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Jürgen Rudolph



Introduction to the seventh regular issue of JALT

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The coronavirus has entered its second year and counter-measures such as physical distancing and mask-wearing have been a necessity for much longer than hoped for. Diverse approaches to Covid-19 in Higher Education (HE) have been observed and different stages of HE responses to the pandemic have been conceptualised (Butler-Henderson et al., 2020; 2021a, b; Crawford, 2020). The vast observable differences were often due to variations in digital capabilities, national and university leadership, innovations in curriculum delivery and assessment, support of research activities, partnerships across higher education institutions and with industry bodies, and a decrease in international enrolments and engagement (Butler-Henderson et al., 2021a; Crawford et al., 2020).

The pandemic has had a numbing effect, at least on the two of us. Having conducted research on the educational effects of the virus since the beginning of last year, it appears like a never-ending tale of horror. While we feel fortunate to live in Singapore (that has one of the lowest fatality rates and one of the most lauded responses to Covid-19 worldwide: Kefalaki et al., 2021), adverse psychological effects are nonetheless undeniable. And while we acknowledge our good luck of being knowledge workers that can get stuff done from anywhere, the days when working from home seemed like an unattainable paradise are sure long gone. More generally, the pandemic's global consequences are bound to lead to greater inequality amongst and within countries, also in terms of access to higher education – as our present issue also demonstrates (see in particular, the contributions by Hawley et al., Martins et al., and Butler-Henderson et al.).

Pre-pandemic, 21st century academia had already moved far away from Wilhelm von Humboldt's ideal of a holistic combination of research and teaching in an environment of academic freedom (for both teachers and students) that transforms students into autonomous individuals and global citizens (Humboldt's vision was still elitist and dominated by white male privilege, amongst other flaws – Fleming, 2021; Rudolph, 2021). The enormous pressures on students and teachers that existed pre-pandemic have been exacerbated

by COVID-19. In a brilliant recent book, *Dark academia. How universities die*, Peter Fleming paints an alarming picture of the status quo in HE that runs counter to the fairy tale image of a "recondite club of tweed-jacketed, pipe smoking professors who think all day and pen esoteric research papers once every few years" (p. 156).

In its first three years of existence, JALT has come a long way. 200 contributors from 28 countries (and all continents) have contributed a total of 128 articles to six regular and two special issues – with our current issue containing another 22 pieces, and the forthcoming special issue on Alternative Education/Educational Alternatives featuring nine pre-published contributions (totalling 159 papers). In previous issues, we have interviewed six prominent educational thought leaders: Bror Saxberg (et al., 2018), John Biggs (et al., 2019), Stephen Brookfield (et al., 2019), George Siemens (et al., 2020), James Tooley (et al., 2020), and Martin Parker (et al., 2021) – and while the present issue does not contain such an interview, it is planned that the next issue will have one again. As of 20 June, 2021, "COVID-19: 20 countries' higher education intra-period digital pedagogy responses" (Crawford et al., 2020) is our most cited article with 609 Google Scholar citations. It was the first article on the topic and it currently is amongst the two most-quoted papers on COVID-19 and higher education worldwide.

With our journal becoming more popular, the rejection rate in 2021 (as of 7 June) has risen to an unprecedented high of 46%. We do not regard this as a badge of honour, and we certainly do not aim for as high an article rejection rate as possible (so-called 'top journals' have rejection rates of around 90%). On the contrary, we do not measure our success and quality via an article rejection rate (or other related metrics) and aim to continue to be inclusive and developmental, for instance encouraging authors from countries that are at the fringe of academic publications to continue submitting articles to JALT.

With publications being an important part of many academics' performance indicators, it is publish or perish, and the emotional effects of rejections can include

"alienation, discouragement, disillusionment, damaged egos and threats to one's identity as a scholar" (Tourish, 2019, p. 70). Strategic management guru Jay Barney (2005) narrates a telling anecdote that his article "Firm resources and sustained competitive advantage" was rejected multiple times by leading journals, until he himself accepted it for a special issue of the *Journal of Management*. At present, the article has more than 80,000 citations on Google Scholar, so it would appear that the rejections were not justified. The publishing game can easily lead to metric-fixation and metric-mania and become an end in itself (Fleming, 2021; Tourish, 2019). We sincerely wish our conversations may never become as shallow as what Dennis Tourish (2019, p. 234) tongue-in-cheek writes: "how high is your h-index today, and what is your total number of citations on google scholar?"

Over the last three years, Kaplan Singapore (our journal's sponsor) has thus far conducted ten symposia in conjunction with its partner universities and JALT. In the second half of 2021, we will conduct additional symposia. On 22 July, a symposium co-organised with Essex Business School will be on Alternative Finance/Rethinking Finance Education, and on 17 September, we will, together with Murdoch University, deliver a symposium on Transnational Education. Additional symposia co-organised with other Kaplan Singapore university partners (Griffith University, University College Dublin, and University of Portsmouth) will follow later this year and will be promoted via the News section of the JALT website (<https://journals.sfu.ca/jalt/index.php/jalt/announcement>).

The seventh regular issue of JALT contains articles about educational issues of diverse countries. There are articles that focus on single countries (India, Mozambique, New Zealand, Nigeria, the U.S., and Vietnam), comparative articles (Hawley et al. compare the U.S., the Netherlands, Ireland, South Korea, China, Malaysia, and Taiwan, whilst Teo & Divakar compare India and Cambodia) and an article without a strong country focus (from Singapore/Japan) that are relevant irrespective of geographical boundaries (by Sim and Ng et al.). JALT's focus on Higher Education is reflected in the vast majority of articles.

Unsurprisingly, the dominant theme in this issue is once again Covid-19 and Higher Education. This is reflected in the first four peer-reviewed articles as well as a brief article. Suzanne Hawley and 19 co-authors present the first peer-reviewed article of our latest issue on "Concerns of college students during the COVID-19 pandemic: Thematic perspectives from the United States, Asia, and Europe". The authors researched students' pandemic-related experiences in seven countries across three continents. Results identified the themes of education, safety, mental health, employment stability/finances, concerns about the future, and relationships. These findings point to the universality of students needing support for the continuity of their learning in a time of crisis.

The second article on Covid and HE is a contribution by Eileen Grafton, Elizabeth Elder, and Robert Burton. Their paper on "Innovative strategies to maintain nursing students' academic continuity during the COVID 19 pandemic" is based on the critical reflection of their experiences in a

transnational Bachelor of Nursing programme in Singapore. Although online teaching has been reported as a practical option when encountering short periods of disruption, little has been written on its impact on course integrity and student academic continuity. Grafton and co-authors contribute to fill that gap and share innovative teaching strategies that they implemented.

Another valuable perspective on the pandemic is the article by H  lio Martins et al., titled "Online learning during COVID-19 emergency – a descriptive study of university students' experience in Mozambique". With teaching having shifted to digital platforms, the authors sought to investigate the student experