if you want to be an entrepreneur, nobody is going to stop you to be the next Amazon. Nothing is going to stop you, unless it is yourself. Unfortunately, there are a lot of environmental factors at work and we're not able to look past a lot of things. We might be teaching. If you're talking about twenty years ago, when I wanted to study visual communication for graphic design, there were only so few courses available and so few schools that were offering it. And now it's vastly different. But would a bank ever think of hiring a very good graphic designer, even an award-winning graphic designer, to help do their branding? Nothing to do with design but literary communications. I think maybe I would because that person comes in with a different skill sets, different perspectives and it's that different perspective that results in different possibilities. And I think that you folks who are here, are going to be the ones that are going to offer these possibilities for someone younger, five, ten years down the road.

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The game plan: Using gamification strategies to engage learners as active players

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Abstract

The modern learner is a different and unique individual. Impatient, fast-acting and competitive, learners today are hungry and passionate, but also demand a more interactive approach to education. A Talent LMS survey showed that over 80% of learners wished their learning journeys were more interactive (Apostolopoulos, 2019). This article on gamification focuses on the strategic use of game mechanics and features to enhance learning capabilities and retention rates of learners, with references to modern game and real-world examples.

Techniques and tips on evolving workplace learning practices and growing an ecosystem of self-directed learning are described. Additionally, this paper explores the rise of the gig economy and new generation professionals, harnessing gamification as an effective tool to allow individuals to develop and build their skill sets and strengths. Pick up useful strategies on crafting a personal learning profile, and how we can evolve as learners though gamification! Game on!

Introduction

The Training and Adult Education industry in Singapore has always been viewed with utmost importance by the Singaporean government, in light of the government's conviction that Singaporeans must "keep pace with the changing skill needs of the fast-evolving economy (Yang, 2016). With the formation of SkillsFuture in 2016, over 10,000 courses have been made available to local Singaporeans to encourage them to upgrade their skills and acquire new ones (Loh, 2016).

As the numbers of adult learners grow, ways to effectively engage them must evolve and develop concurrently with their skill and mindsets. A transition from passive learning to active learning is key in helping individuals develop into lifelong learners (Krohn, Halverson, & Monogue, 2017), and we start to usher in "The End of the Audience, and the Dawn of the Player" (Zichermann, 2014). This paper will aim to examine the recent trends in Adult Learning, and how the use of Gamification as an engagement strategy can change the way we develop our people.

Defining the Adult Learner

Adult learners are typically defined as a diverse group of learners who are at least 25 years old and above, typically holding full-time or part-time employment, and are driven towards personal, skill or social development (Defining Adult Learners, n.d.). Several key characteristics of adult learners have been corroborated and agreed upon within field research (Kunci, n.d.; Knowles, 1980; Falasca, 2011; Bryson, 2013):

- Adult learners are more autonomous, and want to take charge of their own learning process;
- adult learners draw heavily from an increased personal and occupational experience in their learning process; and
- adult learners seek pragmatism and relevance in their pursuit of higher learning.

It is also noted that while learners may apply for the same programme or course, or wish to attain the same skill set, their motivations and goals behind the attainment of the same skills could be drastically different based on their work experiences and functions (Vella, 2002).

Barriers to Adult Learning

Falasca (2011) notes that adults face a typically different set of barriers pertaining to learning and development, categorised into external (factors beyond their control, such as responsibilities and physical ageing) and internal barriers (factors within their control, such as reluctance to change and negative perceptions about being an adult student). Amidst the respective barriers, it is noted that learners of all ages can learn and succeed at learning if they are afforded the right "opportunity, assistance and support" (p. 587). Bryson (2013) and Valentino (2014) posit also that core barriers to many adult learners today include the following:

- Fear of change;
- preference of passive over active learning styles; and

- social anxieties and fear of inadequacies against younger students.

Based on the above, creating the right tools and mechanisms for sustained engagement and delivering a personalised experience for adult learners can prove to be more challenging than that of youth or full-time students. With a myriad different motivations and different core objectives among the same group of adult learners studying the same course, planning for a one-size-fits-all course curriculum or learning style might prove to be a) alienating to some course participants, or b) too generic in nature. This paper aims to create new engagement strategies for adult learners through breaking down the existing barriers listed, and by expounding on the natural characteristics of adult learners.

Gamification: An introduction to game-based theory and thinking

The term "gamification" was first coined in 2002 by Nick Pelling (Yip, 2015). Contrary to popular belief, gamification does not simply refer to the process of creating a game. The principles of gamification adhere to the process of extracting game mechanics, theories and principles, and applying them into non-game settings, such as workflow processes and human engagement. Why games? Yu-Kai Cho, founder of the Octalysis framework on Gamification, defines the process of gamification as being "Human-focused Design"; gamification takes into account what users want, feel, and experience as they perform tasks or make decisions, and constantly adjusts or tweaks processes to achieve an optimal user experience. This is contrasted with a "Function-focused Design", that focuses on optimising efficiency within a system (Chou, 2014). Essentially, gamification is the study and practice of maximising human motivations through enhancing engagement experiences within a system or a process.

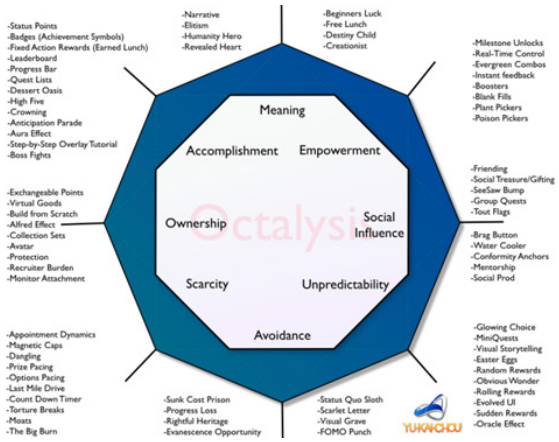

Figure 1: The Octalysis Framework (Chou, 2014).

The Octalysis Framework in Figure 1 is a demonstration of how gamification is used to attain several core psychological drives: Empowering individuals, creating meaning and purpose, a sense of ownership and accomplishment are just some examples of what gamification strategies can be employed to achieve in learners.

The primary purpose of a game is to entertain the players through sustained and increased engagement strategies. Games often require players to perform repetitive tasks, challenge their personal competency levels, and venture out of their comfort zone to learn new skills and discover new concepts. These are traits highly prized in learners; how do we elicit the same responses from adult students in their learning capabilities?

Gamification and its relationship with learning

Because games build such a natural and strong relationship with people, it's easy to see how game elements and techniques have transited into being a tool for education and learning. Digital and mobile applications such as Duolingo, Khan Academy and Udemy all employ gamification techniques in new and refreshing ways to encourage and drive learning new skills (Chou, 2014). Duolingo, for example, offers a step-by-step process for users to learn new languages, and allows the user to complete quests, clear levels, and challenge friends to master new languages. It is this sense of in-game accomplishment, community and ownership over one's own language acquisition that has led Duolingo to gain over 120 million downloads, with 25 million monthly users and 19 languages learnt the world over (Pajak, 2016; Smith, 2018).

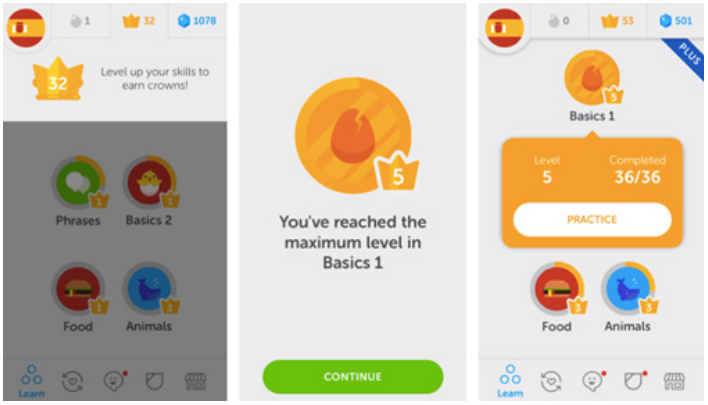

Figure 2: Duolingo gamification features – levelling up and completion trackers.

Gamification in the Classroom

Gamified concepts of information and human interaction has a natural affinity with education and learning bodies, especially among younger audiences, such as youths and undergraduate students. By adding in game-elements such as competitive points systems, ranks and tiers, as well as 'mission objectives', educators were able to create new motivations and drives in their students, and enable them to perform above their previous capabilities. In the case of MathLand, a game-like environment and approach to the classroom resulted in a highly participative student base, and significant increases in punctuality and subject interest (Palmer-Scott, 2017). In Singapore, an undergraduate module converted into the science-fiction themed "JFDI Academy" saw a steep rise in student motivation, and a more fluid follow-up in reinforcing lecture points (Leong, Koh, & Razeen, 2011).

Gamified learning strategies, however, must be tactfully and carefully implemented regarding adult learners. In a study conducted by Buckley, Doyle, and Doyle (2017), results showed that while a gamified approach was novel and interesting to adult learners, they also reported feeling

frustrated at the rigidity of inflexible learning schedules, a repugnance towards in-game competition, and that elements in the game were not direct enough to meet their needs. How then do we find a middle ground?

Proposed Gamification Elements

We start by recognising the key characteristics of adult learners. Key concerns of time, schedule, and capacity are prevalent, as well as an increased scepticism in new methodologies or technology in the learning process. However, it is also noted that adult learners value relevancy, autonomy and efficiency as core components of a good learning experience. It is extremely difficult for individual gamification components to succeed on their own; in most successful gamification case studies, the experience is built by curating together a list of supporting gamified learning mechanics into a cohesive whole (McGonigal, 2011). With this, the following Game Elements are presented, as new ways of enhancing the experience among adult learners.

1. Narrative-Building Through Tribalised Learning Communities

A common feature of many games is to design a narrative among groups or communities that players align themselves to. In World of Warcraft, a Massively Multiplayer Online Role-Playing Game (MMORPG), for example, players choose their Faction (Horde or Alliance), and then choose their Race, and then their Character Class, even before they start playing the game. This indicates three or four different layers of ethos that a player subscribes to before they even commence with gameplay. Because of this function, the gameplay and storyline is tailored to suit the characters that they decide to play, and influence the communities that they associate themselves with within the game.

Figure 3: In the game World of Warcraft, players make multiple layers of choice and tribe-alignment during character creation.

Let us apply this to adult learning journeys. "No matter how good a lesson is from a content aspect, students will resist absorbing the material unless it engages them by connecting with their prior experiences and future goals" (Lee, 2015, p. 2). Placing an emphasis on the organic emergence of micro-communities and participant tribes allows for participants to align their objectives with like-minded fellow participants with similar mindsets and a common ethos that binds them. This, in turn, provides a great encouragement for members within each group to pool and share resources and information, as well as builds a self-sustaining community of practice (Traum, 2018; Šimko, 2014). This provides ownership, meaning and empowerment, several core drives within Chou's Octalysis Framework.

Example of micro-communities at play

Let's use the example of a course on Financial Investment. Within the course, two key groups are likely to emerge:

1) Learners who are more passive and risk averse. These could be 'farmers': individuals with families to support, or more financial commitments, who are simply looking for useful tips to grow their money safely and comfortably; and
2) learners who are more aggressive and risk-taking. These could be 'hunters': individuals with little to no financial baggage who are looking to maximise their returns, with potentially more high-risk manoeuvres.

Each learner group will take control of their own 'destiny' and can decide how best to use the course information to apply it in their own way. 'Farmer' and 'hunter' groups will process the course information differently and share different tips and strategies with fellow group members. Through this, learners have the autonomy to decide how best to apply the information attained, based on their respective functions and personalities. Additionally, with the formation of micro-communities, learners allay fears of isolation and adopt a 'group mentality' to overcome a resistance to change and social anxieties, and better process learning objectives and outcomes.

2. Levelling up: Tiered growth and progress

Levelling up is a commonly used mechanic within many games to create sustained engagement within players. The use of different ranks, achievements and a structured hierarchy allows players to visualise their player growth within the game, and triggers a sense of ownership and empowerment within the game. In-game levelling up typically includes the following results:

1) A rise in player 'rank';
2) an increase in in-game currency as reward; and
3) 'unlocking' of new content or benefits.

Figure 4: A level-up in the game "Hay Day" rewards the player with new bonus structures and animals to produce, and additional currency to spend.

Levelling up can be used with adult learning in a variety of different ways. By creating a well-structured levelling up system, learners are constantly driven to achieve the next level by mastering course content. Typically, level progression is easy at the beginning; completing one or two basic tasks allows the participant to progress to the next level. This allows participants to acclimatise to the notion of personal growth, and levelling gets progressively harder as the content grows more complex.

A good level-up system allows learners to take charge of their own learning progress and provide them an autonomy of growth and personal progress (Kapp, Blair, & Mesch, 2013; Glover, 2013). Levelling-up can be tied in with micro-communities; rewarding learners with accelerated level-ups for collaboration and information sharing among groups will help them strengthen their learning journey, and ease into breaking the mould of passive learning and transiting to a more active style of learning and growth.

3. Crafting skill trees: clarity in skill visioning

In games with protracted character and storyline development, players often craft their characters around skill trees. A skill tree tracks the development and growth of a particular attribute or a skill set of a player; for example, if a player puts in more time and effort into upgrading his character's agility, his agility tree grows, and the player is able to unlock new skills or benefits corresponding to his efforts. Skill points are usually hard to come by; a player will not be able to complete all available skill trees, and is thus forced to choose and prioritise the skills he values most to build the character that he wants to develop into. Over the span of many games, a plethora of different types of skill trees have been developed to guide players to build their characters with strategy and thought (Vas, 2013).

Figure 5: A typical skill tree from the game Hawken. Players must choose which tree (offense, defense or movement) to add points to.

Skill trees are an effective display of the respective learning outcomes of a course or platform. Skill trees perform one of two key functions: Serving as a tool for self-assessment and progress tracking, and providing a guideline for individuals to understand how to grow next (Casali, 2017).

Good skill trees also function as a guide of the knowledge journey that a participant must take in order to attain mastery over a particular course component. Skill trees help learners compartmentalise course content into different genres and guides them in strategising how they wish to develop their skill sets.

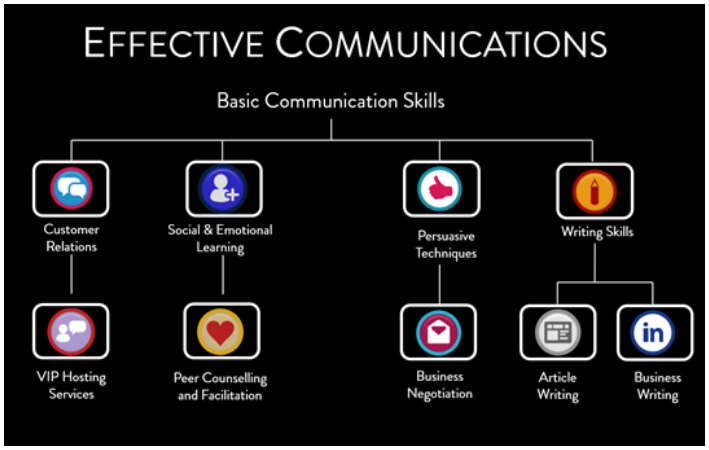

Figure 6: A skill tree demonstrates the expansion and growth of skill components.

Skill trees can ideally be used in helping an employee visualise their Training Needs Analysis within an organisation or company. A 'Communications' skill tree, as shown in Figure 6, displays a list of skills that an employee might wish to gain, and will help the learner identify the relevant route to achieve their training objectives. This provides a better platform for employees to strategise their personal development within the organisation, and better plan for their learning and development needs. Through this, a much closer correlation can be sought between an employee's skill sets and their strategic development within the organisation (Hiermann & Höfferer, 2003). This ultimately leads to a stronger and more efficient staff training roadmap that allows staff members the flexibility and strategy of designing their own growth within a company.

Conclusion

Organisations and companies are increasingly recognising the need to motivate their staff to adopt a more learner-centric mentality; many Fortune 500 companies are now exploring ways to deploy gamification strategies as a way to engage their staff (Meister, 2015). Gamification recognises that people perform best in human-focused systems that focus on recognising their fears, their needs, and their objectives. As people start getting more engaged in their learning processes, they become more driven and self-motivated to perform at their optimum levels.

Adult learners face an ever-increasing pressure to constantly upgrade their skills and acquire new ones; the threat of redundancy in this fast-moving economy is always looming. Learners can no longer afford to be passive audiences; as Zichermann mentions: "The Dawn of the Player" is now. As with any great game, players must learn to take control of their own characters, and explore the boundaries in which they can develop themselves and the communities that they forge along the way. It is the only way they can become game-changers.

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The power of critical thinking in learning and teaching. An interview with Professor Stephen D. Brookfield.

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Abstract

In this wide-ranging interview, we discuss continuities and watersheds of Professor Stephen Brookfield's world-renowned and massive contributions to Higher Education and Adult Education. While Brookfield's work demonstrates a remarkable continuity in terms of multi-angled perspectives on critical thinking and democratisation, there are also some notable changes through the years, such as a turn to self-directed learning (in the 1980s), a focus on power dynamics (in the 1990s), a theoretical turn (heavily influenced by Critical Theory, at the turn of the century) and a turn towards the importance of race relations (in the noughties). The extensive interview includes discussions of Brookfield's four lenses (students' eyes, colleagues' perceptions, theory and personal experience); the power of failure; credibility and authenticity as key criteria of being a good teacher; the inevitable omnipresence of power and an open, pragmatic approach to learning and teaching methods; the importance of feedback and assessment's key role as learning; use and abuse of technology in the classroom; MOOCs not being a disruptive innovation; Higher Education's potential as an agent of liberation and prevailing counter-forces; how educational institutions can encourage skillful and critically-reflected teaching; and the connection between art and pedagogy.

Since beginning his teaching career in 1970, Stephen Brookfield has worked in England, Canada, Australia, and the U.S., teaching in a variety of adult, community, organisational and higher education settings (the latter include Harvard University and Columbia University). In his endeavour to help adults learn to think critically about the dominant ideologies they have internalised, Professor Brookfield has written, co-written or edited 19 books on adult learning, teaching, critical thinking, discussion methods, critical theory and teaching race.

Figure 1: Stephen Brookfield.

1. An introductory overview: continuities and watersheds

Eds.: Professor Brookfield, Thank you so much for agreeing to this interview! You have been an astonishingly prolific writer (also winning multiple awards – like the Cyril O. Houle World Award for Literature in Adult Education no less than six times, amongst other prizes). You wrote 19 books and countless articles. Could you provide us with an overview and walk us through your oeuvre? Are there any watersheds or milestones? Any major changes and any major continuities in your views over time?

SB: I think there are a couple of continuities, and I'm mostly thinking about future projects rather than the past. But I think there's always an interest in how adults learn to think critically in some way, how they become aware of their assumptions, how they deal with an exposure to alternative views of the world, and I've been interested in that from a civic viewpoint. How do adults learn to recognise dominant ideology and become aware of how some of those ideologies move in them?

And so that's the sort of critical theory strand I've explored theoretically, and then I've had a more practical strand looking at critical thinking. I've written a couple of books on developing critical thinking and teaching for critical thinking which sometimes deal with those political matters, but also deal with a whole range of instances of critical thinking in other life categories. And then I've also been interested in critical thinking by teachers which is the critically reflective teacher strand. So I think that that interest in criticality – what it is, how it's learnt, how do you foster it – has been something that I'm very interested in, and right now my last book was on teaching race, and my next book is on creating an anti-racist white identity.

So I'm really looking at how we think critically about racial identity and the multiplicity of ways people experience life in the world. So that's one theme. And then I think the other theme kind of comes from my community development background which is where I started off in adult education; generally, I think, with the process of democratising different environments. So, educationally, I've become very interested in discussion methods as a particular methodology which often claims to be inclusive, to decentre power, to give everybody a chance, an equal chance to participate, to hear all voices and so on and so forth. So I'm interested in how discussion can do that but also, how it can work against that, so, I've been in a lot of what Ralph Patterson, a philosopher of adult education in England in the '70s, called "counterfeit discussions" (1979). Counterfeit discussions are those where people are talking to each other and it looks as though democracy is in play but in fact, it's being manipulated and power differences are surfacing constantly in the room between participants and also between leader and participants.

Counterfeit discussions are those where people are talking to each other and it looks as though democracy is in play but in fact, it's being manipulated and power differences are surfacing constantly in the room between participants and also between leader and participants.

So, I think, that's been a second strand, figuring out what democracy looks like and how discussion in particular, plays itself out as a methodology to democratise learning and maybe, thinking about it, there's a third stream, having to do with power and the responsible exercise of teacher authority and power. I began my career feeling as if my responsibility was completely to decentre my own authority and almost remove myself from the classroom and not really be a significant influence in there and just let the students get on with it. And that's kind of the area in which I did my PhD back in the '70s in independent adult learning. I was very interested in self-directed learning for a while. And then I think, as I got a little bit more experienced, I realised that, well, your body is always of significance in the class, you always do have some power, the question is: is that being exercised responsibly and supportively and authoritatively? Or is it being exercised in a more authoritarian, haphazard, impositional kind of way?

And I guess, just to finish off, that circles back to the first theme on critical thinking. I think some of the most significant critical thinking is resisted severely because we sense that if we take this effort to think critically about our assumptions in a serious way, it's going to lead to some significant change, it's going to complicate our lives for us, it's going to throw up a lot of problems that we're going to have to deal with. So I've been in a lot of workshops around race, and participants are reluctant to engage with the topic. And I think part of that reluctance comes from a sense that this is going to be too discomforting, too dangerous and cause too many problems. So I have to use my authority to insist that that happened and in a lot of critical thinking environments, I find I'm using my power to push people along and I have to judge when moving them into a new challenging area is going to be difficult. But also when I

sense we need to do this and people say 'we don't want to do this, we don't think race is a problem, we don't need to look at whiteness and white identity' and I say, 'no, we do and here's why'. So I guess, the third strand is I'm interested in power dynamics and the way power moves around the situation and that includes teacher power as well as power dynamics amongst the students.
And in terms of watersheds, I'm like everyone, I'm in a process of constant evolution. I think my turn to becoming more interested in race happened a few years ago in a specific time living in the United States, where this has become so much more of an issue. And it's certainly being heightened by Trump's election but I've been writing on this for 12 years I think, so that turn in the last decade was significant for me.

I think the turn when I started to recognise the influence of power which was in the '90s was a big one for me as I moved away from focusing on self-direction in the '80s to more into power dynamics, that was a big turn for me. I had a theoretical turn when I decided to stop all my practical stuff and spend five years just writing a theoretical book on critical theory and that was a wonderful experience because I felt like I really got to know that body of theoretical work from the inside out. It was like taking a third or fourth degree almost, giving myself five years to immerse myself in that and producing a book on it. So that clarified a lot for me.

So I think those are some of the turns that have happened. The practitioner-theorist divide is not really, in some ways, a helpful one. But at heart I've always seen myself as a practitioner, my self-identity is as a teacher and as a practitioner. So a lot of what I write is driven by things that are happening to me in class, and my teaching agenda is to help people think more critically in multiple contexts. And I teach a lot of leadership courses where I'm teaching people to be critically reflective about leadership, to think about what it means to work in a just and ethical way, as a leader. So the problems that arise from trying to get people to think and act more critically really drive the writing, so it's a case of writing coming from practice, most of the time for me. I think the only exception was *The Power of Critical Theory* book.

Eds.: That's extremely helpful. I [JR] actually just finished reading your *The Power of Critical Theory for Adult Learning and Teaching* (2005a) book today, and I was intrigued by a lot of things. So first let me tell you it's definitely one of my favourite books! You can probably still hear from my accent that I'm from Germany. I used to study Sociology in the '80s, so reading a lot of the Frankfurt School stuff was obviously part of my journey, too, and I've never found a book that summarises and also synthesises it so clearly. So it was like a homecoming for me to read the book and at the same time, you have these extra chapters about gender and race. Just now you said this is one of your watersheds that race has become very important. And I also found what you write about bell hooks, Angela Davis, also Cornel West, most intriguing because I wasn't really familiar with their work. I was telling my colleague that thanks to you, I will probably need to buy a new bookshelf because there are so many interesting works that I've come across while reading this particular book (*The Power of Critical Theory*) and also some of your other fabulous works of course.

2. The four lenses (students' eyes, colleagues' perceptions, theory, and personal experience)

Eds.: In *Becoming a Critically Reflective Teacher*, you write that the four lenses of critical reflection are "students' eyes, colleagues' perceptions, theory, and personal experience" (2017, p. vii). Could you tell us a little bit more how we – Eric teaches Economics, I [JR] teach quite a few Management and Business subjects – as teachers can make good use of the lenses? I think in the book *Becoming a Critically Reflective Teacher* (2017), you're also expressing some scepticism on some of the mandatory critical reflection and I think we could probably also be sceptical about the absolute value of student evaluations that in our context are quite important. Then you're also talking about colleagues and the personal experience and of course, when it comes to the theory, just now you said that you had this five-year sabbatical. Could you perhaps also recommend some of your own books and some of the books of others that could be particularly useful for the theoretical part?

SB: So I think those four lenses have been of enduring help to me and the first edition of that book came out in the mid-'90s so that's almost 25 years ago now, and I still find the students' eyes, colleagues' perceptions, theory and personal experience categorisation to be very helpful because I use all of them in my own practice. Probably the one I get most questions about is the lens of students' eyes because there is so much emphasis on evidence-based teaching in the United States and, I guess, also in other countries and so, for me as a teacher, I use the Critical Incident Questionnaire in pretty much everything that I do which is a tool I talk about in that book.

Those four lenses have been of enduring help to me… and I still find the students' eyes, colleagues' perceptions, theory and personal experience categorisation to be very helpful because I use all of them in my own practice.

I use social media a lot. I use the back channel chat tool, it's a little social media platform that allows you to get immediate feedback anonymously from students. So in every one of my classes, I have a backchannelchat.com feed up so students can post questions, make observations, and also sometimes I'll ask questions. Like maybe in the middle of a class, I'll ask what's the most difficult concept we've considered today or what would you like me to re-explain or what would be helpful for me to give some more examples of. And I'll say 'just reply on backchannel chat', and within about 30 seconds I've got lots of different questions, so it's part of my attempt to democratise the classroom and make students less fearful about asking questions that they may feel are too dumb to be raised. So the students' eyes is crucial and I use that in my leadership work as well. I'm constantly exploring ways of getting anonymous feedback from those that I'm supervising or working with and that lens of students' eyes / followers' eyes / colleagues' eyes really helps me get a sense of whether my actions are well grounded in an accurate

analysis of what's going on. So it's really just that way of checking assumptions as the basic idea. It's applying critical thinking to the practice of your teaching, so that's the one that gets most attention.

The others, though, I'm extremely interested in. I like peer teaching in terms of the colleagues' perceptions lens. I love peer teaching, the appointment I'm going to after this is to meet with my colleague in one of the classes I'm teaching this semester. We're co-teaching it, and each week we meet to debrief what happened last week or this week and then to plan next week. So because team teaching for me is where you are both in the room, you both plan, you both evaluate. It's not 'I'll take this week and you take next week' where we put everything together. And I feel that having a built-in colleague lens is incredibly helpful because that person helps me debrief or points out things I've not noticed, challenges some of the assumptions that I have, and the interpretations that I bring as regarding the class went well or went badly or my interpretations of a particular incident. So I'm a very strong advocate of peer teaching, and generally of teacher conversations and teacher reflection groups.

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The lens of personal experience. I learn a lot by just asking myself questions like 'what is it that stops me from participating in a discussion?' So if I'm setting up a discussion or a meeting, one of the first things I'll do is, say, 'well, let me think of my experiences of these kind of events in the past, and let me think of the ones where I felt most alienated and most disconnected, what was it about those meetings that really annoyed me or distanced me?' And then I identify the factors and I try and think through, well, 'how would I make sure that I do the opposite of everything that's really annoyed me in the past'? So that's helpful and the other thing about my personal experience is that I'm a strong introvert, so I always think through an introvert's lens, and as I'm thinking about student participation, particularly when you're using something like a discussion approach, I always think, well, how do we create space for quieter students to have time to think through what they say, how do we make sure we don't privilege rapid speech all the time. That sort of thing.

And then the theoretical lens is very important and I argue in the book that the theory-practice divide is a false dichotomy; that really all practice is theoretically-informed by generalised understandings of what works best in this particular context, and I think that a theory essentially is your own attempt to create a generalizable analysis that is a guide to action. And some of that comes from experience but we're all caught in our own experience and so, opening myself up to different theoretical lenses is incredibly interesting. So around race, for example, my own white identity gives me some insight into how whites experience teaching and learning about this, and that is helpful and important. But I have no real experiential awareness – I have a cognitive awareness of how people of colour experience this – so I'm very interested in reading a lot of direct testimonies in terms of how people experience racism in the United States and particularly in Higher Education, in classrooms, in staffrooms, in student associations so on. So that has been really helpful to me. There are a couple of books that came out recently. One is called *White Fragility* by Robin Diangelo (2019) that's had a big impact on a lot of people, and it's been a useful text, and they look at the ways in which whites managed to avoid really dealing with race, they think they are but they're not. Another book is called *Good White People* by Shannon Sullivan (2014) which looks at the same phenomenon.

The theory-practice divide is a false dichotomy.

I think another area which I have a lot of insight is from developmental psychology, particularly models of cognitive development, the ways in which people are, as they are moving into dealing with ambiguity in adulthood, learning to think more contextually, more critically, about situations and events, their experience. There is some really interesting literature, it's in an area that is generally called post-formal cognition, Michael Bisesi (1982) has done some interesting stuff on dialectical thinking. Kathleen King (2009) has done some stuff on how we develop ever more complicated intellectual frameworks and how difficult that is for people as they move into adulthood.

And then, a recent theoretical area I've become very interested in is the use of narratives as a teaching tool, particularly a teaching tool to model critical thinking, so there's been an awful lot of interesting stuff done on how using autobiographical disclosure of your own efforts to think more critically is a good strategic teaching tool to draw people in. So I actually teach a course on leadership narratives, I'm teaching it right now, and we look at the work from a lot of different areas. Stephen Denning's work on narrative leadership (2011) which comes from a business perspective is very interesting to me; and Robert Nash's work on scholarly personal narratives (2019).

So those are just some of the theoretical efforts that have helped me, and I read theory essentially to help me understand the problems I'm dealing with, so I don't tend to read it for the sake of becoming more theoretically informed. It's more, alright, 'I'm trying to understand why people are so resistant to doing something that I feel will be in their own best interests. Where does this resistance come from? How can I slide past it, what's an appropriate response to it? Am I fundamentally wrong in my project of trying to do that, is the resistance justified?' So those kinds of practical problems are the things that lead me into reading theory, because if I have a better analysis of what I'm dealing with, then I think I can make more informed decisions as a teacher, as a leader, as a practitioner.

Eds.: I [JR] think I need to probably buy another bookshelf. I find it very hard to believe, because you are so youthful and full of energy, but is it true that you have almost 50 years' experience as a teacher?

SB: Yes, I started teaching in 1970 so, 2020 will be my 50th anniversary.

3. "Don't trust what you've just read" and the power of failure

Eds.: In your book ***The Skillful Teacher***, my favourite maxim is the last one, "Don't Trust What You've Just Read" (Brookfield, 2015, p. 276), and I [JR] think this is also what Marcuse said, that we always have to be critical about Critical Theory and so we should never be unquestioning in our approach. I must say I was quite surprised when in one of your books, you were sharing that you were not exactly a top student and that you were exam-phobic, if I remember correctly. And you were also saying that when you started being an adjunct lecturer that you had nobody to talk to, and you only carried on because you had to pay the rent.

SB: That's exactly correct. I hated it, I couldn't eat as the day started and sometimes I would throw up beforehand, I was so nervous, and I was told not to go into teaching because of my introverted and shy nature. So over the years I've learned to perform as an extrovert, but my favourite time is to be by myself, writing, or reading or thinking. So I'm lucky in that I've managed to have a career in which that is valued, the publication is valued. But I do feel that the fact I was not a good student and had a history of failing exams has really helped me be a much better teacher than if I had sailed through, because experientially, I have some knowledge what it feels like to struggle, to feel like an imposter as a student, and one of the reasons for writing the *Critical Theory* book (2005a) was because critical theory really intimidated me and I felt like I couldn't understand 99% of what I read.

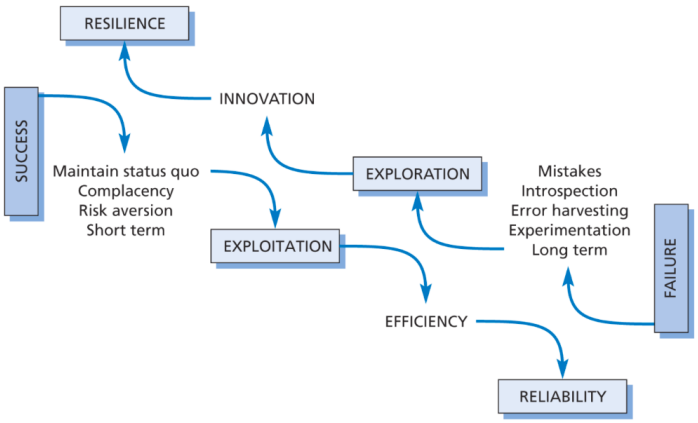

Figure 2: Power of failure (Jashapara, 2010).

When I finally got through to what I felt was some meaning for me, it was always worth it. So I thought, well, I need to write a book that does that for other people and I think that if I have any skill in interpreting theory in an accessible way, that comes from my own struggles with theory. If I found theory immediately comprehensible, I would probably be talking in a theoretical frame using the discourse and jargon of that area and wouldn't realise that I was just flying above a lot of people's understanding. So the fact that I struggle to take exams has given me some insight into how students struggle with standardised curricula, standardised forms of assessments; the fact that I struggle as an introvert to participate, has given me some understanding how to arrange classrooms and meetings that I run and workshops that I do to help people participate; and the fact that I struggle with theory, I think, has helped me become a better interpreter of theory. So I think that that history has been really helpful to me. I'm convinced about that.

Eds.: I [JR] find that very hard to believe that you found it so difficult. But what I also sometimes share with my students is some of my own failures and then I also tell them it was actually very useful because if you are always very successful, the learning experience is not quite as powerful because when you are successful, you have kind of figured it out, how to be very good in exams, to use that example, then you just repeat and you play it safe and you become very efficient as a result of that. Whereas if you encounter failure, it's painful, and then it will lead to introspection, and it will eventually lead to innovation and you will also become very resilient along the way. So I give them some examples from my own life where I lost a lot of money on the stock market and things like that, and it has made me a much better investor along the way, I hope.

4. Credibility and authenticity as key criteria of being a good teacher

Eds.: One of our colleagues (who is not here with us this evening, or this morning), when he conducts teacher training, he actually always quotes you from your book ***The Skillful Teacher*** about credibility and authenticity as perhaps the two most important characteristics of being a good teacher. Could you tell us more about this and how this is experienced by the students?

SB: Yes. The research for *The Skillful Teacher* was, gosh, initially way back, I think I wrote the first edition in 1990, so that's nearly 30 years old now, but it's gone through two editions and the most recent was 2015, I think. But that focus on credibility and authenticity has remained across all three editions. That comes initially from a lot of secondary research on how students experience teachers and then interviews with as many of my own students as I could arrange, focus groups and other interviews with, way, way back when I did that first edition. And it's carried over into my study into leadership where I would say that credibility and authenticity, that same necessary dynamic and presence of the two, is just as applicable in leadership practices as in teaching.

Credibility and authenticity… is just as applicable in leadership practices as in teaching.

So credibility is this sense that people have trust in your authority, they have a sense that we're with someone who knows what they're doing, and it can be, I think, observed in multiple ways. I get often asked by young colleagues who are just starting out, and it's their first course and they say, well, 'I don't have credibility with the students because it's the first time I've taught'. And I say, 'well, you might not have a lot of past experience, but you have the ability to articulate a rationale for why you're doing what you're doing, to explain to the students each of the steps that you're taking in class that week, that day, to explain the ways in which the curriculum is sequenced, why you

chose the books that you did, for students, what the assignments that you are asking them to do is designed to achieve, how it's designed to move their learning along', and so forth. And then when the students ask you 'why are we doing this or why do we need to learn this', you have a well-worked-out answer that you can give so that sense of having thought through a process, of being planned for, is a big part of credibility for students for practitioners who do not have a lot of experience under their belts.

The indicator that is most often mentioned as the indicator of credibility, the way it is built very quickly, is if a question is raised and the instructor, or the leader or the facilitator, is able to respond well in the moment to an obviously unexpected question. If you could do that then people get a sense, well, this person really knows what they're doing. So one of the things I'm very interested in is: how do you create opportunities for people to ask questions? And I'm mostly interested in that because it helps their learning, but one of the side benefits of it is that your credibility can increase quickly if you're with a group who doesn't know you, doesn't have a lot of trust in you, is annoyed at having to be there, like I have to do a lot of mandatory professional development workshops and a lot of people don't want to be there. So someone asked a hostile question and I could respond in the moment in a way that is thoughtful, this shows I have some experience, then I think my credibility rises. So that's credibility.

The authenticity part is the sense people have that they can trust you and I don't think that trust is the same as liking you personally, but they can trust that you are going to be consistent, that you won't say one thing and then do another. The development of trust is getting to know you more as a person, so the use of appropriate autobiographical disclosure is a big part of that. And I always say 'appropriate', you don't come in just talking about yourself for no reason, it always has to be linked to a particular learning activity or objective or process. So having your words and actions be consistent, giving a sense of who you are, making full disclosure about why you're there, and the expectations and the agenda you have and the criteria you're operating, I think all those kind of things build a sense of 'we can trust this person to deal fairly with us', that they're not going to play games, they're not going to pull a fast one, as we say in colloquial English.

And, I think, both of those I find very helpful because as an adult educator, I was very much steeped in the authenticity axis. So in adult education in my diploma studies, when I was a PhD student, we would read a lot of Carl Rogers (1983, 2003), way back in the '70s and '80s, and the importance of non-directive facilitation and unconditional positive regard, and all this supportive stuff. So that's the orientation I came from, and then I realised over time as I got more into practice, that sometimes people were looking to me to do something and to give some suggestions and give some direction, and they needed trust that I as the person in charge sort of knew what he was doing. So I've come over the years to appreciate the importance of being credible as well. So I think you need both and optimally, both are there in a kind of congenial tension with each other.

5. The inevitable omnipresence of power and an open, pragmatic approach to learning and teaching methods

Eds.: I [JR] remember also reading this in your work that you cannot be a fly on the wall, that may have been a nice thought for a while. But we must be realising that we have power and that power is inevitable and that power is always there as Foucault makes it very clear, and that as a result we may as well use that power in a meaningful and good way.

SB: Foucault was very helpful to me in that regard, he was very frustrating because I couldn't understand what he was saying, and then when I finally kept with it and struggled, it really reframed a lot of the ways I did my work and that's when I became much more intentional about saying: 'okay, here is my role here', and because of reading Foucault, I started inserting into my syllabus things like 'here's what you can expect from me'. So it wasn't just 'what I can expect from you', 'it's here's what you can expect from me, here's some of the assumptions I bring into the way that I'm going to be running this class'. So he's a great example of someone who I found frustrating at a theoretical level, but it really has very significantly affected how I do my work.

Eds.: There's so many interesting things you've been saying, but one of the things was that one of the methods is self-directed learning which is very important in Adult Education. And you've obviously written two books on discussion as a way of teaching (Brookfield, 2005b; Brookfield & Preskill, 2016), so I think that is something that is very important to your understanding of how learning and teaching can be done. And I was very amused by your description of the Circle, and we just want to tell you that we really like the Circle because one of our friends, he always does that when he conducts teacher training, and it has created a different feel and a different trust with our local lecturers when he flies in from the U.K. And I think you are also quite positive about the lecture. Some people say 'we should teach as little as possible', but at the same time, a great lecture can still be a fabulous tool?

SB: Yes, I think, in *The Skillful Teacher* (2015), I say that my first core assumption is that when we are trying to decide what good teaching is, all you have to do is say: does this help student learning? So anything that help student learning from my point of view is good teaching and I think as I become more involved in online teaching and now I teach some courses fully online, and instructional design as an area of applied practice has emerged so prominently particularly in online course design. That's been really helpful to me so I ask myself: 'what do I want students to be able to do?' And: 'how do I want them to be able to think as a result of taking this course?' And: 'what ideas do I think are most important they be exposed to, what will help them?'

So starting off with those questions about student learning and then working backward and saying 'okay, so, as I was thinking about design, what kinds of experiences will be most useful in supporting that sort of learning? That's how I run my classes. So I'm very pragmatic, I'm very open to anything. My instinct and inclination is always to go for a discussion-based, more dialogic approach – that's a defining

characteristic for me – but I have realised over the years that, sometimes, moving too quickly into that dynamic is not very helpful. There is no point having students discuss topics they know nothing about. I need to model my own commitment to discussion before I involve other people to be engaged, and that sometimes I'm very interested in good targeted pre-reading. I think pre-reading is very important for a lot of stuff. So I like to use the flipped classroom model sometimes, where students do most of their preparatory work outside and then bring the problems, and then I structure the class around understanding what this stuff is saying. I'm happy to lecture, I do try to keep in mind Donald Bligh's assessment in his book *What's the use of lectures?* (2000) where he estimates, you should be chunking your lectures into 15-minute episodes, so every 15 minutes or so, I try to get the students to do something if I'm in an extended lecture. So, and I used to be a very much a Luddite around online learning, and now, I realise, there are some things that online learning does well. I try to incorporate technology constantly, the use of the backchannel chat feed, for example, now it's a staple of my teaching.

Eds.: That sounds like a really great idea.

SB: So I really feel that I naturally work experientially and pragmatically and by that, I mean pragmatism in the American philosophical tradition which says 'there are multiple ways to meet objectives', 'we constantly have to reflect on experiences', 'experimentation as a basic feature of human existence'. So I'm always switching things up, and really the decisions I make are based on the lens of students' eyes and what I'm learning from the Critical Incident Questionnaire, feedback from backchannel chat which is anonymous, or from after-hours groups or from whatever it is. So yeah, I'm very, I hope, open in my methodology and I think that when you think in a bifurcated way, like 'lecture good, discussion bad; or 'discussion good, lecture bad', it's such a ridiculous over-simplification of the complexity of what you're dealing with, which is people, with an amazing array of different experiences, cognitive structures, wired processing, past histories with schools, culturally and racially learned, traditions of interacting with each other and then viewing the teacher. You know, it's just so complex that we have to be ready to be open to that complexity and be constantly open to change in methodology if necessary.

5. The importance of feedback and assessment's key role is learning

Eds.: Now that we have talked about the multiplicity of methods that we can apply to teaching and learning, we could probably have a similar discussion on assessment. As we were already saying earlier, you had this negative experience with exams by being very nervous and that's actually also my concern. One of the things that I [JR] always tell my students is that I hate exams and that's why I'll try to help them as much as I can, without giving away the questions obviously. So, do you have any views how to create meaningful assessments? I'm sure you do.

SB: Yeah, again, I would start from the learning that you're trying to foster and then work back from that to say, well, 'how best can I give students good formative feedback so that they're making some progress?' They're developing this or that aspect of it. I'm a strong believer in feedback and I guess giving feedback is at the core of assessment. The way I'm thinking of assessment I like to think of assessment as a way of helping learning, so that's the starting point for it. So my inclination is to have as broad a variety of assignment formats available for students as possible. But, if I'm preparing students for a specific occupation, a specific profession where I know they're going to have to do A, B, C, or D, then I also have to design assessment systems that are focusing on the performance of those skills. Let's say, they have to make presentations, they have to give verbal summaries of projects they're working on or their team is working or they have to be able to present new ideas in a crisp and succinct and convincing way, so they're going to have to talk. If I only allow students to submit work where they're writing a poem, or producing an image, or whatever – some more creative ways – then I'm doing them a disservice because I'm not preparing them for the reality of what they're going to be faced with. So some of these assessments would have to be on: how good are you becoming in giving verbal presentations, and giving a crisp and succinct summary of something that you want to do?

If I'm preparing students and I'm thinking specifically about educators and leaders, for their roles, it's possibly not likely that day to day, if you're a school principal, you're going to be asked to write a long theoretical analysis. What you're going to be asked to do is to explain to those that you're supervising why they need to be taking a certain idea or perspective seriously. So as I'm thinking about how do I assess students' theoretical understanding if they're training to be school principals or school superintendents, one of the thing I will ask them to do is, alright, 'write something which takes this idea, this concept, that could be something very complicated like hegemony, and then tell me how you would explain this to your colleagues, how you would introduce the item of let's look at the way in which *hegemony* plays itself out in our school? How would you introduce that in a staff meeting?' So I'm really assessing their ability in that assignment to translate from a theoretical level into terms that will make sense to people they are working with. So I think assessment is really informed by whatever it is you are trying to foster.

And I myself, over the years, have moved away from the more traditional ways I grew up with, which is the writing of academic-style papers. And if that's the direction that students are going to go in, then I'm happy to do that if they want to become professors or researchers themselves. But in an applied field, like education, most of them are not going to be doing that. So a lot of my assessments focus around the development of action plans. How would you take some of these ideas and play them out in your school in the next two years; or in your company in the next two years? And I've become much more interested in giving people who are more artistically or aesthetically inclined the opportunity to submit a creative representation of whatever work that they've done, but have that accompanied for me by a briefer narrative explanation.

So instead of writing a 20-page paper, you can present me with a collage or a video stream or an image you designed, or a song you've written, or whatever it is. But then I will need maybe a three to five- page interpretation of how that creative act incorporates the reading that you've done, the insight that you've drawn from the reading, the relevance that you see between your coursework and the area in which you're going to be applying your insights and practice. But of course, accreditation agencies are, increasingly, it seems, at least in the States, narrowing the focus for that. So in my university, everything is driven by the mission, the strategic plan, the specification of learning outcomes, and so outcomes always have to be tied to what the original purposes of the School of Education, the purposes of the syllabus, or the purposes of the particular programme or the department has.

And so for me, the interesting challenge is: 'how do you experiment with a range of creative formats, but be sure that you can link those formats to the purposes of the plan that we're all agreed?' So if I'm using creative representation, my personal preference would be *not* to ask for a five-page explanation or summary of it because it sort of goes against the whole logic of using a creative act. But then, if an accreditation team comes in, they go to my course, they pull out an assignment and they see a collage that the student has done with no real interpretation. Then I'll get hammered for not being rigorous and systematic in tying learning outcomes to the strategic plan. So you're constantly bargaining and compromising. That allows you at least, I'll speak for myself, that allows me to do creative work in the academy, but also keep my job and not call into question the credibility of the programme. It's one of those enduring dilemmas I think that most practitioners are working with throughout their career.

Eds.: So what I [JR] hear is that, also for institutional reasons, but probably also to some extent if we follow the inner logic of everything that is related to teaching and learning, something like constructive alignment is important. And at the same time, assessments should be authentic and meaningful, not just testing something for the sake of testing it. They should be relevant as you were saying, and at the same time, you of course have a lot of focus on creativity, so that's really fantastic.

SB: Well, if you are preparing people for a very specific function, in Medicine, or in the military, or in Law, then you need to be able to test people; in Nursing, to make sure that they are up to a particular standard; I completely understand the logic of that. But, mostly, I think you do testing to help learning, it's really to help the student that you're doing the testing as an educator. It's not to help the employing or sponsoring agency. An educator's responsibility is to the student, not to the employing agency, and an educator's responsibility is to understand the internal dynamics of learning, and having that be the logic that drives your actions. Rather than the logic of institutional need. And we're often caught in between the two.

So, I think, most of life is an uneasy compromise where Paulo Freire said most of us are in the system but we are not of the system. So we realise as we are caught within institutional constraints, we realise what they are and how they're operating. But at the same time, we're trying to push them and subvert them, fool people really, allowing us to do creative things without being constantly supervised. You're always trying to carve out a bit of creativity, and really your fidelity is to the learning process and to helping students learn. And that's sometimes bumped up against institutional priorities.

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6. Use and abuse of technology in the classroom and MOOCs not being a disruptive innovation

Eds.: You were saying earlier that you are not a Luddite (we never expected that!), that you have been using technology increasingly and you gave some examples like this backchat channel. Do you ever have any problems with students using their mobile or other digital devices excessively and being very distracted? Do you feel that technology can get in the way?

SB: Yes, absolutely. But I think that's no different from anything else in more traditional teaching. So in a lecture in the past, when I was a student, there were no smartphones or anything. But if I was bored in a lecture, I would be reading music papers under the table or I would have the book I was actually reading covered by the book that was the course textbook [Eds. laugh], or I would let my mind wander and I would doodle a lot. So I don't think that inattention is anything new. It's just that if you have smartphones and tablets and devices, and you're using them in class, there is always that possibility, absolutely, that people will be diverted. And on my Critical Incident Questionnaire tool that I use every week, often students will point out 'the moment I was most distant was when I saw the person next to me shopping for shoes on Ebay', or 'the action that puzzled me the most was this person, we were in a small group, but they were on their phone all the time'.

So in a lecture in the past, when I was a student, there were no smartphones or anything. But if I was bored in a lecture, I would be reading music papers under the table or I would have the book I was actually reading covered by the book that was the course textbook, or I would let my mind wander and I would doodle a lot. So I don't think that inattention is anything new.

So students will raise it as an issue on their anonymous feedback to me and I will present this as an issue to the class, this just happened this week in a class that I was teaching. There had been four students who said they found it really distracting that after we'd done a backchannel chat exercise, people stayed and seemed disengaged because they were interacting with their phones. So I had to bring this to the group and say, well: 'how are we going to do deal with this? How do we make sure…?' First, we need to make sure that the interaction is a distraction, maybe people are looking up articles, or maybe they're googling terms that I've used. I certainly, when someone introduces a term in a discussion, I go straight online to google it, or when someone mentions an author's name, I google that person and pull up something they've written. But it absolutely is like everything subject to abuse, so if you're going to use backchannel chat, a social media tool, then I think you'll have to keep incorporating it all the time. You can't just use it once in the class and then say, 'okay, that's it'. I suppose you can use it once and then tell everyone to switch off their phones, something like that, that might be an option.

My option is to say, the students I've learnt with, that's how they've grown up, that's how they process information, that's how they communicate understandings with each other. I mean my kids would text me from within the house [Eds. laugh] as they were growing up. It was quite normal for them, it didn't seem weird at all, and then I would go into their room after they've texted me, and ask 'why are you texting me', and they didn't understand the question [Eds. laugh].

So I'm trying to build in natural rhythms of student communication, student learning, and the way they process information and become exposed to it. Which is difficult for me because I'm a digital immigrant, I didn't grow up with any of this. But as a critically reflected teacher, I have to be aware that the student experience is fundamentally transformed now because of technology, and so it's my responsibility to do my best to stay abreast of that. And I'm a bit of a technophobe so I find it hard to do that, but I've got to do my best because if I take student learning seriously, I need to be familiar with some of the ways that they've grown up processing information and communicating understandings. But yeah, in terms of the question: can it go wrong? Can it be excessive? Absolutely!

But in my view as a teacher, everything goes wrong sooner or later, there is nothing that is not immune to being distorted or to being used in unproductive ways that you've not anticipated. Lectures could be incredibly boring, going way too long, have no opportunity for student input. Discussions can go way off topic, and be dominated by a few people, leave others feeling very frustrated and that this was a waste of time. You can assign pre-reading that can be way over students heads or be way too basic 'cause they've already done this in an earlier course and you didn't know about that. So every teaching act will go wrong sooner or later, if you're defining wrong by 'not working the way you've wanted it to work'. So my feeling is that given that that's true, then what we need to do is to stay on top of how people are experiencing learning as much as we can and that's where the students' eyes lens, in the critically reflective model, the more I get information about that, the more I can decide whether something I'm using is working in the way that's going to be helpful to students. And if it's not working that way, then I'm very happy to change and try something else, I think that's the essence of skilful teaching really.

Eds.: Since we are talking a little bit about technology, let me ask you about your view about Massive Open Online Courses (MOOCs) and Open Educational Resources (OER). I [JR] actually talked to George Siemens and some of the people who started the cMOOCs (Canadian, connectivist MOOCs) some ten years ago, and it seemed like a wonderful experiment related to his philosophy of connectivism, and then Harvard and MIT obviously came along with the xMOOCs (very large MOOCs), and Coursera coming from Stanford (Rudolph, 2014). What's your view on the MOOCs, do you think they are a so-called disruptive innovation, or is it perhaps more of a commodification of learning? Since we were talking about Foucault earlier, in his book *Discipline and Punish* (1995), he's also talking about the panopticon. So could that be also used for not so positive purposes, do you have any thoughts on this that you could share with us.

SB: Yeah, well, first of all, you used the phrase commodification, Juergen. is commodified to some degree, my performance is appraised on a merit level rating at the end of each year, I get assigned a numerical score, for example. I have to produce artefacts from students that document their learning which is papers that I have to give grade points for and so on and so forth. So the fact that it's commodified is very predictable, it will happen to everything in a hierarchically organised institution like universities and colleges are. But that doesn't mean that you can't still do valuable things with commodified stuff, if you ground them in what you're trying to get students to learn. So I wouldn't say 'don't write papers' – because how on earth am I going to get a sense of what learning is going on, and what struggles students are having, and what progress they're making, and so on and so forth?

I think everything in Higher Education is commodified to some degree.

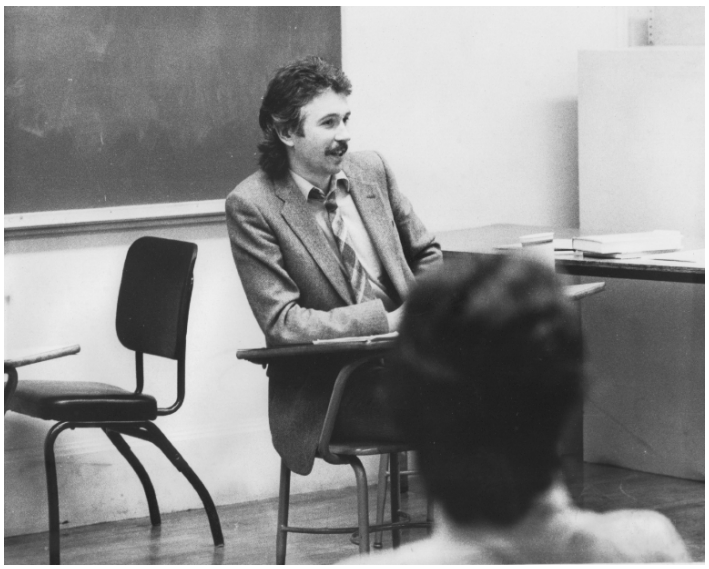

Figure 3: Photo of Stephen Brookfield teaching at Columbia University in the 1980s.

So to me, MOOCs are just one additional tool, I've done something for Columbia University in a MOOC that they've just developed on creating inclusive classrooms. To me, a MOOC is like a series of YouTube lectures that you can find, all that stuff out there, and it's free and open access. And I think that MOOCs themselves aren't inherently disruptive. I think, the web has been inherently disruptive! Because now you have access to a lot of information which beforehand, you had to have a university library pass to gain access to. Now all you need is a smart device, and you don't have the total world at your fingertips because there are restrictions in who has access to different scholarly resources and so on, but it's a lot more open than it used to be.

So I don't see MOOCs particularly as a threat, I just see them as an additional source of information. I feel that since a key to student engagement is some kind of meaningful connection to learning or to content and the ability to process that with peers, MOOCs are not so good at doing that, or online is not so good at doing that. And in online courses, I do have to have a panopticon going on in the sense because I give grades for participation. So I'm watching to see if people participate. And if they don't participate in student-to-student discussions, I have to give them a nudge and say 'we haven't heard from you, and remember, 20% of your grade is going to be assigned for the degree to which you helped others with their learning in your cohort'.

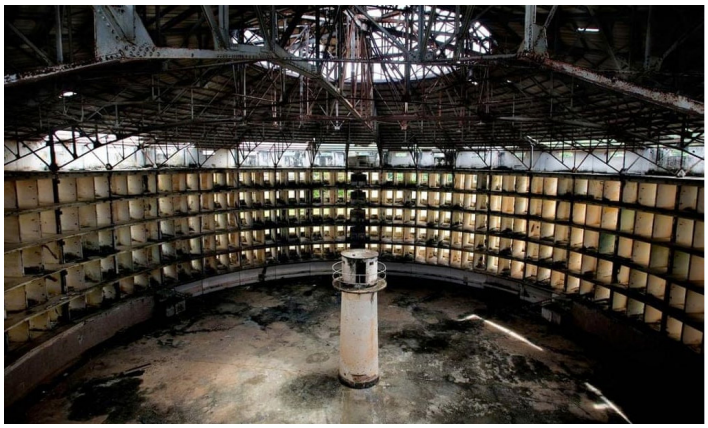

Figure 4: The abandoned Presidio Modelo complex in 1995 as an example of a panopticon (McMullen, 2015).

So there is that panopticon going on. I do find that metaphor to be very helpful both in online learning and also in face-to-face teaching. But I try to be open to anything that will assist learning. The thing with the MOOC is that you can review it, whereas in a lecture, unless you're taping it, once the lecturer has explained the point, it's gone into thin air. And if your head was somewhere else while that person was explaining the point, then you've lost the opportunity to interact with that explanation. So generally, the thing I like about online is that most of the resources are up for long periods of time. You can go back, you can replay,you can sit with things in a way that you can't sit with things in a classroom. So for an introvert like me who takes a lot of time processing information, I need time to think through ideas and play with them and read paragraphs over again or watch video segments over again. Any technology that allows me to do that is very helpful. So those are my feelings on MOOCs.

Eds.: To me [JR], MOOCs are just a special case of open education resources (OERs). There's always this concern that our world has more than seven billion people, and a lot of people still don't have access to knowledge and information. But they may also not have the skills and some of the other tools to meaningfully deal with this knowledge and information. So I guess you would regard the OERs as something generally positive?

SB: Yes I would. It fits with my theme of democratising learning. Any attempt to make information available to as many people as possible, I would support. We have a new project in adult education of teaching digital literacy, it used to be teaching media literacy. Now it's teaching digital literacy which I regard not so much as the mechanics of how do you navigate the web and create access, it's more how have you developed the judgment to be critical and sceptical about the sources and information that you have access to.

So I love to play with Wikipedia, I think I talk about some of this stuff in a book *Powerful techniques for teaching adults* (2013), where I have students create knowingly false Wikipedia entries [Eds. laugh] to see if they can get by the inbuilt screening that Wikipedia has. So I'm trying to give people a sense that just as with reading a book as text, reading a website as text, it's been produced somewhere, by someone. So you need to know who has produced it, what was the thinking behind this production, and whose benefit is it that this information be shared in a particular way that it is, are there ways in which the information could be shared in more user- or reader-friendly ways? So I think with open access tools comes this new or additional educational project now, to teach some kind of critical awareness of how those tools have been produced, how they're being used, and in whose interests they work, and whose interests are they set against. So that's a whole interesting area that we've had to deal with lately.

7. Higher Education's potential as an agent of liberation and counter-forces

Eds.: In the 1970s, Ivan Illich wrote *Deschooling Society* (and Emmerich Reimer *School is Dead*). While some of the predictions that the disestablishment of schools (especially the end of compulsory schooling or the end of publicly-funded schools) appear to have been wrong, there is a powerful critique of the "pre-alienating" character of schools in these works. In your excellent book *The Power of Critical Theory for Adult Learning and Teaching*, you have dedicated a whole chapter on Alienation. If we were to hazard a guess, we would say that your position is more that of Marcuse (who you also refer to in the Preface of *The Skillful Teacher*) that while colleges may be perceived as part of the ideological state apparatus, higher education is potentially an agent of liberation. Any thoughts on this?

SB: You're correct. I disagree with Althusser who says that teachers are unaware of the forces constraining them and that they're somehow unwitting agents of the state mindlessly reproducing dominant ideologies. I am much more of Marcuse's position that higher education is a zone

of potential liberation. Even though higher education is hierarchical and hemmed in by accreditation agencies, not to mention the fact that many universities in the USA are working as neo-Fordist capitalist institutions where students are explicitly described as consumers, I still think there are ways that we can push back against dominant ideology. Just as an example, pretty much every higher education institution I know says it's committed to diversity, equity and inclusion. That's a great opportunity to smuggle in an explicit uncovering and challenging of white supremacy. My last collaborative book on *Teaching Race* (2018) explored that project, as does the one I'm working on now titled *Creating an Anti-Racist White Identity.*

Of course there are lots of forces working against higher education as an agent of liberation. I find that pre-tenure colleagues effectively censor themselves from saying anything too critical, for example. Also, most teaching evaluation forms that students complete don't ask students to rate how much their teachers initiated productive discomfort in class, how much they challenged them, how much they disrupted their worldviews and introduced them to radically different takes on the world. Instead they focus on clarity of communication, frequency of feedback, alignment between course goals and assessment procedures and so on. Those are all crucial of course, but I find that people typically teach to reward systems and unless explicit critique is named and rewarded as an essential feature of good teaching, then many will decide not to rock the boat. It's ironic that critical thinking is mentioned in so many mission statements, yet a Marcusean variant of critical thinking – asking big questions about big issues like 'what would it look like for our institution if becoming anti-racist was our top priority?' – is generally avoided. Critical thinking is often reduced to what Marcuse called one-dimensional thought and Horkheimer and Adorno called the instrumentalisation of reason – in other words, problem-solving designed to make the current system work more smoothly.

I myself am in the centre of a grievance dispute with my own institution after my university told me that my Endowed Chair was an "error" and tripled my teaching load – this after my publicly criticising as shameful their desire not to award tenure to an activist colleague and my insisting that uncovering white supremacy at the institution be the focus of our anti-racist efforts.You can read about my situation here: https://www.twincities.com/2019/06/04/st-thomas-professor-claims-discrimination-over-anti-racism-advocacy/

I myself am in the centre of a grievance dispute with my own institution after my university told me that my Endowed Chair was an "error" and tripled my teaching load – this after my publicly criticising as shameful their desire not to award tenure to an activist colleague and my insisting that uncovering white supremacy at the institution be the focus of our anti-racist efforts.

Many colleagues around the world have expressed amazement that my own institution is 'de-endowing' me this way, but I tell them it's entirely predictable. Even with all the cultural capital of my identity – white, male, well-published, worldwide reputation etc. – universities cannot tolerate it when their leadership is publicly criticised and held to account. Of course my university is a private one and we're not unionised so it would be different when it came to public criticism in a unionised environment.

8. How educational institutions can encourage skilful and critically-reflected teaching

Eds.: You have been conducting faculty development workshops for approximately 30 years – can you please share how you would organise one? Any memorable successes and failures with faculty development workshops?

SB: I usually work with whatever the institution tells me about its history and culture and specifically what I learn about the audience involved. I'm pretty flexible in working with all kinds of constraints and even if there's hundreds of people in an auditorium with fixed seating I'll still try and work in an interactive way by using social media like sli.do or backchannelchat.com, by using pair and share, or doing small group protocols like the circle of voices (see Brookfield & Preskill, 2016).

My overarching approach is that I always need to begin with four things in mind. First, I have to find out what people are thinking about when they come into a workshop. Social media polls and anonymous chat platforms mean that in 90 seconds you can get a quick snapshot of how people are approaching the workshop. Second, I need to begin with some appropriate autobiographical disclosure where I link the topic or purpose of the workshop to my own life. A narrative approach is the hook I use to draw people in and get their attention, an idea I stole from a business & management writer, Stephen Denning. Third, I have to model whatever it is I'm asking people to do before I turn to them and invite them into the same activity. So, for example, if it's a workshop on critical thinking, I have to start off by doing that on myself and sharing examples of when I've critiqued my assumptions and deliberately explored alternative perspectives. If it's a workshop on confronting white supremacy, I have to start by talking about the white supremacy that lives within me and how I try to be aware of that and push back against it. Fourth, it's very clear from feedback that people learn most productively when they're engaged in focused discussion or small group activities. So I'll move to those as early as I can in a workshop. But the point is that they must be focused and clearly connected to the themes of the workshop. Assigning small group busyness for the sake of doing group 'stuff' is pointless and a trap I've fallen into many times. People usually hate small groups initially and resist them in workshops because they've been burned so often in the past by meaningless 'group-ness'. But if a small group task or discussion is well designed and tied directly to what people are there for, then it's usually the most positively engaging part of the workshop for them.

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The details of what then happens depend on what I'm finding out about people's responses through things like the anonymous backchannel chat feed I leave open throughout a workshop to capture reactions, questions, criticisms and comments. As a general rule I believe in scaffolding activities, moving from simple to complex, non-threatening to more threatening, all supported by my modelling and by my checking in on how people are experiencing what's happening. But, as I say in *The Skillful Teacher*, context changes everything so I may decide in the middle of an event to change my plans very drastically and throw everything I'd prepared out of the window. Some good things have happened over the years by my being forced to make something up on the spot.

I don't think of failures and successes so much as I do of surprise and unanticipated events or consequences on the one hand and predictability on the other. I've learned that there's so much that's out of my control in a workshop, class or training, that when things don't go as I anticipate it's often due to factors completely out of my control. I also kind of like it when completely unanticipated things happen. It creates new challenges for me and stretches me in a good way.

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Eds.: Any advice for universities and higher education institutions how to encourage skilful and critically reflected teaching?

SB: I wrote a whole chapter on this topic in *Becoming a Critically Reflective Teacher* so that's the place to go for this answer! But generally I'd say a few things are essential. First, modelling from the top. And by that I mean from the President, Vice-Chancellor & Provost downwards. If you want people to take critically reflective teaching seriously, then that must be consistently demonstrated by those in power and authority. Second, the reward system must work to support this. So exercising critical reflection should be at the centre of hiring decisions, performance appraisals and institutional awards. Third, there needs to be guidance and support for this process, which means that people will need to be given time and resources to do this in groups. Since the best critically reflective practice happens in groups, that means people need a reduction in assignments, course load etc. so they can meet and share experiences. Fourth, instituting team teaching as the norm for Higher Education would go a long way to implanting this in institutions. In a team-taught environment you have a built-in reflective mirror to give you feedback on what's going on, point out things you've missed, see situations through a different pair of eyes. Finally, you need to reframe so-called 'mistakes' as unanticipated occurrences that are to be expected as normal and as the predictable result of giving students more control, experimenting with creativity, trying to build curricula and assessment formats from the ground up, and so on.

Eds.: You have been teaching in the U.K. and in the U.S. and in many other places. Could you share perhaps your worst and your best teaching experiences, and also what role culture plays in how we conduct our lessons?

SB: My worst teaching experiences were my earliest when I simply mimicked my own teachers from school who were mostly awful. So in my first college classes that I taught my pedagogy was to read from notes that I'd already distributed to the students! Once I followed my own advice in *The Skillful Teacher* – that the most important knowledge you needed to do good teaching was an awareness of how students are experiencing their learning – then my pedagogy became much more responsive and helpful to students.

Once I followed my own advice in The Skillful Teacher – that the most important knowledge you needed to do good teaching was an awareness of how students are experiencing their learning – then my pedagogy became much more responsive and helpful to students.

9. Art & Pedagogy

Eds.: The penultimate question that we want to ask you is about the role of art. In your book about The Power of Critical Theory, you discussed this of course, and Walter Benjamin (2015) was very hopeful about the revolutionary potential of new mass art forms. And Adorno, perhaps a little bit disappointingly, regarded jazz as part and parcel of the culture industry (Adorno & Horkheimer, 2016). And Marcuse (1979) liked really the higher, 'two-dimensional' culture, whereas Angela Davis (1998) also saw a lot of potential in spirituals, work songs, and the blues. We checked out your website about the 99ers band [SB laughs], it's fabulous, pop punk rock 'n' roll, so does this kind of have to do with your pedagogical work? Do you see a relationship between art and pedagogy? The 99ers is a term for unemployed people in the U.S. who have these 99 weeks of unemployment insurance benefits?

SB: That's correct. Well, to me, I feel that I've been trained in a Eurocentric tradition which privileges cognition, and I love reason, I love thinking things through. I love logic, coming to judgments, all that stuff. But I think most decisions that we make are fundamentally emotional. And so one of the things that has been missing from a lot of my work over the years, so I've really been thinking through, is: what is the role and power of art, artistic experiences, particularly in developing critical awareness of something? So a few years ago I wrote a book called Engaging Imagination which was with a fashion designer, Alison James, and that whole book looked at artistic experiences (James & Brookfield, 2013). And it was very helpful for me to spend some time working on that book and thinking this through, and it has very much influenced, for example, how I assess students' work now through creative representation.

Figure 5: Stephen Brookfield.

And I think when you're bringing people to critical awareness of something, to examining their assumptions, you can create a rational access point into it, you can create a narrative access point into it by sharing a dramatic story, or you can create a more artistic access point into it through film or poetry or music or some graphic representation. And I'm very much drawn to Marcuse's work in his book The Aesthetic Dimension (1979) where he talks about his idea of rebellious subjectivity. Basically, I understand him to be saying that art is the most revolutionary thing that you can teach in schools because art impacts you on a visceral and emotional level.

And yes, as Adorno says, it's packaged in a culture industry. But even a lot of work on media like Stuart Hall's on encoding and decoding says 'you can have these packaged meanings, but what people take from a film, you can't really control', and there will be some subversive elements in what seems to be a very standard film for some people. So if I could go back and relive my whole career again, I would definitely try to incorporate art much more intentionally.

Up to now I've tended to think that music, which is my passion, is over here in my life and then I have my work as an educator. I've come to realise more recently what connects both of them, certainly, is an interest in how the audience is receiving what you're doing. So I'm kind of watching an audience at a gig in the way I'm watching students in class. I'm looking for signs of engagement, or what seems to be connecting for when people are getting bored and apathetic and then making changes based on that information. But because, other than music, I'm not very artistically talented, I haven't tended to bring very much up into teaching until, I'd say, maybe the last ten years of my career. And I think when you're trying to do this, to bring in artistic creativity in an environment that is heavily Eurocentric, that's focusing particularly on measurable outcomes, alignment, that's difficult. Because you bring in a film, and let's say you're being observed for tenure that night, and your teaching is essentially bringing in a film, and talking about the film, you're probably not gonna get such a good mark, as if you give a lecture and then run a well-structured discussion. So art is almost seen as diversionary, as an add-on, or as irrelevant rather than a central aspect in how you connect to people. So with critical thinking and criticality, generally, I'm very interested in how we can rethink, or how I can rethink, making artistic experiences as a much more central part of that dynamic.

10. Concluding remarks

Eds.: Is there any concluding remark you would like to give?

SB: Only that I'm sure that is true with the both of you, and most of the teachers that are still awake in class: we're constantly evolving and we're constantly changing. And so I'm very much open to the idea that something I believe and I've spoken this morning about, in a few months' time, I might have a completely different perspective on.

I'm very much open to the idea that something I believe and I've spoken this morning about, in a few months' time, I might have a completely different perspective on.

Because experience would have taught me, I've missed something significant, and that's where the philosophical notion of American pragmatism through [Ralph Waldo] Emerson and others like him comes in. I've always been taught by my own experience and it's where the lens of personal experience as a critically reflected lens comes in, particularly when I'm dealing with where I am right now, with teaching about the very contentious issue of race, I pretty much leave everything that I do feeling: 'aww, man, I could have done that better, I wish I could rewind the video tape and do something different'.

So I feel like I'm just trying to work in the best, most informed way that I can. But experience is constantly teaching me about things that I haven't taken account of and that I omitted up to that point. And that's one of the hardest things to learn as a teacher. I speak for myself. I went into the profession thinking that if I could last for five years or ten years, I basically would have everything worked out, I would have my teaching approach finely honed and then I'd be

an expert. And I feel now, 50 years into it [Eds. laugh], that expertise really is just a constant recalibration and a constant enquiry into trying to better understand the dynamics that you're dealing with, these very complicated dynamics of teaching and learning. So I know that the metaphor of 'becoming' is used a lot and is probably overused, but I think that's really what teaching is, you're constantly *becoming* as a teacher. So if I give this interview and did it again in a year, it may be very different from what it was today.

Eds.: This was absolutely fantastic, we are very grateful, thank you so much!

SB: Well, thank you both, and I look forward to being in touch!

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The rise of immersive learning

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I have given a few keynote addresses on immersive learning and I noticed that there is so much hype about the benefits of this emerging technology that users may be over-buying into the possibilities. This article is a summary of my talks and hopefully provides some clarity and pragmatic thoughts on the application of immersive technologies from the perspective of learning and teaching.

Growth of Immersive Technology

A quick survey of the immersive technology industry reveals the extensive growth potential. It is little wonder that this industry is in hyper-optimism mode. Gartner leads the pack rating immersive technology or experience as a top 10 strategic technology.

In the Future of Work survey conducted by the World Economic Forum, almost 60% of companies surveyed indicated the likelihood of adopting immersive technology by 2022.

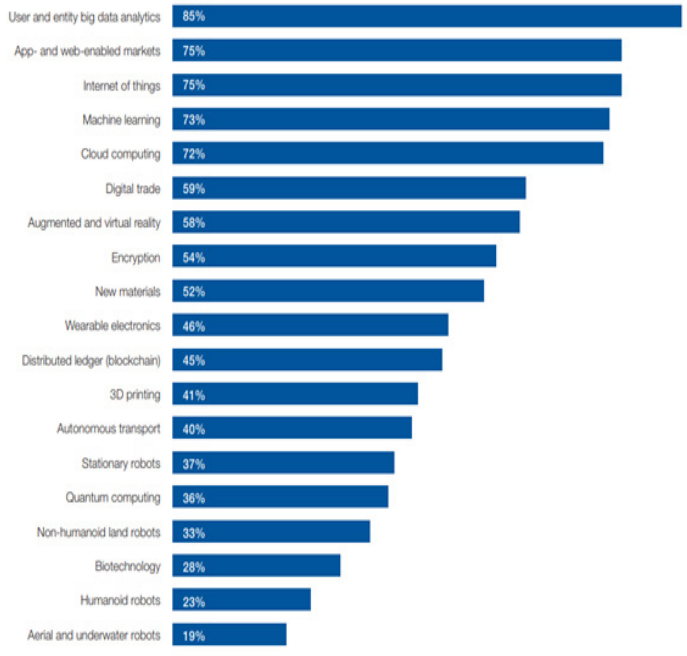

Figure 1: Technologies by proportion (Milgram & Kishino, 1994).

Looking at the number of launches in the immersive technology space in the first six months of 2019, it is not difficult to understand the hyper-optimism in immersive learning. Perhaps, arguably the most exciting new development is the launch of Microsoft's Hololens 2. Purportedly to be a quantum leap from its first iteration, Hololens 1, Microsoft is positioning this new device for industrial training and institutional learning.

Then there is Magic Leap, touted as Microsoft's potential contender in the mixed reality space. While it has some uniqueness, the start-up seems unclear about its development plans and how it will take on the tech behemoth, Microsoft.

And there is Nreal, a start-up that came out of nowhere (actually, they are from China). The device looks sleek, light-weight and seemingly easy to access. The feedback from the various tech observers has been largely positive. I find the value proposition of tethering to the users' mobile phone to access immersive content on the phone a big plus. I did not have the opportunity to have hands-on experience with this device and I have been asking my friends in the immersive tech industries for their feedback. This is another newcomer on my watch list.

Just in case you get too carried out by the glitzy new techs, let's stay focused on our discussion on whether these techs really help in learning. But first of all, let's clarify all the terminologies – VR, AR, MR and now there is XR (goodness!).

The Science of Immersive Learning

Before we get into the hard science of learning, let's clear the confusion of the various immersive technologies. It does not help those who are new in this field and who are bombarded with all these terms. Milgram and Kishino (1994) were the first to describe Mixed Reality as involving the blending of real and virtual worlds somewhere along the "reality-virtuality continuum" (RV) which connects completely real environments to completely virtual ones. Virtual Reality (VR) uses technology to immerse a person in a completely computer-generated world and remove them from reality. In this way, VR is different from its cousin, Augmented Reality

(AR), which aims to seamlessly superimpose virtual imagery over a user's view of the real world. I think this continuum sufficiently clarifies the myriad of terms in the market and should put to bed the description of immersive technology.

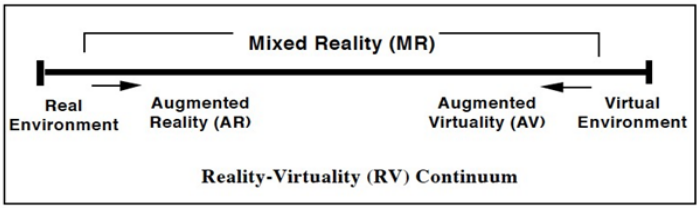

Figure 2: The reality-virtuality continuum (Milgram & Kishino, 1994).

The science behind the effectiveness of immersive learning is two-pronged – the sense of **presence and cognitive embodiment.**

The Sense of Presence or the feeling of being in the Virtual Environment is a complex mental mechanism that is strongly linked to our emotional reasoning abilities. Barfield et al. (1995) define presence as "the participant's sense of 'being there' in the virtual environment" while Lombard & Ditton (1997) propose to interpret presence as "a perceptual illusion of non-mediation"; presence is what happens when the participant 'forgets' that his perceptions are mediated by technologies. Rita Lauria (1997) suggests an iteration with psychological knowledge and philosophic analysis: "psychology is the physics of VR in the sense that the virtual environment is manufactured towards creating a cognitive state". Simply put, the sense of presence in the virtual environment enables the person to be "fully" and "deeply" absorbed in the virtual environment.

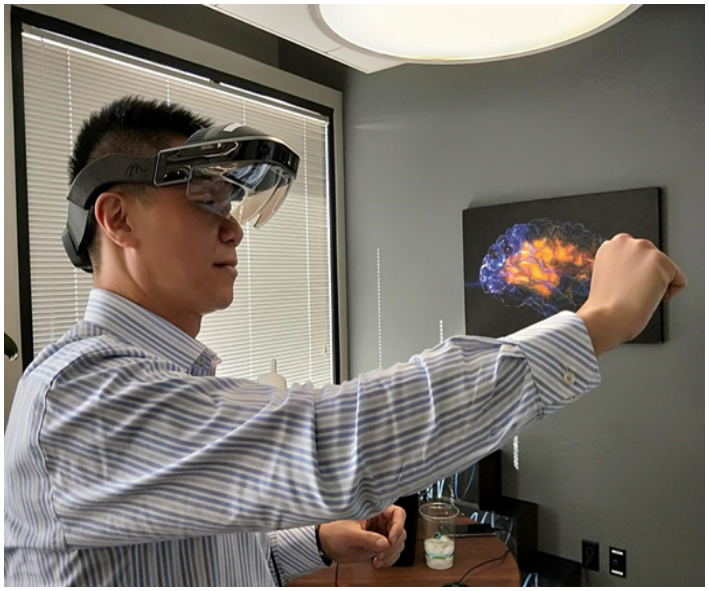

Figure 3: The author in a virtual environment.

The second tenet is the sense of embodiment. Embodiment is the representation of knowledge and concepts through bodily activity, and it is a potent force for learning (Abrahamson & Lindgren, 2014; Alibali & Nathan, 2012; Glenberg, Gutierrez, Levin, Japuntich & Kaschak, 2004; Goldin-Meadow, 2009). There is an increasing body of literature focusing on instructions that integrate meaningful connections between bodily movements with learning in various domains (Liden, Kastens & Christensen, 2011). Developments in embodied learning are further supported by the emergence of immersive technologies that are compatible with natural movements such as gestures, touch and body positioning. Research indicates that these immersive technologies bear great potential in enhancing learning (Chang, Lee, Wang and Chen, 2010; Johnson-Glenberg, Birchfield and Uysal, 2009; Hughes, Stapleton, Hughes & Smith, 2005).

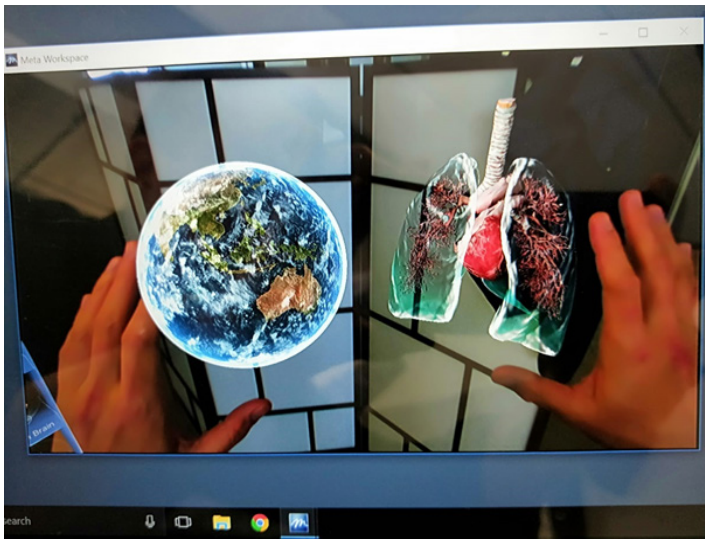

Figure 4: The author's view of the virtual environment

While there is a still a lot of work to be done in the research in immersive learning, we have the assurance that immersive learning is backed by real science. When the technology is appropriately utilised by an experienced learning designer, I think immersive learning can yield much more than just better learners' engagement in class.

The Learning Design of Immersive Learning

There are many different types of pedagogies that could drive the use of immersive technologies for effective learning. I can think of Place-based Learning, Scenario-based Learning, Project-based Learning and many more. For this article, I am focusing on Situated Learning because it lends itself to both industry training and learning in Higher Education. Dede (2009) asserts that immersion is a subjective impression that one is participating in a comprehensive, realistic experience. Therefore, immersion in a digital environment can enhance learning in three ways:

- Multiple perspectives
- Situated learning
- Transfer

Multiple perspectives

The immersive digital environment can be developed to toggle between different views. The ability to change one's perspective or frame of reference is a powerful means of understanding a complex phenomenon (Dede, 2009).

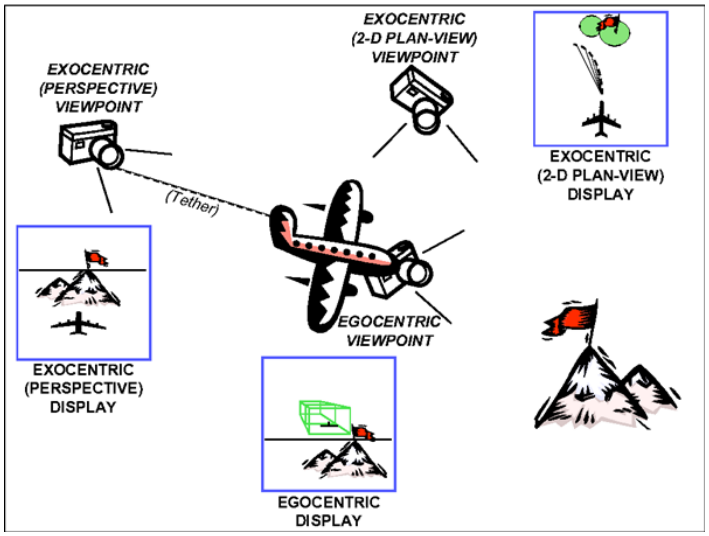

Figure 5: Multiple perspectives (Foyle, Andre, & Hooey, 2005).

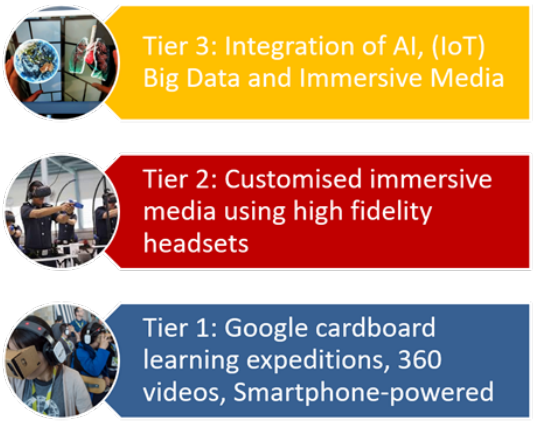

Figure 6: A pedagogical framework for immersive technologies.

Situated learning

Situated learning requires authentic contexts, activities, and assessment coupled with guidance from expert modeling, mentoring, and "legitimate peripheral participation" (Clarke & Dede, 2007). Situated learning is a powerful pedagogy seldom used in classroom instruction because arranging complementary, tacit, relatively unstructured learning in complex real-world settings is difficult. However, immersive interfaces can draw on the power of situated learning by enabling digital simulations of authentic problem-solving communities in which learners interact with other virtual entities (both participants and computer-based agents) who have varied levels of skills.

Transfer

Transfer is the application of knowledge learned in one situation to another situation and is demonstrated if instruction on a learning task leads to improved performance on a transfer task, ideally a skilled performance in a real-world setting (Mestre, 2002)

Immersive Learning is Expensive?

'An organisation needs to put up a substantial amount of investment to start immersive learning' – this is but a myth that some immersive technology vendors like to sell. There is a full spectrum of learning solutions available to users. One can start with VR360 images and videos coupled with educational apps that enable annotation of content for learning. That's a low cost way to get started and this option even allows learners to demonstrate their learning by creating VR360 content. More importantly, we need an appropriate pedagogical framework to guide the use of immersive technologies like any other educational technologies. Our learning design team has recently designed a pedagogical framework and developed VR360 content for our courses. The following diagram sums up the possibilities.

Conclusion

While I am excited about the possibilities that immersive technologies offer to improve learning, like any technologies, they have to be used with great care in order to ensure that they really support learning. Also, a learning designer seldom just uses one technology to accomplish the desired learning outcomes. Creating contents for immersive learning is not always expensive and does not necessarily require complex coding. There are low-cost, scalable alternatives that teachers/trainers can create on their own without coding, while there are also highly sophisticated 'Ironman-type' high tech solutions.

In explaining what is possible for the future, I tend to use the Ironman analogy to explain this - Tony Stark (Ironman) can become the legendary Ironman because he puts together a spectrum of technologies. Chief of them is Jarvis (his Artificial Intelligence) that helps him to manage multiple tasks. Similarly, there is potential in integrating immersive technologies with IoT, Big Data Analytics and AI to produce learning outcomes that is previously not attainable. For me, I am most happy to bring together a multi-disciplinary team to make this happen when the opportunities arise.

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A review of Nearpod – an interactive tool for student engagement

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I first encountered Nearpod some seven to eight years ago. At that time, I was mainly working with postgraduate students undertaking a Master of Science programme in Health Professional Education. I had to teach them how to teach. My preferred style of the time was to engage in a dialogue with students and by facilitating questions and their thoughts on the material under discussion, I would use a drawing board to develop concept maps and other visual tools to explain the material, theories and application of them. Using a presentation tool (PowerPoint being the most popular at the time) was not really my favoured approach – not least because of the work made famous by Tufte (2006) highlighting criticisms of its use. However, when it came to teach about 'lecturing', I role modelled the approach with the students as best I could. I remember one session where a student came up to me at the end of the class and said, 'please don't use PowerPoint again, it stifles you, we much prefer you facilitating'. I had found that a presentation tool such as PowerPoint became a little prescriptive and removed some of the spontaneity, interaction and engagement that comes from other forms of presenting, hence it was not my preferred approach.

I went to the Nearpod workshop as I was always interested in at least observing new platforms in action, if not actually using them. I remember enjoying the workshop and seeing the possibilities inherent in the tool. Here was a presentation tool that could enhance the delivery by the teacher showing slides/projections from the front of the class (the sage on the stage) by streaming it onto the smart devices that students were now constantly bringing into class with them. Donald Bligh once famously suggested that lectures are "periods of time during which the notes of the lecturer are transferred to the notebook of the students without going through the brains of either" (Bligh, 2000, p. 34). However, I observed that it did much more. Included in the platform were opportunities to not only provide the slides onto a medium that students could engage with without needing to write down, take photographs of the screen, or ask for points to be repeated and going back to previous slides. Moreover, the interactive exercises available and polls gave opportunities for everyone to be engaged in providing synchronous information and feedback on levels of understanding, and a platform for asking questions with some anonymity where they may have been more reticent in doing in larger settings.

In my efforts to use Nearpod I did set up a couple of sessions and presentations which takes the same amount of consideration and time that any other presentation tool would use. However, as my role had moved into a more senior leadership position, I found my volume of teaching was reduced and I eventually left Nearpod behind. Three years ago, I moved laterally for an opportunity not to be missed, directing a programme in a transnational education setting. Here I was now faced with large numbers of undergraduate students where the keynote lectures were a fundamental part of the delivery. This meant returning to presentation style. As my imperative is to develop critically thinking students and wanting to produce an experience for students by being engaging and interactive, I wanted an approach where I could convey material whilst involving them actively in their learning experience without having to put on a full Elton John concert type extravaganza. The students I found myself working with had the ability for critical thinking yet other than a small minority in the large group, were very reticent in relation to ask questions for clarification or challenge even when presented with opportunities to explicitly do so (in such a situation of silence I would normally say 'a question I am usually asked is….' then answer the question myself). As I looked around the lecture room at students more engaged with their devices than the screen, I remembered Nearpod and felt it was time I revisited it in order to take control of the devices students were already using in class for purpose of meeting the learning outcomes of the sessions.

Nearpod can be found at https://nearpod.com/. It is a cloud-based application with a relatively easy to use interface. Students and audiences can access the lessons with any smart device or computer/PC. It can be used synchronously or asynchronously. Nearpod provides the flexibility for the educator to shift amongst presentation/ lecture mode, to individual and group activities (Perez, 2017).

In presentation mode there is scope to design your own slides within the application itself or upload current PowerPoint, PDF and image files (with a user-friendly drag and drop facility). As well as basic content, it also allows you to add web content and various activities such as quizzes and polls (see Figure 1).

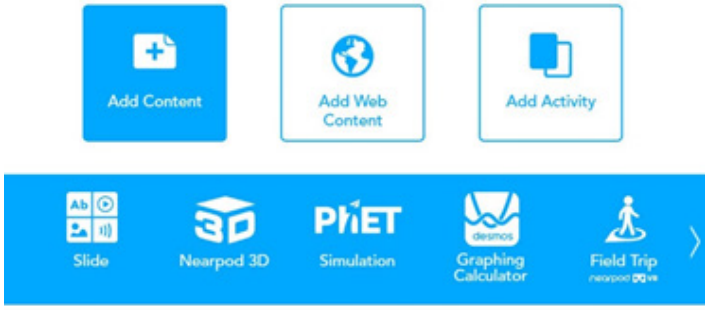

Figure 1: Add Content.

Within the 'Add Content' section, as well as creating slides as you might in other presentation software or uploading files, there are options to include a 'Flocabulary' video from a select menu: 'Nearpod 3D' (a selection of interactive rotational 3D images from a variety of categories); and 'PHET' interactive simulation activity (such as building fractions, from a number of subject categories). There is a 'Field Trip' option (a number of interactive panoramic images of interesting subjects such as the planet Mars). A 'Graphing Calculator' to produce mathematical graphs. There are 'BBC videos' which can be selected from a range of categories. Sway presentations can be selected as can YouTube and other videos. There is an audio option, a PDF viewer and facility for live twitter stream.

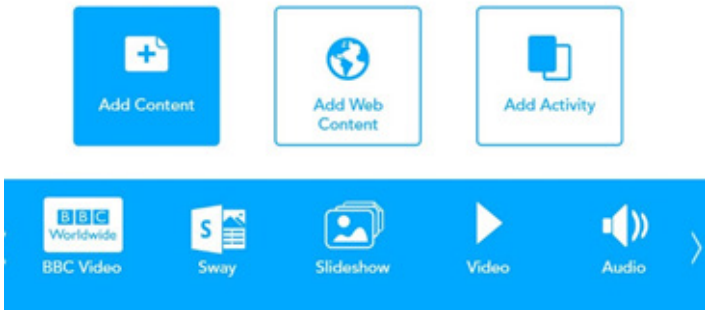

Figure 2: More Content Choices.

In the 'Add Web Content' there is the simple option of adding URLs that you feel may be useful as part of your lesson. There is a warning however, that some websites using 'Flash'

Figure 3: Adding Web Content.

As a teacher I have been able to use the add web content section to direct the students to my University's Virtual Learning Environment (VLE) where they can further engage with material within that system also.

In the 'Add Activity' there are choices to include questions and quizzes. These can be open ended, or multiple choice. There is a 'Matching Pairs', a 'Fill in the Blanks', a 'Memory Test' and a 'Draw It' facility also. It also gives the students opportunity to collaborate and post their feedback as well as being able to participate in polls (See Figure 4). These can be prepared beforehand, or if you are working synchronously, they can be created on the spot. I have found this to be one of the most useful aspects of Nearpod. Although the teacher can see who posts certain questions and answers, it appears anonymous to those in the student space. Therefore, students that might not necessarily ask a question or offer an answer out loud and physically in front of a full class, are empowered to do so using this platform. This gives the teacher opportunities to address these aspects. I also use this if I'm working synchronously and notice a lull in energy within the group. An activity almost always helps to re-energise students and to re-focus them. The number of features does vary with the package and pricing plan chosen.

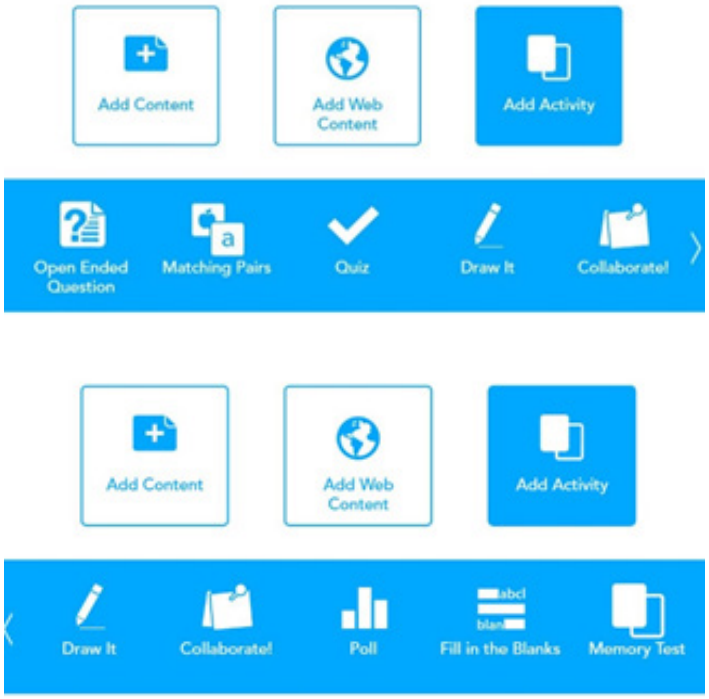

Figure 4: Adding Activities.

In order to access the session either synchronously or asynchronously, students are provided with a code to use when entering the site in order to join the specific lesson. Students can access this on their devices and there is a facility for them to make notes (which are then emailed to them or saved as per their specification, see Figure 5) on each slide.

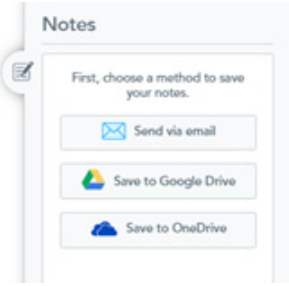

Figure 5: Notes Function

Whilst the activities are taking place the teacher has options to share the answers or not with the group. These data provide the teacher with a live figure of how students are doing in

either their participation or performance in certain activities. It is a useful tool to gauge the pace of your presentation and lecture and whether to change approach. However, the large benefit is providing students an anonymous platform in which to ask questions or raise challenges.

Another brilliant thing about Nearpod from a teacher's perspective is that once these sessions are finished, you are able to generate a report on the session which is emailed to you as a PDF (see Figure 6).

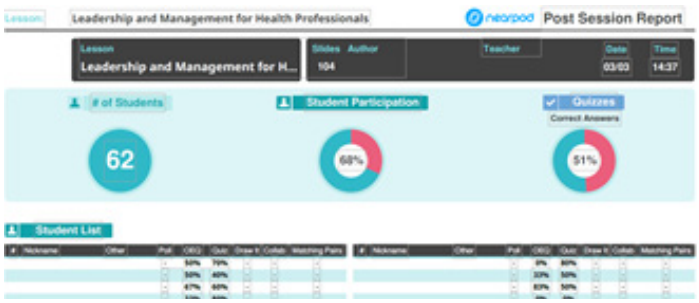

Figure 6: Report Facility.

This report gives an account of all of the activities involved including student responses and scores, levels of participation, questions asked and all written interactions.

There are a number of levels of packages available. Silver, Gold, Platinum, School and District Edition, and Higher Education. Silver is free but limits the accessibility to 50 students. More numbers can be included as the pricing and level of plan increases. As does access to a wide range of accessible lessons in a range of subject areas and grade levels as well as other teacher resources such as webinars and subject plans. The pricing plans can be found here: https://nearpod.com/pricing. As well as accessing the website there are also app versions available on some platforms.

In conclusion, I found that using Nearpod to present with assists in increasing student engagement. Where previously students might have been reticent to speak out in front of their peers in class, they now can ask questions anonymously, and hopefully the teacher can provide the answers. It gives the teacher the same resources as other presentation tools but much more including live polls, so background knowledge probes and minute answer tests can be conducted. It provides the teacher with live updates of participation from students and access to a number of video and online resources. In my lessons, students have evaluated this well in the main, except for one or two students that do not like using technology in the classroom. However, in my opinion it is a great way for the teacher to encourage students to use their mobile devices for active learning within sessions as opposed to being present but not participating whilst accessing their devices for social media and other entertainments. It can be challenging to set up in the first instance, but once used to the interface and the resources within it, it becomes no more difficult than using other slideware presentation tools and provides more flexibility.

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Learning English is already a misspelling minefield without using programs that will confuse children

Kara Jung *Columnist, The Advertiser, Australia*

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It's important that our children know of different spelling between countries – but their minds are already full of a thousand rules and exceptions. Give them a break.

English is a difficult language to learn. This is never more obvious than when you watch your children learn to read and write.

"EA makes an 'ee' sound," I remind my son.

"So why is great spelt EA?"

Yep, for every rule there's an example of that rule being broken, twisted, thrown out – take the old "I before E except after C" rule.

Except when your foreign neighbour Keith receives eight counterfeit beige sleighs from feisty caffeinated weightlifters (full disclosure: I stole this wonderful piece of literature from a friend's coffee cup).

In other words, this little rule that so many of us would have learnt as kids really should say: "I before E except after C or when it sounds like A as in neighbour or weigh and not when you spell science and ageing and insufficiencies and … oh dear".

Can you imagine trying to teach this to children or those for whom English is a second language? And don't get me started on apostrophes, commas and knowing the difference between there, they're and their (Which is E before I, for those who still care).

And which witch is which? God, I'm starting to twitch.

Z or S?

Americans realize, organize, analyze. Australians realise, organise, analyse.

ER or RE?

Americans have centers, fibers, theaters. Australians have centres, fibres, theatres.

OR or OUR?

Americans color, favor, humor. Australians colour, favour, humour.

SE or CE?

Americans play offense and defense. Australians play offence and defence.

LOG or LOGUE?

Americans have catalogs and dialog. Australians have catalogues and dialogue.

And then there are text abbreviations, emojis and verbal slang, which has exploded into everyday use. So does it matter if your child knows the difference between "your" and "you're" if they're only ever texting "YW" instead of "you're welcome"?

The Advertiser (Australian daily newspaper) reports parents are calling for US programs to be pulled from South Australian schools, arguing they have the potential to confuse young students. Kelly Higgins wrote to her daughter's teacher with concerns about the use of the free online ReadTheory, made in the US.

"There's a lot of American spelling in the programs that (my daughter) is given," she said. "I don't want my child to be writing in a way that she'll have to unlearn when she gets to high school or into the workforce."

Yes, apart from the different accents and slang – think candy (US), sweets (UK) and lollies (AU) – there are also differences in spelling.

Here in Australia, we organise, while in America they organize. And while they do a favor, we Aussies do a favour. We go travelling while they go traveling. So does Mrs

Higgins have a point? Should we ban it? If the best online reading programs are coming out of the US, should we not use it merely because a few words will be spelt incorrectly?

Or do we factor in teaching kids the difference on top of all the other grammar, punctuation and spelling rules? And with American language already everywhere, why should we care?

As we become more global, it's important that our children are aware of variations in spelling across countries. But with so much to absorb as they learn to read and write, perhaps thrusting misspelled words in their faces is not the best idea.

Their little minds are already swimming with a thousand rules and all the examples of when they don't apply.

Clarity is at the heart of reading and writing. Correct spelling and grammar ensure your ability to communicate accurately. And when we educate our kids correctly on the rules and quirks of English, it will ensure they can speak and write in a way others can clearly comprehend.

Grammar, spelling and punctuation are a sign of trust and expertise. And when our kids grow up and enter the workforce, clarity and communication are essential. When they get it wrong, it will call into question their credibility and can often, even unintentionally, be viewed as a sign of carelessness.

Learning English is already a misspelling minefield without using programs that will confuse primary-aged children. And surely our Aussie educators can come up with world-class, local reading programs with Australian spelling?

It's the difference between them knowing their shit and knowing they're shit.

An earlier version of this article appeared in The Advertiser (a daily) in Adelaide, Australia.

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Giving and receiving feedback - role play exercise

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Acknowledgement in memorial

I would like to acknowledge the contribution to this paper provided by Lorraine Farnan (nee O'Brien) who passed away this year, far too early. Lorraine, in her British Airways Human Resources role headed up the Lancaster University Executive Global MBA programme I studied on, and together we ideated the role play training that sits at the core of this paper, which was partly inspired by her own O'Brien family's smelly feet.

Introduction

Drawing inspiration from one element of a management development programme at a large, international airline the author had helped co-design, this role play exercise was utilised in its current form as part of an experiential, two-week long MBA professional development skills induction programme. It was designed to help accelerate the formation of strong ties amongst a group of international, post-experience business school Master's students. However, it was later also successfully deployed as an ice breaker/ team building exercise for the School of Management's group of Undergraduate Student Ambassadors, who were employed part-time during applicant visit and open days to represent the department. It might also be deployed as part of a personal tutoring or career development programme, or even within a vocationally oriented management and leadership module.

The session is designed to encourage extensive student participation, and much of the 60 to 90 minutes required to successfully run this intervention should see students working in pairs or discussing their reflections in small groups. This exercise requires no prior preparation from students, and the concise role play scenarios are simultaneously both succinct and sufficiently rich, the material can be quickly absorbed and embodied in a relatively short period of time.

In an increasingly competitive environment where students often identify feedback as the lowest rated satisfaction measure (see: Ferguson, 2011; Canning, 2018), this instructional guide provides university tutors with an additional, rich tool that has been shown, over many iterations, to help develop important soft skills (Ritter, Small, Mortimer & Doll, 2018).

Learning Outcomes

After this intervention, students should be able to:

- Confidently make an active, oral contribution during class
- Reflect on their own (role play) behaviour with a peer
- Operationalise the fundamentals of giving and receiving effective feedback
- Through immersive experiential learning and reflection, understand the importance of gaining trust and facilitating active listening
- Appreciate the altruistic nature of feedback, the importance of using specific examples and to be confident in asking for feedback more often

Lesson plan

[2 mins]: Overview of session

[5 mins]: To plenary:

"What do we think about feedback?" [wait for students to break the ice here, do not rush onto the subsequent questions]
"Do you like receiving feedback?"
"What about giving feedback – is it easy or hard?"
"How do you feel when you've had disappointing feedback?"
"Can you tell me about a time when you acted on difficult feedback and it really made a difference ?"

Give the group feedback on their performance, role modelling the feedback sandwich model – sugar coated buns, developmental meat – with specific examples from the plenary discussion.

[5-10 mins]: Introduction to giving and receiving feedback, three key points; (1) act of kindness, (2) continuous improvement, (3) impression given of not asking for feedback. Discuss the concept of fight or flight – in particular response to unsolicited negative feedback. Emphasise importance of source credibility and the need to regularly solicit feedback. Introduce the Johari Window (South, 2007) and highlight the blind spot danger area. Explain the anatomy of the feedback sandwich. [Add a bit of fun by badly drawing a burger on a white board, with sesame seed embellishment dots.] Emphasise that University should be a safe place for learning – by making mistakes. Reprise key points.

[7-10 mins]: Encourage students to form pairs (odd one out can form a three, or the instructor can role play).

> "On the instructor's signal, you will be invited to 'perform' the first role play, role play ONE. Each brief has two roles for you, one where you are the line manager, the other you are the subordinate."
> "There are five minutes reading time to prepare first."

Distribute/allocate role plays –

> "Together each pair should have one brief A and one brief B (two roles on separate A4 sheets). Read **only** the brief assigned to you."

> "Role play ONE has Sal as the line manager to Sam (top of the page). Confirm in your pair that you know who is Sal and who is Sam."

> "Take 5 minutes to read and prepare for role play ONE only at this stage."

[Encourage discussion with other students in the same role if there is ample time

> "Sal should make notes before commencing."

[5-7 mins]: Launch the role playing.
> "Preparation time is over."
> "Please now imagine that you are in a comfortable and reasonably intimate space, where no one can overhear you."
> "You have about 5 to 7 minutes to perform the role play ONE."
> "Once you have finished, silently reflect on the conversation you have just had."

[5 mins]: Encourage reflection
> "In your pairs, please reflect on your conversation. How did you feel at key points?"

[5-10 mins]: Plenary discussion:
> "What did you learn?"
> "What was difficult?"
> "What did you enjoy?"
> "How realistic did this situation feel?"

[5 mins]: Reverse roles in role play two.
> "Please now prepare for role play TWO."
> "Please identify who is playing Wei/Hui the shift leader and who has the role of bar worker Jo/e"

[Names chosen are deliberately diverse and inclusive, including the use of the non-binary 'they' personal pronoun. Wei is female with a rising intonation, whilst male Hui has a falling intonation – non-native Chinese speakers may not hear the tonal difference. The instructor may choose to change the names to better reflect the student groups' diversity.]

[5-7 mins]: Launch role play two.
> "Preparation time is now over."
> "Please now imagine that you are in a comfortable and reasonably intimate space, where no one can overhear you."
> "You have about 5 to 7 minutes to perform the role play TWO."
> "Once you have finished, silently reflect on the conversation you have just had."

[5 mins]: Encourage reflection.
> "In your pairs, please reflect on your conversation. How did you feel at key points?"

[5-15 mins]: Plenary discussion:
> "What did you learn ?"
> "What was difficult ?"
> "What did you enjoy ?"
> "How realistic did this situation feel ?"
> "How was the second role play compared with the first ?"
> "Why was it different ?"

[3 mins]: Emphasise the learning outcomes for the intervention. Give the group feedback on their performance role modelling the feedback sandwich model – sugar coated buns, meat – with specific examples from the discussion.

Teaching Reflections

Although the burger bun or sandwich feedback model (Docheff, 1990) is widely used in industry (e.g. Glover, 2000), it does not always receive a positive reception in academia (see illustrative examples: Henley & DiGennaro Reed, 2015; Von Bergen, Bressler & Campbell, 2014; Boud & Molloy, 2012). The simplistic mechanic can become a cliché, and there is some danger that managers and/or subordinates may not take the feedback exercise seriously.

If the line manager is merely seen to be running the feedback process for the sake of it and not really committed to offer genuine developmental support to their subordinates (e.g. by rushing the process, coming across as disinterested, moving the meeting to accommodate other priorities, being badly prepared or disorganised, not having evidence of specific situations to hand, not asking for and listening to feedback themselves) then the process is likely to lack integrity and effectiveness.

It is important that the feedback encounter does not feel like a cookie cutter exercise, and with experience over time managers and supervisors will develop their own style for running these conversations that will likely be tuned into the subordinate's preferences and experience.

Additional Teaching Resources

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Appendix 1

Role play scenario <Brief A>

Playing Sal, Sam's line manager: Role Play ONE - Giving feedback

You to play the role of Sal, customer service supervisor responsible for managing the performance of a team of frontline staff who primarily sell mobile telephones. The team also handles general service enquires and complaints at a High Street retail outlet, over the telephone and online. The team of eight comprise four full time staff and four part-timers, who are often students working weekend shifts.

Sam has been employed as part of the team for six months and has settled well, demonstrating a positive approach to working with other members of the team. Sam has a good habit of writing down any follow-on calls required the next day, although sometimes this annoys other staff members as they are often delayed closing the shop at the end of the day. Much effort from Sam has gone into communicating to shop visitors various functional attributes of the display products, but their experience is now beginning to show, allowing browsers to look, yet be open to take 'intend to buy' potential customers to the next stage in the sales funnel process.

Although relatively young and quite inexperienced initially in a frontline sales role, previous experience in a fast food restaurant results in a positive impression being created with clients. You recently overheard a customer leaving the shop as you returned from lunch saying (about Sam) "That sales assistant was very helpful. I really didn't know what to do, they took a long time helping me get the right phone for me." On occasions, time keeping for the start of work has been an issue, particularly for early shifts. The one thing that you have been waiting for the right moment to discuss with Sam is their personal hygiene (they smell). The sales performance statistics for the last quarter have just been published and Sam ranked 4th in the team, despite being a part-time worker.

Playing bar worker Jo/e: Role Play TWO - Receiving feedback

You are to play the role of Jo/e, who is being performance managed using the feedback process with boss Wei/Hui, who is your regular shift leader. You have taken this bar work because your family can no longer support your studies. You are quite shy and would never choose to work in such an exposed customer role. You struggle to know how to handle personal comments from customers, particularly later in the evenings. You are told by others that you are quite a fun personality, but you do not like to step forwards, preferring that others take a leadership role if there are difficult situations. Most of your co-workers are fellow students, so you enjoy the banter that goes around.

DO NOT REVEAL THE FOLLOWING UNLESS YOU FEEL GENUINELY COMFORTABLE/TRUST THE PERSON GIVING FEEDBACK. A family member has alcohol issues. You struggle to cope with people who have intoxicated themselves.

Role play scenario <Brief B>

Playing Sam: Role Play ONE - Receiving feedback

You are Sam. You work part time on the weekends and holidays in a mobile phone retail outlet. You are young and quite new to sales and working in a retail sales environment. You knew relatively little about telephones before commencing work. You have previous customer service experience working in a fast food restaurant from a young age. You are quite shy and have not previously had a performance review with your shop manager, Sal, before. You enjoy working as part of the team, although a few of your innovations have not been more widely adopted by colleagues.

DO NOT REVEAL THE FOLLOWING UNLESS YOU FEEL GENUINELY COMFORTABLE/TRUST THE PERSON GIVING FEEDBACK

You are having problems at home and have had to crash overnight with friends unexpectedly quite a lot.

Playing Jo/e's shift manager: Role Play TWO - Giving feedback

You are Wei/Hui, regular shift leader running a popular bar. Your boss works a 60-hour week, but has a family and often leaves you in charge to close up and look after the weekends. You are around the same age as the other staff and are paid the same hourly rate. You organise the work roster and get paid more than others because you work more hours regularly. You have just attended a management training refresher programme and you are keen to ensure that all the important service elements are delivered consistently. You are a bit of a character, with strong opinions, a loud voice and a very direct manner with everyone.

To your mind, Jo/e causes few breakages of stock and glasses, a key indicator you use to establish the quality of a worker. Once in a while a customer will offer to buy Jo/e a drink, a sign of a developing rapport with regulars. Whilst not always the first staff member to arrive when a difficult customer situation arises, Jo/e is effective at identifying short stock items in good time and proactively taking steps to ensure that during the busy periods, re-stocking is not required. They have learnt the product range and pricing quickly and appear to offer consistently high levels of efficient bar service, although could offer stronger eye contact when dealing with customers. Although not a huge issue, this is a hot button item for you. A little shy in the beginning, Jo/e has integrated well into the team and offers to stay late to help cash up and complete the cleaning regularly, although custom and practice does not usually see this as a paid activity.

Appendix 2: Burger Bun Feedback briefing/ presentation notes

Giving and Receiving Feed*back*

https://pixabay.com/images/id-1239198/

Justin O'Brien
Royal Holloway
University of London

Why use Feedback?
An act of kindness, not punishment

•It is imperative that you engage in the feedback process in an emotionally balanced or positive frame of mind.

•Never make the mistake of giving your feedback in the heat of the moment, it is unlikely to be balanced or constructive. You may say something(s) you later regret.

Why use Feedback? [2]
Continuous improvement

•Used effectively, feedback offers a positive reinforcement of good behaviours:
–Show personal awareness
–Ask for feedback
–Be seen to act on feedback
–Go to (1) again

Why use Feedback? [3]
Not asking for feedback means?

•You do not care about what others think?
•Believe yourself superior to others?
•You are perfect in every way?

Build Self-Awareness

Often at interviews you will be asked a (disguised) question about personal awareness:

"What are your strengths & weaknesses?"

"Can you tell me about a time when….?"

"What will you achieve in your first 100 days?"

"What are your development needs?"

"Describe your management style?"

University: safe place for learning

•Students are given some tolerance as they use their degree experience as a chance to experiment and mature; a process that often involves making mistakes and learning from them https://pixabay.com/images/id-1239198/em, as well as building confidence from successes.

University is a GREAT, safe place to trial giving and receiving feedback

Fight-or-Flight?

•It is likely that you are familiar with the fight or flight instincts, that invoke powerful responses to danger.

•To be effective (or merely vaguely useful) the feedback process needs to avoid both of these primal reactions. In both situation's it is likely that any messages put across will be firmly **REJECTED**.

Rejecting the Source of feedback

•Someone you do not like, do not have respect for, does not like you, wants only bad things to happen to you, cannot realistically offer helpful feedback.

Effective Feedback components:

•**TRUST** the persons integrity and the process itself

•**BE SAFE** and **UNTHREATENING** away from the crowd

•**CONFIDENTIAL** conversations stay behind closed doors

•**FACTUAL** use specific examples (notes)

•**OBJECTIVE** avoid heightened emotional situations

The feedback sandwich

•Remember to start the process with open ears, positive body language and a warm **he♥rt**. You are helping someone develop, not off-loading your own pent up emotional frustration.

•Choose a suitable location, that is private and where you will not be disturbed. Turn off your phone and tablet. Avoid the bosses office.

The Feedback Sandwich

BUN

MEAT

BUN

BUN: Break the ice, build rapport

•Use three positive, specific examples

•Avoid generalizing, it lacks credibility

•Honestly reaffirm positives

•Use strong examples (from notes)

MEAT: key for change

•Difficult topics, use an inverted opening "How are you finding....??"

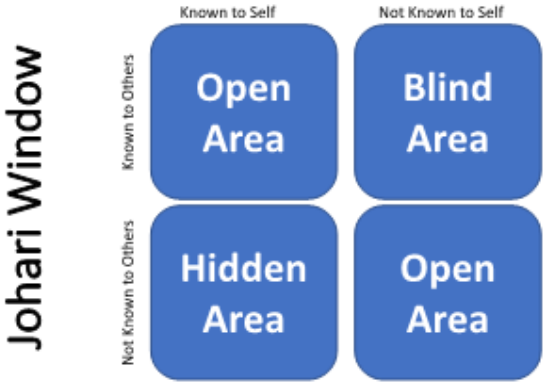
•Be factual, avoid opinion or feelings

•Be succinct. Give examples.

BUN: Close on a positive

•Be real. Be authentic. More examples.
•Invite comments genuinely (don't yawn !)

•End on a **HIGH.**



(South, 2007)

Blind spot: Remember to turn your head

Watch your blind spot

•Learning to drive we all learnt about that zone where even cleverly placed mirrors cannot cover. We are taught to turn our heads to avoid missing something in the 'blind spot'.

The Johari window is a practical 2x2 framework that helps us remember that we really do not know everything, and reinforces the need for feedback.

Remember

•It is difficult to give constructive feedback effectively
•Most people value your help
•No one wants to mess up because of a 'blind spot'
•Experience makes the process much easier
•Practice makes perfect

(...continuous evolution towards nirvana)

•Try to walk out smiling

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Gornall, L., Thomas, B., & Sweetman, L. (Eds.). (2018). Exploring consensual leadership in higher education: Co-operation, collaboration and partnership. London, England: Bloomsbury.

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This is the third book that I have reviewed in the series, *Perspectives on Leadership in Higher Education*, published by Bloomsbury. The book is written within the context of leadership involving interconnectivity with staff and building consensus on future strategies to embrace the issues confronting universities. The book is written around the challenges facing universities in an increasingly corporatised environment facing challenges of marketisation, internationalisation and the need to agree on approaches to deal with increasing global complexity and fragmentation.

It is interesting to reflect on styles of leadership across society in the current era. At the highest political levels, we are finding it increasingly difficult to build a majority consensus on approaches to things like climate change, migration and economic policy settings. Politics in democratic societies have become dominated by populist politicians and coalitions of minority groups pushing for individual agendas rather than a collective agenda as may have been apparent in the past. In other parts of the world, authoritarian rule has been strengthened.

Within an institutional setting we can also observe various leadership styles ranging from some presidents and vice chancellors of universities that take a very authoritarian command approach to their role as opposed to those that still operate on a very collegial and democratic decision-making process. In my experience, I feel that the universities have generally moved more towards a command approach with the more democratic or collegial academic decision-making being left to the more operational elements of research, scholarship, teaching and learning. Collegial responses are generally now only an input into how to collectively deal with the high-level issues of internationalisation, commercialisation, the business development of the university, and the emerging corporate nature of universities themselves.

This book edited by Gornall, Thomas and Sweetman explores consensual leadership in higher education, and focuses on the themes: Co-operation, Collaboration and Partnership. In the introduction, the authors do note that privatisation and marketisation of higher education have created a more competitive environment for institutions. Also, business management and strategy seem to have displaced pedagogy from its essential role within the life of the university. Indeed, as education becomes commoditised, marketed and sold to diverse groups of students, domestically and internationally, pedagogy runs the risk of becoming simply an input into the production process. Education becomes a commodity rather than a central feature in developing the unique characteristics of particular universities. Financial, not academic, success ultimately becomes the measure of institutional performance in this setting. Further, as the editors note, in an increasingly corporate and managerial setting, management risks becoming more authoritarian and rigid at the expense of collegial decision-making.

Similar to other books in the series, this book is a collection of case studies, research, discussion and debate, studying and presenting qualities of leadership, and building the case that leadership needs to be more consensually based than authoritarian command based.

The subject of the book is highly relevant to academics working in managerial positions within universities. As the editors note, it covers the tensions between the role of the manager of the new higher education *business* and the role of the scholar in promoting creativity, academic free thinking and research. This is no more evident than when we consider the chair of the faculty which in many universities was rotated amongst the professoriate within the faculty with each serving their term. Decision-making was largely made by the faculty as a group and indeed the appointment of the chair of the faculty was very much the domain of the faculty as a collegiate group. This has changed in many countries and many institutions, whereby the chair of the faculty is appointed by the executive of the University with key performance indicators linked to financial viability, student numbers, research rankings, research grants and volume of output from academic staff. Rather than being leadership rotated around colleagues, the head of the faculty has become a line manager appointed by higher level executives, using head hunting firms, with the achievement of corporate objectives as their prime aim.

The book is divided into three sections and a conclusion. The first part is on co-operation followed by collaboration and then partnership. The concluding chapter reflects on whether academics could learn from musicians about creative leadership and collaboration, a very interesting spin on the subject.

The first part on co-operation begins with a case study based in Nigeria, considering the co-operation between universities and industrial groups in Nigeria. The author concludes that co-operation in higher education is inextricably linked to participative leadership and trust. Without these elements, co-operation becomes lack of co-operation. Indeed, organisational trust enhances staff behaviour and overall inventiveness, encouraging team building. It is argued that this is a foundation for more effective collaboration and it supports effective co-operation with bodies external to the organisation.

The second chapter in this part reflects upon the work experiences of young academics in Finland. The authors note that early career academics enter into a system which cherishes competition, productivity measurement and individual success. Through interviewing a sample of early career academics, the authors investigated what is good versus bad co-operation and concluded that real and true co-operation is highly valued by the early career academics studied. To further drill down on this finding, they looked to three dimensions of co-operation: cognitive, social and moral. Within this context, the authors concluded that these dimensions lead to an inherently rewarding and motivating experience through co-operation in academic work. It was also noted that within the current managerial culture of universities, increased co-operation amongst academics can create value and enhance the lives of those in academia and providing benefits to society at large.

The third chapter in part one examines departmental relationships in three Spanish institutions. The authors developed a set of dilemmas encountered by managers in a range of institutional settings. These included leadership dilemmas and governance dilemmas. It was recognised that many of the leadership dilemmas are focused on people and conflicting values. Overall, they find two main sources of dilemmas, one inherent to the individual and the other focused on the organisation. From an individual perspective, it is argued that the major dilemmas flow from how a person works with colleagues to achieve their objectives and the organisation's objectives, whereas the dilemmas flowing from organisational structures are inherent in the structures themselves. This leads to managers operating within very complicated interpersonal and organisational settings. The authors present a case for co-operation inside and outside of the organisation as being a prime mechanism to overcome dilemmas inherent in university management in the face of external and internal pressures.

The final chapter in part one explores co-operative approaches to teaching and learning in a UK setting. The author concludes that much of the co-operation evident in universities is a function of the broader co-operative movement itself.

The second part of the book considers collaboration and includes case studies from Canada, the UK and Spain. The first chapter of this part looks at leadership responses to the more competitive external environment that universities face. There is considerable discussion of values and human skills needed to bring people along with leaders to ensure that there is consensus and support for leadership as it faces difficult decisions in an increasingly complex environment.

The second chapter in this part is concerned with knowledge creation within universities and in particular social sciences. It focuses attention on the situation where students are both students and colleagues working as research assistants. This creates an environment where the notion of consensual leadership requires careful consideration through tensions like student – teacher, research leader – early stage researcher, and supervisor – staff. The authors conclude a consensual consent is critical for the work in research and research training, especially where involving mentoring and support for early-stage researchers.

In the third chapter of part two, Spanish research groups are subject to case analysis. The researchers studied the social structure of the research groups to see how the structure has been created and the role of leadership. They note that from the outside, these groups look to be more command style environments. However, from within, they found that relationships are both supported and social, with consent and mutual respect at the heart of the operation of the groups.

The final chapter in this part takes a more theoretical approach to leadership and collaboration through a case study of a well-established higher education institution. The author looks at the dynamics of networks within the institutions and finds the emergence of collaborative leadership as the institution faces the challenges of moving from traditional higher education delivery towards electronic delivery and distance learning.

Part three of the book considers partnership, where partnership is viewed as involving longer term relationships than those found in the previous parts on co-operation and collaboration. The first chapter considers the situation in Chile within the context of the colonial history of the country and the emergence of marketisation of higher education. The authors note that in some respects, the chapter is concerned about disruption of the consensual model and inertia in sticking to a western style for the academy reflecting the experience of staff returning from study and research overseas.

The second chapter takes us out of education and looks at the environment within service sector centres in the United Kingdom. It is observed that this style of workplace puts humans into a machine type environment. It is acknowledged that it is hard to see how consensual leadership could be developed within such an environment. Notwithstanding this environment, the researchers sought to consider what it would be like to change relationships within such a centre through encouraging leaders to become more consensual, involving and empowering teams, and involving frontline staff in decision-making – in effect, creating a partnership

between leaders and workers.

In the next chapter, four individual authors bring the experiences of working abroad from four different countries: Australia, Japan, China, and the UK. Each of the authors was seen to be the 'on-loan' international scholar within their overseas organisational setting. They note that is difficult for the incoming scholar to fit within the host institution, even though they are expected to take a role in infusing a different way of doing things with a view towards improvements. There is an observed contradiction in that the purpose is to inject new thinking as a visiting scholar in that they faced resistance from existing staff.

The final chapter in this part is written by two members of the editorial team and one of their colleagues. They reflect on relationships that they have built in the past to build partnerships. Some of the experiences they referred to as 'the time of their life to be celebrated'. However, there were other instances where there were problems or difficulties through misunderstandings, poor partner choice and ultimately a waste of resources.

The editors' aim was that the final four chapters in the last section of the book on partnership would lead to more discussion of how leadership evolves in different environmental settings and it succeeds in providing key issues for discussion. If we take a step back and contemplate approaches to leadership in an era where education institutions are confronting commoditisation of the learning, internationalisation of marketing, competitive pressures for grant income, and global ranking systems for research outputs, it seems inevitable that some leaders will revert to an authoritarian approach. Experienced managers sometimes revert to a command approach through lacking in confidence in their ability to elicit the consensus required in a more democratic style. However, the basic nature of the academies is such that high value is placed upon scholarship, research, learning and teaching. Traditionally, these have been best delivered in a community of scholars working together rather than in a command style setting. Personally, I have never found an authoritarian approach to management to work, so it's no surprise to me that a book like this which outlines cooperation, collaboration, and partnership as critical elements in building a leadership style is based upon consensus. Furthermore, there is no surprise that effective consensual leadership involves creativity in both being creative and creating an environment for creativity. This is where the final chapter comes into play, drawing on experiences from jazz musicians in fostering improvisation and applying the principles to higher education settings.

Overall, the book may seem quite common sense to readers in that the settings of universities are more conducive to collaboration and consensual leadership approaches. Notwithstanding that, the pressures on senior leadership within universities may lead them to try more authoritarian approaches. The book therefore is a valuable contribution providing well-researched support for the key elements of consensual leadership and a timely reminder of the value of the approach.

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Dede, C., Richards, J., & Saxberg, B. (2019). Learning Engineering for online education: Theoretical contexts and design-based examples. New York, NY: Routledge.

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In 2016, Massive Open Online Courses (MOOCs) had 50 million students enrolled from around the world. At the same time, Google Analytics that was running free Analytics Academy courses with 5.9 million users, found that 90% of student traffic fell off after just two sessions due to the lack of interactivity and personalisation. Student participation in online education offerings is creating valuable data that can be used to help drive their motivations and learning outcomes. Against this backdrop, industry-leading academics and practitioners in the fields of learning engineering, AI, learning technologies and instructional design have written *Learning engineering for online education: Theoretical contexts and design-based examples*. This book posits that learning engineering, or "evidence-based approaches, measurable and measured outcomes, and iterative processes" (7), can utilise student data from online platforms to create better and more engaging learning experiences.

The book poses some tantalising questions:

- What if teaching practices were documented, measured and constructed as learning experiences based on reliable feedback data?
- What if these experiences were systematically recalibrated based on timely student engagement data?
- More specifically, in a time when online learning is becoming the most scalable form of education dissemination, what if student learning data from interactions with online media and systems could be used to determine and influence their motivations and outcomes?

If you are an instructor, course designer or academic leader in an online or blended environment who has wondered about this, this book will help you explore how learning engineering can integrate data analytics, learning science and evidence-based learning improvement approaches to recalibrate online delivery for the new digital age.

But what exactly is learning engineering? To explain I will ask you to imagine, as Bror Saxberg does in Chapter 9, that you are a learning engineer for an organisation preparing online students for complex reasoning tests. Drawing on research into working and long-term memory, you surmise that working memory could be overloaded by these logical reasoning problems. You then run a randomised control trial comparing your current training approach, which uses online videos and workbooks, to a worked example approach pioneered through decades of research and find that worked examples produce statistically significantly better results. Your organisation is then forced to do some soul-searching and redesign its whole educational model.

As demonstrated by this example, learning engineering has two main dimensions. First, the improvement science itself and second, the institutional-level changes that are needed to create a culture that encourages learning improvement based on concrete evidence and data. Part 1 of the book addresses the former and sets out in the first four chapters the remit of a learning engineer as well as delving into the minutia of integrating learning engineers into the culture and operational fabric of an institution. Part 2 is made up of chapters presenting case study examples of how learning research and engineering can transform the student experience. The book is organised with each chapter being written by a different academic, researcher or innovator from the online learning sphere.

In Part 1, Phillip D. Long, an academic leader and activist in technology enhanced learning, defines a learning engineer as someone able to instigate evidence-based interventions by using the "interactions students engage in through digitally mediated coursework and in-class activities" (22). These learning "sensors" (27) available to data scientists are currently increasing, as granular data sets enable the personalisation of a student's learning experience. The other chapters in Part 1 explore how educational institutions could go about embedding learning engineering teams into their teaching and content creation function, to create new and engaging digital assets (animations, videos, assessments), identify learner pain points and design evidence-based interventions. Importantly, the authors in these chapters acknowledge the complexity of this process but also set out a formula that institutions can follow to encourage a data-driven culture promoting trust, respect and collaboration between all stakeholders, especially learning engineers and

faculty. As a manager in an academic institution, the advice in the chapters in Part 1 was very practical and revealing about potential stumbling blocks to changing to a culture of learning improvement. These chapters are therefore geared towards influencers, or managers in the academic space, as well as facilitators who want to encourage the change from the ground up.

Part 2 goes on to provide cutting-edge, actionable and detailed case studies which can be immediately useful to institutions trying to implement a learning engineering approach to learning improvement. Also, the chapters in this section provide many current online tools and websites being used by Harvard, MIT, Google and other online education providers.

For example in Chapter 6, Chris Jennings, the senior instructional designer at the Google Analytics Academy, explores different types of personalisation (explicit, implicit and adaptive) and creating custom learning paths, like machine learning diagnostics, to maximise engagement and make learning personally relevant and meaningful to students. Ashok Hoel, a leader in future of pedagogy and learning systems initiatives, addressed in Chapter 7 the problem of limited online teaching staff by introducing Jill Watson, a virtual teaching assistant. She can monitor discussion forums and respond to routine frequently asked questions with high accuracy and readers are provided with actual conversation logs between her and students.

Chapter 8 contains one of the best examples of learning engineering in the book with two educators and online entrepreneurs exploring how deep machine-learning technology can "help recapture that learning magic moment that so often occurs within the traditional physical classroom" (162). They describe how they created "idealised learner groups" (153) to increase online education persistence in the student forums of a live-streaming online platform. They first considered literature on external factors influencing student engagement, on the positive peer effects of grouping high and low achievers, as well as theory from traditional classrooms around how social learning affects academic performance. This research then informed an algorithm which dynamically grouped students based on demographics, educational performance as well as personal data such as hobbies and maintained an ideal composition of high, mid and low achievers in each group. They found that as a result of these groupings, 84% of learners answered online questions posed by fellow students, with 79% of the responses being correct.

The final two chapters in Part 2 by Saxberg and Sarma set out the pedagogical and cognitive basis for learning engineering. Saxberg starts by stating that "technology in itself does nothing for learning... What it does is make good or bad learning more affordable, more accessible, more data-rich and more personalised. However you need to start with good learning solutions..."(171). He suggests that these solutions will come from cognitive insights drawn from educational literature. First, from the cognitive science behind short- and long-term memory and how both are involved in learning. Second, from research on how value, self-efficacy, attribution and emotional states drive student motivation. He advocates evidence-based technological approaches to refining the learning experience but reminds us to always go back to the student, the learner and the cognitive processes behind them.

In Sarma's final chapter, "Rethinking Learning in the 21st Century", we are reminded that the lecture is a blunt and old educational old, a remnant from an industrial age of creating followers, not critical thinkers. Despite being enticing due to its convenience, it goes against what we know from research into cognitive psychology and learning science, especially when applied to the online environment. He echoes Saxberg's proposition that we need to use technology to take advantage of what we already know about the learning process to develop a "richer orchestra" (198) of instruction through online and technological capabilities. He reminds us about the shortness of our attention spans, the demands placed on it by learning, the need for mind wandering and curiosity which triggers the release of dopamine and better learning. He speculates on how the Ebbinghaus (forgetting) curve should inform when to ask students to retrieve information, so it is encoded in long-term memory, and how IoT applications like Alexa or Echo can play a part in this retrieval. Reading this chapter was inspirational, informative and clarifying in equal measure.

In summary, this book is a brilliant challenge, a gauntlet thrown down, to any teacher, content designer, academic manager or researcher. It challenges the reader to do better as an educator by integrating learning analytics and learning science into their online instruction and by systematically measuring the effectiveness of their teaching innovations. It is also carefully curated by its editors, with a guiding introduction and a conclusion summarising the main themes. Thus, it convincingly outlines the argument for why learning engineers are a crucial component of academic units producing, iterating and improving online educational content.

I did feel however that the case studies in Part 2, as well as Sarma's and Saxberg's chapters, would have had more impact being placed at the beginning of the book. This is because they set out clearly the value add of integrating good learning science into educational design in a systematic way through learning engineering. Nonetheless, I found Part 1 hugely useful from an institutional and academic management perspective, as it outlined the cultural and organisational change necessary to put learning science and engineering into practice.

A conclusion I walk away with, is that if learning engineering is to become a bedrock of educational design at academic institutions, there is a need for true collaboration, open-mindedness and discussion across institutional and physical borders. The Kaplan Learning Architect Community mentioned in Chapter 9 and communities such as this could generate the required enthusiasm to elicit serious commitment from management and key stakeholders. I felt part of such a community when reading this book.

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Wlodkowski, R., & Ginsberg, M. (2017). Enhancing adult motivation to learn: A comprehensive guide for teaching all adults (4th ed.). San Francisco, CA: Jossey-Bass.

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Teachers ask, how can we make them want to learn? This mistitled book is one place to look. The title, *Enhancing Adult Motivation to Learn: A Comprehensive Guide for Teaching All Adults*, is wrong (more later on why wrong) but indeed, the word 'comprehensive' is right: The book covers everything. What to do before the session, how to start a lecture, how to keep things moving, getting results, online or face-to-face, it is all in these 400 plus pages. Many book reviews seem to say must read. Relax, not this book review. Not a must read, unless you are researching educational motivation, or maybe in a job requiring assessment of learning. Average teacher? Took me a month to get through this heavy book, a month with no teaching. Normally I simply would not have had the time.

Although not a book to put on your *must read* list, this is a book to put on your *if you have time* list. Maybe your life is not too hectic, or perhaps you are director of learning somewhere. Then this encyclopedic volume may be worth slogging through. Not easy reading, but smoothly written. Parts seem aimed at teachers like me: lots of concrete examples, light on fancy jargon, even somewhat engaging. But the adjective 'encyclopedic' above seems to me appropriate. It has so much good information, but more like an encyclopedia than like a novel that you would read cover to cover before stopping.

But say you are considering tackling it, either because you have some time and the topic does intrigue you, or maybe your job is exactly in this area, when you open the book what will you see?

Even before the first chapter, there is a useful preface. That preface gives a hint of what is to follow. The preface helped me visualise what good things to expect, but also raised some warning flags. In the preface we learn that the book contains 24 tried and tested strategies useful in online learning, then 60 strategies useful anywhere, plus 2 ways, and 4 approaches plus 4 examples…. At this point I could almost hear my Asian adult students asking, will all these 24 + 60 + 2 + 4 + 4 be on the test? To be fair, the 24 online strategies are repeated in the 60 use-anywhere strategies, so only 60 + 2 + 4 + 4. Can I understand all 70 well enough to get an A on the test? Also triggering a moment of fear was the note that all would be integrated in a Motivational Framework for Culturally Responsive Teaching, each word capitalised. I have grown to distrust, even fear, solutions in Capital Letters. But even with these clouds of doubt, the preface is useful. It lets the reader know that the book contains many good things, all put together with some worthwhile guiding principles. The very first principle strikes a responsive chord: motivation and learning are inseparable. The authors, both experienced educators, also note that learning and culture are also inseparable. This also makes sense to me, as an educator who has taught people in many cultures and from many cultures. The other guiding principles help me see that this is a book written by teachers who have thought about what is important.

Chapter 1 then introduces the topic of motivation in 28 pages, with an extremely interesting section titled "a neuroscientific understanding of motivation and learning." I found those ten pages on what could be a heavy topic, readable. Only after completing my reading of this discussion did I realise how well researched this book is. In this one section about the brain, I see more than two dozen references, from books and journals in education, medicine, business, and the popular press. I appreciate that this information on how the brain fits in does not read like some *Academy of Management Journal* articles that try to include every possible reference in case the author might be a reviewer. These references are not noticed, unless like me, I see a point I would like more information about. The references are great, and do not make the book feel like a purely-academic work. The book has an impressive 48-page section of references, and at about 12 per page, that means close to 600 helpful places to go for further study. This fact alone makes the book worth considering. Although very well researched, it is the authors' insights, not the facts, that grab me. "As instructors we need to pay close attention to the emotions of out learners" (16). Why?

> *A logical explanation or well-constructed argument usually does not have the biological impact to cause the physical changes in a learner's brain that need to occur for a real alteration in the learner's attitude or belief* (12).

Chapter 1 gives hints as to what follows in the rest of the book, including a preview of the significance of emotion, culture, and participation. The second chapter considers how aging and culture impact motivation to learn. The culture part is introduced but not explored in depth. Not to worry. Chapters three through ten all look at culture and learning. The bulk of chapter 2 relates to aging. However, as was mentioned before and will be explained further later, the entire book is not quite properly titled. I find that chapter 2 may also be mistitled. Chapter 2's "characteristics of adult learners" is informative but not really about "adult" learners. This chapter makes clear that there is no one category we can call "adult" learners. I suspected and now see, thanks to chapter 2, that 73% of all college students are "non-traditional" learners. The old path, graduate from college at age 18 and then go to college, only applies to about a fourth of today's college students. Young adults and older adults taking courses increasingly may be pursuing their education nights, weekends, and online. The chapter also lets us see that millennials may be qualitatively different than other age cohorts. All this, in a chapter on how aging affects motivation to learn? Even though perhaps mistitled, chapter 2 is worth reading. For example, I did not know that more than 50% of males over the age of 75 have difficulty hearing. Perhaps I had heard this before, but wasn't really listening, or perhaps not hearing. The section on Gardner's multiple intelligences did not speak to me, nor did the brief section on Goleman's emotional intelligence. But for some readers, these sections may be just what is needed.

Chapter 3 offers "five pillars" worth considering. A motivating instructor has expertise, empathy, enthusiasm, teaches with clarity and is culturally responsive. This chapter is a gold mine of information, tips, ideas, and plans to make us, make *me*, better teachers. But this chapter helps explain why I say the chapter, and the book, may be mistitled. Every one of the great strategies and tactics in this chapter could also help the teacher who daily motivates my eight-year-old third grade son. The book is about more than enhancing adult motivation to learn. This volume is a valuable handbook on "enhancing motivation to learn" and applies to those teaching adults, or eight-year olds, or 28-year olds, or 38- or 58-year olds. Expertise? Empathy? Enthusiasm? Teach with clarity? And the fifth pillar reminds us that

> *Being culturally responsive means being aware of how the contexts in which we teach perpetuate bias and maintain norms, policies and practices that deny educational equality to students who have historically been underserved* (74).

Chapter 4 explains, unconvincingly for me, how adult learning differs from how children and adolescents learn. True, with age comes experience, but please do not underestimate my eight-year old.

Another section in chapter 4 lets us see what happens when learners are "*in flow*" (italics in the original). Although previously introduced on page 19, *flow* is referred to again here on page 86 and later on again on page 260, I never become convinced that there is such a thing as *flow*. But then, I am not by nature a religious person.

The fifth chapter connects the ideas of this book to online learning. I found this chapter usable as a stand-alone overview of plusses and minuses of online learning. Fortunately the tips in chapter 5 are there to help me when I move from blended learning (partially online) to 100% online, which seems inevitable, someday. The 24 strategies included in chapter 5 seem applicable online or face-to-face. Indeed, each of these 24 appear again in chapters 6 through 9, which are the nuts-and-bolts of the book.

These four chapters cover inclusion, positive attitudes, enhancing meaning, and engendering competence. For example, under engendering competence, we consider strategy number 47, provide effective feedback, strategy 49, promote equity while assessing, strategy 55, use self assessment, continuing on to strategy number 60, provide closure at the end of each significant unit (lecture, topic, course, etc.). Each strategy from 47 to 60 merits consideration. Number 60, for example, tells me that I do not do a good job providing closure. This reminds me of my colleague Roger. In the last few moments of any course Roger gives a rapid-fire upbeat rundown, "look at all the things we've done!" Roger then ends with "I say, not bad! I think you should all give yourselves a hand!" This may be a bit sneaky, even unfair, but I always love it when the last minute of a course all the students are applauding. This book, along with what I learn from Roger, gets me thinking. Can I do it? I may try.

So, I may modify what I do stemming from strategy 60 but for sure, will use strategy 55, self assessment. The idea here is to use a short easy-to-answer quiz, with perhaps five questions. Such a quiz could be paper-and-pencil, not to be turned in, or perhaps by using some personal response system (PRS) technology. I could do this. I *will* do this. I now see how well-intentioned but misguided was my matching quiz handout used in a recent strategy class. I handed out the quiz on day one and again in the last hour of the entire class. In one column were 30 company names. The other column had a short descriptor, such as "They said an electric car would never sell, but Elon Musk proved them wrong." Many could match even on day 1 but by the end of the course, perhaps with the video about Tesla and Elon Musk fresh in their minds, everybody could match correctly. But 30 firms, 30 facts? The intended self-affirming self assessment became a chore, a task. Next time I will have a few five-question self-assessment quizzes, spread throughout the course. So easy, I can do this. I will.

Chapter 10 wraps it all up, but in my mind provides no shortcut to learning. Those who hope they can skip reading the book and just read the concluding chapter may be disappointed. Just as it would be impossible to add a summary chapter to an encyclopedia, chapter 10 cannot be an excuse not to read the book. However, having made my way through the entire volume, I am eligible to view chapter 10. And yes, it does help me review what has been learned.

Where does this leave us? The comments above, while not condemnatory, have a bit of a skeptical tone. I say that the book is mistitled, spends time on ideas such as *flow* that do not convince me, and I leave the impression that the book has too many lists for my taste. But this would not convey the message I should leave. This is a comprehensive

guide, not a mystery novel. And like an encyclopedia, it is packed with information, and insights. In my case, I wrote down about a dozen tips, things I will try in my very next class. Better closure, smarter self assessment, and tip after tip, I can use this. Just one more example. I always use small groups or have teams of two. I usually do these near the end to revitalise the group. This book made me see that for a four-hour night class I should do some activity *within the first 20 minutes*. And the book explains why. These tips, and many more, are what made the book valuable for me.

What it is is what it is. Anyone ready to study a comprehensive guide for teaching all, including adults, should dig into *enhancing ~~adult~~ motivation to learn*. Note the strikethrough on the word ~~adult~~. It may be well worth the effort, regardless of the age of our learners.

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Roy, D., Baker, W., & Hamilton, A. (2019). Teaching the arts: Early childhood and primary education (3rd ed.). Cambridge, England: Cambridge University Press.

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The collective wisdom has always been that in Early Childhood, the best way to engage and help a child learn is through physical play and movement. If such play and movement are structured as they are in the Arts, even better. Friedrich Froebel, who coined the word kindergarten (literally 'infant garden') in 1840, considered arts and crafts essential to stimulate the child's imagination and develop physical and motor skills. By stating right at the start that babies learn *through* and *with* the Arts, the authors establish the central role of Arts in human life and learning.

Authors David Roy, William Baker and Amy Hamilton focus on a topic that has been discussed in the education domain for several decades now, namely Arts Education in Early Childhood and Primary years. However, the role of early childhood and primary educators in Arts education is far more complex than you may at first expect. Moreover, any emphasis on 'fun' can also make a topic seem less serious but, in the field of Arts education, having fun becomes fundamental to achieving desired learning outcomes.

The book is divided into three parts covering the Why, What, and How of Arts Education. With a total of twelve chapters, the authors take a deep dive into the reasons why they believe Arts education is necessary and indeed fundamental in every aspect of education. While the authors do not delve into how Arts Integration is defined, they do focus on how teachers understand and experience it. They cover the influence of each of the five Art forms in the Australian Curriculum, where five different yet related art forms such as Dance, Drama, Media Arts, Music, and Visual Arts are used in teaching in interrelated ways. Arts are everywhere we look and it is clear that they are culturally determined. Each art form involves different approaches to arts practices and critical and creative thinking that reflect distinct bodies of knowledge, understanding and skills.

The authors draw upon the Early Years Framework along with Australian Curriculum information, with additional focus on what they call Indigenous histories and cultures, which addresses the requirements related to the teaching of the Arts. The Australian Curriculum studies past, current and future arts practices across a range of cultures and places. There is also a distinct focus in each art form on its own practices, terminology and applicability. The authors are able to bring out the richness and diversity inherent in teaching the Arts and provide a virtual User Manual for teachers to bring in-depth understanding into their classroom practice. Arts education should go beyond being a standalone subject to be integrated throughout the Curriculum and used as a means to teach all the other subjects. This book shows teachers step by step how they can achieve such meaningful incorporation.

What I loved about this book was the structured way the authors have presented the information; with clear instructions on what each chapter hopes to achieve, making it a practical guidebook for all teachers to immediately put to use in their classrooms. Teaching the Arts: Early Childhood and Primary Education, is an easy to follow and practical book with illustrations to make ideas clear. The book covers all the elements of teaching Art, and the activities fit perfectly into any pre-school classroom setting. The authors remain focused on the practical aspects throughout.

All facets of Arts education discussed in the book have brief overviews, explanations supported by studies to back them up, as well as Teacher Tips, Lesson Plans, review questions and recommended reading. There are reflection activities interspersed throughout the book at regular intervals. Additionally, in this Third Edition, the information has been updated to include the latest theory, research, and understanding in the field of neuroscience. Specifically, this edition included updated and enhanced content in the five Art forms, and additional online resources including PowerPoints for Academics. The authors also explore the differences between policy and its delivery of a 'quality' Arts education in primary and early childhood settings in terms of equity and access. Although aimed primarily at Australian Curriculum schools and pre-service teachers, this book is nevertheless a wonderful resource to any Arts teacher anywhere in the world.

Included in the book are descriptions on how to support students of differing abilities as well as ways of using an inclusive approach. Several pedagogical approaches are

covered in great detail. The relationship between the Arts and the wider world, its benefits, implications and the various ways to integrate Arts into education to improve literacy and numeracy among other necessary capabilities is discussed as is the history of Curriculum ideologies. Part three includes a roadmap on how to achieve Art integration along with several practical examples. The chapters and sequence are well-thought-out and build upon each other. The organisation of the book brings you back to necessary prior concepts while explaining just how the Arts can be used a pedagogical tool. While acknowledging the critical role Arts play in our lives, both educationally and socially, the authors consider Arts to be embedded in all aspects of education as well as in our daily lives and draw attention to the contradiction in the title which seems to indicate Arts as separate and distinct from real life.

Having observed several Early Childhood and Primary classes focused on the arts, my experience has been that often classroom teachers do not seem to have a clear understanding of the correlation between art and learning, in particular. Especially here in Asia, most schools have relegated Art to the side in order to focus more on literacy and numeracy which is deemed important for improvement in standardised test scores. Although most educators believe that there is a clear distinction between classrooms where arts is used as a resource and those that fully incorporate art in the planning as well as implementation of Curriculum, the distinction between the two is not at all clearly understood. Thus the Arts can help diverse learners and also contribute to good practice in teaching through reflective teaching and teaching that "sticks".

Researchers know that certain activities and movements stimulate the inner ear. This in turn helps physical balance and coordination. Studies suggest that certain activities such as spinning lead to alertness, attention, and relaxation in the classroom. Students who tip back on two legs of their chairs in class often are stimulating their brain with a rocking, vestibular activating motion. While it is an unsafe activity, it happens to be good for the brain. We must give students activities that let them move safely more often like role plays, skits, stretching, or even games like musical chairs. I have seen this in action at our school in Singapore, where the furniture is selected to make such movements possible and to stimulate learning that stays with the child. Arts such as dance and drama achieve much the same thing.

Several studies have suggested that academic learning gets a definite boost from games and so-called "play" activities (Silverman, 1993, as quoted in Jensen, 2005). In fact, three countries near the top in rankings of math and science scores (Hungary, Japan, and the Netherlands) all have rigorous music and art teaching inbuilt in their elementary school curricula. In Japan, for example, every child is required to play a musical instrument or be involved in Art subjects such as Japanese calligraphy, sculpture, music, and crafts. In fact, Art Education in Japan can be traced back to 1872 (Masuda, 2003).

The Arts will continue to be integrated into the classroom especially with the help of books such as this one, which give teachers the tools to fully assimilate Arts into their lessons. The book manages to treat Arts education with integrity, by taking it beyond the static implementation style of teaching/learning (e.g., colouring in worksheets) to promote dynamic pathways of interdisciplinary teaching/learning that not only connect the arts to other academic subjects, but also explore the Arts as a way to make meaning of students' and teachers' lives and the world in general.

The book's advice matches my own beliefs about the Arts and their inclusion into all aspects of learning and allows for modifications based on the students in your classroom. The book includes guidance on assessment for the Arts which in turn permits teachers to explore the possibilities while still planning for specific learning outcomes by establishing criteria for assessments. I truly enjoyed the coherent and hands-on structure of this book enormously and the way it steers teachers towards opening their minds to the infinite possibilities that teaching the Arts can lead to.

Furthermore, the process of merging art with one or more other discipline(s) can result in opening up a space of inclusiveness in teaching, learning, and experiencing. Students can build or debate works of art that not only teach about art, but also about other subjects such as science or mathematics. In this way, integration of arts recognises the educational curriculum as a whole and celebrates the expansive, inclusive and overlapping qualities between subjects. The focus then is on the way the arts transcend school subject boundaries.

William Bennett, the Former US Secretary of Education said "Music, dance, painting, and theater are all keys that unlock profound human understanding and accomplishment" (Bennett, 1986, p. 35). With that in mind, every teacher (pre-service or not) should read this book and use it since it expands and deepens the understanding to enable teachers to teach not just the Arts, but almost any other subject.

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Dillon, R., Gilpin, T., Juliani, A. J., & Klein, E. (2016). Redesigning learning spaces. London, England: Sage Publications.

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Being involved in projects on modernisation of learning spaces since 2016, I enjoyed reading Redesigning Learning Spaces. This book is written by a group of enthusiastic student-centered educators and speakers who are devoted to changing educational landscapes and creating an engaging learning environment.

The authors share my belief that modern inspirational design is one of the key prerequisites for effective learning and open-mindedness for both students and teachers. It was interesting for me to explore the issue further in terms of how learning-space design may influence school culture and contribute to the development of healthy communities.

The book is quite short and embraces the authors' viewpoints, concepts and insights, which promote the idea of student-centered design. It is aimed to encourage a wider audience (students, educators, community members) to start changing their learning environment. *Redesigning Learning Spaces* could be a good starting point and resource for those who think about changes in learning spaces, but do not know where to start from and, therefore, need some initial guidance. However, the book would barely be helpful in respect of new ideas for those who are already in the process of learning environment transformations.

The book is organised in a Q&A format and structured around four domains:

1. Leading Change through Classroom Learning Space Design
2. Learning Space Change as a Lever to Shift School Culture
3. Shaping Learning Space Change for the Community; and
4. Learning Space as a Lever for Systemic Change.

In chapter 1, there is a reflection on: why to change learning environment? What are other experts saying about the elements of learning-space design? How does intentional space design impact student mindset and attitude? How should principals and teachers begin this process?

The authors apply Maslow's hierarchy of needs by assuming that learning spaces, where students and teachers spend much of their time, should be safe and comfortable in order to create a positive impact on open learning and effective cognition. To support this thesis, the authors refer to the University of Salford's study (2012), which indicates that "the classroom environment can affect academic progress over a year by as much as 25 percent" (23). Within this context, it is suggested to employ a flexible, collaborative-classroom, minimalist approach, and integrated technologies for creating learning spaces for actively exploring ideas, discovering connections and debating issues. At the same time, with reference to research done by Carnegie Mellon University (2014), the conclusion is drawn that "less in the classroom is truly more for learning" (5). The authors then raise an important issue of necessity for teachers to be dedicated to the students' voice which, being heard, creates a deep level of engagement in the changes and ownership of the results.

In chapter 2, the authors explore how changing learning spaces may aid in shifting school culture: what is the vision of your classroom? How do we begin the conversation about changes? How to start from ground zero and what are potential steps to begin the redesign? Why learning does not have to happen in a traditional classroom?

Starting the transformations, one should understand that there is a long way that needs to be properly thought through from an initial idea to further planning and expected results. Therefore, it is vital to reach a consensus among all stakeholders on the vision of future changes. As a point of focus for the journey of designing learning spaces, the authors draw attention to the "4 Cs": collaboration, creativity, critical thinking, and communication. They further emphasise that redesigned classrooms also contribute to learning achievements of students with special needs, who are able to succeed there in ways that they may not have been able to in a traditional environment.

In chapter 3, the discussion shifts to the impact of learning-space design not only on students and teachers, but also on the entire community. Is shifting learning spaces a gateway to shifting the community at large? Can community and

schools create an ecosystem? What steps are necessary for effective communication to the community about innovation in learning space design?

The authors believe that learning must not be contained in the classroom. "Learning spaces that accentuate the opportunity to interact with the community speak without speaking that the true mission for students lies beyond the walls of the schools. ... this type of learning is a path toward deeper, more integrated college and career readiness ... [and] an opportunity to ... lower the drop out rate" (25).

On that account, there is a strong message about the importance of involving the community in the projects and communication. The authors urge not to underestimate the importance of small steps and quick results. It has a powerful impact on continuous efforts and positive emotions about the transformations and inspiration for further innovations. In the same manner, it is essential to regularly showcase the progress through social media, presenting before-and-after pictures and emotional face-to-face conversations with students and teachers. It allows the community to feel connected to the changes and also helps to fund the projects. In this respect, the authors give some suggestions on effective communication about innovations in learning-space design.

In chapter 4, the idea of "small steps" is further elaborated from the perspective of small changes influencing big systemic change: how can we think about learning spaces as deep levers of change? In what ways can teachers blend classroom design and technology to maximise change across the system? How can teachers use their resources to create systemic change?

The authors are convinced that "big shifts in culture can come from low cost actions" (17). Innovative educational spaces facilitate modern teaching and learning, enhance curiosity and out-of-the-box thinking, that eventually foster shifts in culture and mindsets. The sense of co-operation and partnership of all stakeholders can be of a great importance to changing community culture and cultivating common values.

Chapter 5 presents a few examples on how teachers may become real agents of change. Overall, the book provides a solid rationale and powerful motivation for learning-space transformation. Regrettably, the book lacks visual materials. In addition, more practical examples of projects could have been provided. From my experience in promoting such projects, I am convinced that visualised examples of changes are the best motivators and catalysts for actions. Thus, adding more visualisations and specific good practices would enrich the book and reach its audience better in order to start changing learning environments.

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Kapur, V., & Ghose, S. (Eds.). (2018). Dynamic learning spaces in education. Singapore: Springer.

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Globalisation and digitisation have dramatically transformed virtually every aspect of social, economic and cultural life, making them more innovative, dynamic, complex, and often conflicting. In spite of the changes that followed the technological trends, education as such is still a traditional domain, which needs to be modernised in terms of purpose, content and methodology.

The book *Dynamic Learning Spaces in Education* is "an appropriate forum for presenting and analysing the contemporary educational space, positing theoretical and practical issues, that temper educational discourse" (vii). It gives the floor to 21 practicing teachers and educationists to elaborate on educational reform, transformation of the traditional classroom and pedagogical practices in order to meet the demands of the contemporary global and dynamic world, and its global citizens.

I found the idea of gathering quite a large number of authors to contribute to the general context extremely interesting and fruitful, since each of the researchers has brought his or her own expertise, experience, thoughts and insights to the book. This enriched the content with different perspectives and linkages between theory and practice, and, eventually, made the book multi-dimensional.

Overall, the book incorporates four main directions of the collective explorations on:

1. The digital learning culture, its potential and possibilities.
2. The new edge classroom and its teaching strategies.
3. Social justice and inclusive practices.
4. Voices from the field.

Each of the above directions is further broken up into three to seven studies. All studies contain profound analyses of the issues in terms of methodology, theory, praxis and outcomes, and are well-referenced. The book also comes with a short but comprehensive conclusion, providing a holistic view on the discourse.

Part 1 is dedicated to potential and possibilities of digital teaching and learning. This topic is elaborated in terms of the functions and elements of modern education, and, that is more important, as a developmental phenomenon of new digital learning culture. Globalisation and digitisation have brought palpable changes in society, making it more open, vibrant and interconnected, which requires corresponding transformation of schools and education principles.

For this reason, the issue of teachers' personal and professional development is of crucial importance, because the teachers are respected as the catalysts and the key agents of the transformation. "They have to turn their schools into learning organisations where capacities to learn and structures that support learning are widespread among the teachers as well as the learners" (52).

All three sub-sections of Part 1 explore this issue from different prospects:

- theory and practice of e-learning culture;
- deconstructing teacher education - technology and the intern; and
- technology integration in language teaching.

In their studies, the authors share their approach to and results of teachers' education, and conclude that in the digital world today, it is vital for teachers to be "exposed to cutting-edge technologies, individualised pedagogical strategies and advanced data systems ... [which] will enable them to work effectively in a rapidly evolving world ... and to embrace new and more effective approaches that address the needs of twenty-first century learners" (53).

Part 2 is devoted to interactive teaching-learning strategies. The underlying idea of the section is anchored in the thesis that "to succeed in life, the learner requires different skills and knowledge that those which are required for academic success. Classroom and teaching strategies need to be reconfigured to focus on learning rather than teaching, with the learner as the initiator of the learning process" (386). Thus, redesigning the classroom and adopting interactive instructional methods that stimulate critical and analytical

thinking, the spirit of inquiry, active construction, situated learning, social interaction, is essential in the twenty-first-century school.

The following sub-sections convey about how the issue has been tackled through the use of different methods:

- project based learning;
- cooperative learning;
- errors as learning opportunities;
- pedagogical concept knowledge;
- reflective practices;
- pedagogical reforms to foster life skills; and
- redesigning the school classroom.

Sharing their positive experience and insights, all the practitioners, however, mention that the key obstacles for wider rollout of the practices lay in three main areas:

- still quite a small proportion of teachers are ready and willing to implement the engaging methods in their classrooms;
- traditional curriculum, knowledge memorising and examination oriented teaching approaches are not flexible enough for grasping and absorbing the pedagogies that develop skills and customised learning;
- a lot of case-by-case changes in education methods are taking place across the nations, but to have quantity shifts, systematic transformations are needed.

Part 3 covers the topic of social justice and inclusion in modern education. A society with social inclusion strives to ensure equal opportunities and engagement for all its members. Moreover, "the space for diversity of opinion provides the checks and balances critical for the development of society, ... [and] fostering flexibility and continuous change. ... [E]ducation for an inclusive society is an acceptable norm today and the aim is to create an education system that will develop the potential of all children... while recognising and valuing their differences" (21).

In this respect, the studies which contribute to the chapter, examine the topic from different, and sometimes, very special perspectives:

- *diversity* – dealing with giftedness in an inclusive school environment;
- *human rights* – how are they positioned in the teaching and learning process;
- multilinguality – issues of mother tongue instructions in a multilingual context;
- social issues – how disparities in family backgrounds affect the educational opportunities.

Once again, the authors stress on the key importance of teachers and their education in creating an inclusive educational setting, executing inclusive practices, and facilitating the development of a well-rounded personality, and developing the potential of all children while accepting their differences.

Part 4, "Voices from the Field", gives space to the practitioners who elaborate on the theories, restructuring them into meaningful knowledge. There are reflections on a number of subjects and authors' developments that can be interesting as such, or as a starting point for further independent developments or questions:

• *Social constructivism in education* (a theory that builds on Vygotsky's works) or the more recent term "interactive constructivism" – applying the concept of Zone of Proximal Development for locating the construction of knowledge to the realm of activity. It was interesting for me to follow how the imagery (metaphors of rivers, fireworks, etc.) has been used to illustrate the concept and to bring it to life in different settings. So, what else can be employed in interactive education constructions?

• *Classroom heterogeneity and dynamism* – the discussion on the dynamic classroom in terms of a) quality and utilisation of resources, infrastructural provisions, b) students' engagement with learning, c) classroom management, teachers' actions and need-based strategies. Are "varying levels of learning, diverse backgrounds, abilities, and disabilities serving as opportunities to teachers in bringing multitude of perspectives, fresh pedagogies, ideas, and opinion to the class"? (316)

• *Ethics of inclusion* – five case-studies on students with special education needs (autism, dyslexia, comprehension issues, visual disability): issues, teachers' attitudes towards inclusive education, and parents' viewpoints, a good reflection of the author on "the case for and against inclusion". The debate is still open - "are we trying to promote an idealistic concept? ... is it something which looks good on paper or does it also have some merit in this practical world?" (327)

• *Blended classroom* – the use of the internet and e-resources in language teaching, issues and solutions, pedagogic possibilities and importance of teachers' ITC skills. Reading this sub-section, I was thinking: in the technological era, literacy is taking different forms, and so is the technology used as a means to learning the language, or vice versa?

• *Reflective teaching* – the need and the importance of reflection in education, theoretical constructions, essentials and methods of reflective practice in teaching, case-studies on reflective practices as an integral part of the teaching process. Can reflection be a tool for practicing critical thinking, empathy, social skills, or creativity?

• *Childhood in theory and in reality* – different aspects of childhood studied via examples of one of the regions in India: schooling, involvement in work, engagement with peers, leisure, community, participation, etc. The study "stresses the lacunae in the historical and sociological study of childhood where the voices and experiences of children

are not given a credible and legitimate stance" (380). What is it to be a child in other countries? Is it a life story or just an adult interpretation of normative and expected childhood experiences?

The final chapter logically concludes the book in terms of offering the readers a wider discourse on translating theories and ideology to practice.

On the whole, I would sum up the obvious virtues of the book:

- a clear structure, methodology, and detailed instructions;
- a variety of topics and viewpoints;
- a plethora of examples, case-studies, and practical knowledge;
- a wide range of sources and references.

The book offers a good grounding for educators "who are committed to the profession of teaching, imbued with theoretical insights, practical understanding, and the ability to adapt to changing times" (389) and will definitely be of value for those who look for quality discussion on the varying facets of education and its contemporary challenges.

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Brookfield, S. D. (2017). *Becoming a critically reflective teacher* (2nd ed.). San Francisco, CA: Jossey Bass.

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Stephen Brookfield's famous book *Becoming a critically reflective teacher* was first published in 1995. It earned rave reviews after its initial publication, and several friends recommended it highly to me years ago. The second edition that is being reviewed here saw the light of day in 2017, more than two decades after the first. Between editions, Brookfield's core thesis remains largely unchanged. The critically reflective teacher identifies and scrutinises her assumptions that shape her practice by using the four lenses of critical reflection: (1) students' eyes, (2) colleagues' perspectives, (3) theory and (4) personal experience. Despite the continuity of the core thesis in the second edition, Brookfield has done something rather unusual for a new edition in completely rewriting "the whole book from the opening sentence to the last" (ix). Consequently, there are six completely new chapters – on assumptions of power; hegemony; team teaching; the social media; race and racism; and leadership – that provide us with a useful update on Brookfield's current thinking and also situate the critically reflective teacher firmly in the roller coaster of 21st century teaching.

In case the author still requires an introduction, Stephen Brookfield is a world-famous, multiple award-winning author, co-author and editor of 19 books. He is currently a Professor at the University of St. Thomas in Minneapolis, Minnesota; prior professorial appointments include Columbia University and Harvard. The intended main audience of the book is Higher Education teachers. However, "ideas and practices in the book have been field-tested with everyone from the Occupy movement to the Marine Corps; the World Bank to mining schools; art, fashion, and theater institutes to oil corporations; hospitals to seminaries; and prisons to parent groups" (x).

The book consists of a Preface, Acknowledgements, a section about the author, 14 chapters as well as an excellent Bibliography and a very detailed Index. After a most useful overview of the contents in the Preface, the book's first chapter addresses the book's title by asking what critically reflective teaching is all about. In the author's words, critical reflection is "the sustained and intentional process of identifying and checking the accuracy and validity of our teaching assumptions" (3). In order to critically reflect on his and others' teaching assumptions, Brookfield's tried and tested approach since the 1990s has been to employ the afore-mentioned four lenses of critical reflection. They also provide the organising structure of a major part of the book (especially chapters 4 - 10). In Brookfield's Critical Theory-influenced perspective, reflection becomes critical by addressing two distinct purposes, illuminating power (chapter 2) and uncovering hegemony (chapter 3).

In chapter 2, we are reminded that educational processes and interactions are framed by wider structures of power and dominant ideology (for instance, capitalism, positivism, democracy, militarism, white supremacy or patriarchy), and the critically reflective teacher is well-advised to question her assumptions constantly. For instance, it is a common sense assumption to reduce lecturing to a minimum in order to foster a more active student participation and critical thinking. However, an alternative interpretation is that a well-delivered lecture may be "a wonderfully stimulating experience" that "can open up exciting new intellectual territory, clarify complex concepts, and challenge students to rethink familiar assumptions" (23), in addition to providing the learners with an introduction to a hitherto unfamiliar subject area. Another common sense assumption of Brookfield was linked to his use of the Circle (with all participants facing each other). Brookfield is a strong believer in the use of autobiographical narrative (something that greatly helps in making his books highly readable and engaging) and discloses that in his very first class ever, some 50 years ago, he arranged seats in a Circle as a physical manifestation of democracy. In the 1980's, however, he read Foucault on power and then realised that rearranging furniture is unfortunately insufficient for rearranging power relations, as power is all-pervasive, also in the classroom.

In chapter 3, the uncovering of hegemonic assumptions is discussed. Hegemony is a difficult concept (which is quite masterfully discussed also in Brookfield's book The power of Critical Theory for adult learning and teaching). Brookfield defines hegemony as "the process by which an existing order secures the consent of people to the legitimacy of that order, even when it disadvantages them greatly" (39).

Immediately, some political events that occurred in 2016 (a certain vote in Brookfield's home country, and a certain presidential election in Brookfield's country of choice) may spring to mind, depending on one's political persuasion. In the realm of learning and teaching, hegemonic assumptions are believed to be common sense truths and perceived to be in teachers' best interests. But in actual fact, they are harmful. Brookfield offers a plethora of insightful examples, but one must suffice here. If a teacher measures her success by how well she creates motivated students, such an erroneous, monocausal focus on student motivation as a result of a teacher's charismatic singularity may well lead to demoralising failure, as it forgets the "need to fund education properly, reduce class sizes, provide proper infrastructure, and support staff development" (44). Elsewhere in the book, Brookfield recommends avoiding "self-laceration" (86) – blaming oneself when students are not learning – for similar reasons.

Another highlight of the third chapter is when Brookfield discusses the "Pearsonisation" of Higher Ed (with apologies to my friends from Pearson). In this context, a prime example is the uni-dimensionality of student evaluation-of-teaching (SET) forms where epistemologically-challenged administrators reduce the complexities of teaching to a linear, quantifiable rating system. Brookfield cautions that "[e]quating good teaching with how many students feel you have done what they wanted is a dead end that prevents significant learning" (56). While SET forms purportedly measure teaching effectiveness, all they do is measure what students say – which may not be precisely the same thing. When statistics are calculated and numbers are reported, this is oftentimes conveniently forgotten.

The following chapters focus on the author's four lenses of critical reflection. In the fourth chapter, Brookfield argues against mandating and assessing reflective practice, as reflection could easily be instrumentalised via a reductionist checklist. To Brookfield, the incorporation of the lexicon of critical reflection into various forms of professional evaluation is "often self-defeating" (258). I was similarly intrigued that Brookfield observed "*a mandatory confessional tone* to much of what passes for reflective practice" (76; emphasis added). In the fifth chapter, the author clarifies the many benefits of critical reflection, and as the students' eyes are the most important lens of critical reflection in his experience, his in-depth discussion of the critical lenses starts with that in chapter 6.

Chapter 6 discusses some excellent research techniques how we as teachers can actually get into students' heads in a timely fashion, such as the One-Minute Paper, the Muddiest Point, the Learning Audit, clickers, social media, TodaysMeet and the Letter to Successors. A more detailed discussion is reserved for the Critical Incident Questionnaire that Brookfield still uses himself every week when he teaches. Chapters 7 and 8 discuss the second lens, colleagues' perceptions, and again, recommend useful techniques that are meant to help avoid jumping to premature conclusions, and which could be used within faculty-learning communities (FLCs). Team teaching is explored as a particularly useful form of employing the colleagues' lens.

The third lens of critical reflection, using personal experience, is the topic of chapter 9. Importantly, Brookfield reminds us that we as teachers usually are in love with the subjects we teach and thus find it difficult to imagine students finding them boring or intimidating. Brookfield, once again, uses autobiographical disclosure, specifically how he learned how to swim as a middle-aged man, to bring home this point. Having a preference for self-directed learning, Brookfield initially preferred learning how to swim by observing others swim. After failing miserably to learn how to swim that way, Brookfield reluctantly signed up for a class for adult non-swimmers. Unhappy with the teaching method of the very young instructor that he sarcastically describes as "'charismatic demonstration'" (164), he did not make much progress in learning the skill, also because he was fearful of putting his head in water and because the instructor was insisting on using the crawl stroke. The breakthrough came when a peer suggested he should use goggles. When Brookfield, somewhat unintentionally, swam a whole lap, he felt "a startling jolt of pride, an unalloyed rush of happiness" (167). What do we learn from this? Personal experience is extremely important for the development of our identity as teachers, and "the best teachers are probably those who've achieved their skill mastery, knowledge, and intellectual fluidity only after periods of struggle and anxiety" (165).

The final lens of critical reflection is theory (chapter 10). As an example, Brookfield shares how reflecting on research in very varied fields (brain science; digital storytelling; Csikszentmihalyi's flow; and playfulness) made him incorporate more artistic elements into his teaching. Also, he cites a beautiful quotation by one of his heroes, Paolo Freire:

> "when I meet some books – I say 'meet' because some books are like persons – when I meet some books, I remake my practice theoretically, I become better able to understand the theory inside of my action" (cited in 179).

Chapter 11 is about incorporating social media and back-channel communication into teaching in a physical classroom. Brookfield refers to himself tongue-in-cheek as "a technophobe and Luddite" (192), but as an impressive example of critical self-reflection, he eventually realised that social media (such as Twitter, Poll Everywhere, Socrative, TodaysMeet and Backchannel Chat) provide two critically-reflective lenses: students' eyes and colleagues' perceptions (in addition, the Internet provides access to previously-difficult-to-access theory, a third critically-reflective lens). A live social media feed offers participants the opportunity for anonymity, with honesty more likely to occur, and further advantages being inclusivity and immediacy.

The 12th chapter is about a topic that has become a focus of Brookfield's work in recent years (Brookfield et al., 2019), applying critical reflection to teaching race and racism. Chapter 13 is about negotiating the risks of critical reflection. If only critically-reflected teaching would be as straightforward as reviewing one's autobiography, researching one's students, talking to one's colleagues and reading "some provocative theoretical literature, and then everything will fall into place" (225)! To Brookfield, becoming a critically-reflective teacher is clearly a lifelong learning process. He provides useful

advice how to deal with the self-perception of impostorship, and how to avoid committing 'cultural suicide' (unknowingly alienating peers) as well as 'political marginalisation'. The final chapter is about practicing critically reflective leadership or "learning leadership" (247) – to quote the title of another Brookfield book (co-authored with Preskill), *Learning as a way of leading*.

What are my sentiments towards this book? I think this is a book that is of critical – pun intended – importance, and I would certainly highly recommend it to everybody in the teaching profession, including novices as well as 'old hands'. I have no doubt that if some of Brookfield's practices were more widely applied by other teachers in Higher and Adult Education, the world would stand a chance to become a better place. Brookfield's book under review could be regarded as a starting point to further explore his oeuvre of a current total of 19 books (not counting journal articles).

While the book is indubitably critically important (and ranks extremely highly in my personal list of modern educational classics, together with works such as Biggs and Tang's *Teaching for quality learning at university* and not too many others), it naturally fails to completely 'spark joy' (to use anti-clutter guru Mari Kondo's phrase). To some extent, it may create an experience akin to the choice *The Matrix's* Neo makes, where not reading the book is the blue pill, connoting blissful ignorance and preserving an illusory world-view, and reading the book is the red pill, providing us with harsh knowledge about pedagogic reality. Brookfield's masterpiece cuts like a sharp sword through the fog shrouding our pedagogic life-world, but, depending on the temperament of the reader, could be a bitter pill to swallow. For me, reflecting on the book made me feel more of an imposter than I usually do – here, Brookfield writes about his masterful and carefully considered practice; there, I only use a small fraction of all the wonderful things that he has been doing in the classroom. But if, like me, you should feel overwhelmed by some of the masterful techniques that Brookfield employs, do not be overly worried, as Brookfield himself comes to the rescue. Brookfield himself, for most of his teaching life, felt like an "impostor" (hard to believe, but true) and has come to embrace such a self-perception:

> "So we should never lose the sense that we're impostors struggling in the dark, trying to draw meaning from contradictory and often opaque experiences. To feel this is to open permanent possibilities for change and development in our practice" (231).

Brookfield writes beautiful prose and has a knack for exploring complex matters in simple ways, without over-simplifying. He also seems to be an incredibly nice and humble person, despite his many massive achievements. The reflective humility shines through his book and after fifty years of teaching, he still perceives himself as forever *becoming* a critically reflective teacher. The "boy from Bootle" (138) – in Liverpool – has come a long way, and I give you my highest recommendation to 'meet' this and other of Brookfield's fabulous books on your own, lifelong journey of becoming.

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Bhambra, G. K., Gebrial, D., & Nişancıoğlu, K. (Eds.). (2018). Decolonising the university. London, England: Pluto Press.

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Decolonising the University has a striking book cover, featuring an imagined Cecil Rhodes statue amputated above the ankles with graffiti stating "Decolonising the University" on the pedestal of the statue. The tome features contributions by 20 authors (including the three co-editors). In order to appreciate the battle cry of *Decolonising the University*, it is useful to clarify the concept of colonialism. In their introductory chapter, Bhambra (a Professor of Postcolonial and Decolonial Studies at the University of Sussex), Gebrial (a PhD student at the London School of Economics) and Nişancıoğlu (a Lecturer in International Relations at SOAS) employ a broad definition of colonialism which is not restricted to 'settler colonialism' (for instance, in the Americas), but also includes commercial imperialism, the slave trade, "financialised neo-colonialism" and Orientalism (5). Universities played an important role in various colonial projects by, amongst many other things, developing racist theories and educating future colonial administrators. In the words of the editors:

> "European forms of knowledge were spread, local indigenous knowledge supressed, and native informants trained… In both colony and metropole, universities were founded and financed through the spoils of colonial plunder, enslavement and dispossession" (5).

A critical reflection on the problematic colonial history of universities leads the editorial team and contributors to question the epistemological authority of Western universities. Is university knowledge largely governed 'by the West for the West'? And what does decolonisation mean in the contexts of the university and society-at-large? Decolonisation goes beyond putting previously colonised people into positions of the colonisers, it "includes the revaluation of political, social, economic and judicial structures… and the development… of new structures" (Laenui, cited in 180). The volume is organised in three parts: historical and disciplinary contexts, institutional initiatives and decolonial reflections.

The insightful second chapter by co-editor Dalia Gabrial kicks off the section on Contexts and, in a historically-informed way, discusses the protest movement around 'Rhodes Must Fall in Oxford'. The controversial student movement (that had its origins in early 2015 in Cape Town, South Africa, and that led to the swift removal of Rhodes' statue at the University of Cape Town) viewed Cecil Rhodes as being responsible for the legislative foundations of the horrific South African apartheid regime. The Rhodes statue at Oriel College in Oxford was erected in 1911 at Rhodes' own behest, and opponents of the statue argued that Rhodes' generous endowment (that was linked to his statue) was enabled by a history of violence – more specifically, by the colonial exploitation of South Africa's black population. Whether or not one endorses the removal of Rhodes' statues at various universities, the movement failed in their demand at Oriel, and it has been argued that once you start 'rewriting history', there may not be too many statues left standing. It seems more important that the Rhodes Must Fall rallying cry had broader objectives such as a better representation of non-white cultures in curricula as well as combating racial discrimination and insensitivity – crucial goals that one could hopefully more easily agree upon.

Illustration 1: Statue of Rhodes by Marion Walgate at the University of Cape Town. Unveiled in 1934 and removed in 2015. Photograph by Danie van der Merwe. Public domain.

In chapter 3, Race and the Neoliberal University, John Holmwood (a Sociology Professor at the University of Nottingham) reminds us of the colonial history of U.K. and U.S. universities. In the U.S., for instance, many of the private colleges were "formed from endowments from wealth derived from plantation slavery" and the 'land grant' universities were built on land from which native Americans had been dispossessed (39). A call to decolonise the university is framed within a call for social justice in education, and a more democratic university and society are favoured vis-à-vis the purportedly race-blind 'neoliberal university'. The short chapter 4, titled "Black / Academia", by Robbie Shilliam (Professor of International Relations at Queen Mary University of London) argues that the racialisation of public culture (the white, competent 'knower', versus the non-white, incompetent 'known') has been 'institutionalised' in the *hidden curriculum* (a term popularised by educational reformers such as Freire and Illich). However, the process of decolonising the university has already started to deepen academic rigour and to lead to the creation of new knowledge, "despite and besides the racism of the academy" (60).

The multi-authored chapter 5 on Decolonising Philosophy is the final section of the book's first part and provides a specific disciplinary context of decolonising the university. Maldonado-Torres and co-authors (who largely work at Rutgers University) state that philosophy continues to be a "bastion of Eurocentrism" and "whiteness" (64). An ongoing process of decolonising philosophy (that makes some interesting references to Asian and Latin American philosophers that certainly sound worthwhile further exploration) would mean the critical examination of dominant presuppositions of basic concepts – including, but not limited to, modernity, coloniality, race and gender – "in the search for a decolonial and post-continental mode of thinking, philosophy and critique" (66).

Chapter 6 is the first in the second part of the book on institutional initiatives. Aparna and Kramsch (Radbourd Universitet, Holland) reflect on Asylum University – an intriguing project with asylum-seekers, undocumented refugees, academics, students, activists and volunteers close to the Dutch-German border – and, along the way, develop an 'asylum university lens' that is very much aware of the instability of borders. Chapter 7 by Icaza and Vázquez (from Erasmus University of Rotterdam, and University College Roosevelt, respectively) in their title ask the question: "Diversity or Decolonisation?" They reflect upon their experience with the University of Amsterdam's 'Diversity Commission' and identify three core processes of decolonising the university: pedagogies of positionality (contesting universal validity claims of a monocultural, Eurocentric, approach, and listening to the plurality of knowledges), relationality (more democratic and participatory learning and teaching practices), and transitionality (the social and environmental embeddedness of knowledge).

A radical and thought-provoking piece by Kehine Andrews forms chapter 8 and recounts the formation of the first Black Studies programme in Europe at Birmingham City University (where the author is Associate Professor of Sociology). There is a paucity of Black staff at UK universities, although especially at post-1992 universities (such as BCU), half of the students may well belong to ethnic minorities. In some highly controversial statements, Andrews equates the very concept of the university with racism and "the master's house" and regards it as "a dangerous myth" to conceptualise the "university as the incubator of progressive and critical thought" (138). He highlights the importance of African perspectives in decolonising the university.

One of my favourite pieces in the collection is chapter 9 by Pat Lockley, an academic technologist, on open initiatives for decolonising the curriculum. Lockley critically discusses the key concept of 'open-ness' in which I, as the humble editor of a fledgling open-access journal, am naturally very interested in. Lockley quite convincingly argues that Massive Open Online Courses, for instance, are not quite as open as they may appear to be, with an overwhelming majority of MOOC participants already having a degree or higher, and participants from certain countries (like North Korea) being excluded from many MOOCs. Moreover, much of the MOOC content is produced in Western countries (this is also the case for Open Educational Resources, with 89% coming from Europe and North America). Lockley also discusses open-access (OA) journals and has some data that deserve reflection, for example, that only six percent of OA journals are in Africa (with 91% of these being Egyptian)! I was particularly taken aback that "in the UK, 81 percent of journals charge a processing fee" to contributors (150).

Shauneen Pete's chapter 10, titled "Meschahakanis, a Coyote Narrative: Decolonising Higher Education", is the opening chapter of the final part of the volume, titled Decolonial Reflections. The author is a native American and former Professor who recently opened a restaurant in a First Nation community in Canada. This is an unusual and intriguing piece in which storytelling is employed as a 'decolonising strategy' and a trickster figure ("Coyote") is engaged in a reflexive dialogue. Carol Azumah Dennis (Open University) in chapter 11 proposes an intervention, based on a 'counter-hegemonic' Ubuntu pedagogy – Ubuntu is an African cosmology celebrating the oneness of humans – that is centred on multiplicity and that recognises "different forms of understanding, knowing, experiencing and explaining the world" (9). The four Rs of an Ubuntu curriculum are relational accountability, respectful representation, reciprocal appropriation and rights and regulation.

Chapter 12 is by Angela Last (Leicester University) who critically discusses the internationalisation of British universities. She views internationalisation strategies of university managements (both in terms of curricular diversification and market expansion) as a decolonial activist's "unexpected ally" (213). The book's final chapter is by William Jamal Richardson (a PhD candidate at Northwestern University) who discusses concepts such as 'undone science' (non-produced knowledge) or 'negative knowledge' (unknown knowledge deemed insignificant or dangerous) in the context of Eurocentrism in the discipline of Sociology. In his excellent contribution, Richardson refers to Syed Farid Alatas' theory of academic dependency as a form of neocolonialism. Academically, the global South is dependent on the global North in four major ways: "(1) dependence on ideas and the media of ideas; (2) dependence

on the technology of education; (3) dependence on aid for research as well as technology; (4) dependence on investment in education" (240). Instead of having more publishers and journals of their own, scholars in the global South continue to largely consume publications from the global North and also model their own writing, and select topics, according to preferences found in the global North.

Decolonising the University is a collection of rather diverse and always thought-provoking contributions that should make everybody who cares about the future of higher education pause and think. I read the book while on a flight from Athens to Singapore and being stranded at Istanbul Airport due to a major flight delay in the middle of the night. I cannot be sure how much the sleep-deprived circumstances of my reading influenced the intensity of my reception, but I certainly felt the need to do my part in further diversifying JALT's editorial board (an ongoing process), and the book made me also reflect on my own 'whiteness', being a well-treated minority 'other' in Chinese-majority Singapore. As Singapore's GDP per capita is higher than Germany's (and one of the richest countries in the world, with the largest number of millionaires on a per capita basis), it does not quite feel like somebody from the global North working in the global South. However, *Decolonising the University*, amongst quite a few other things, shows the importance of 'race' (a term that has always made me shudder because of the atrocities associated with the concept committed by the Nazis and that I thus have refused to use), and I certainly get the importance of seeing myself as 'racialised' through the eyes of others, including those of my students. Some readers could be put off by some of the left-wing political stances by various contributors and also the publisher, Pluto Press, but irrespective of our own political persuasion, perhaps this is the time for some easily-exoticised Ubuntu pedagogy that reminds us of the oneness of all humans. *Decolonising the University* is a very well-researched and highly readable book that I feel compelled to highly recommend.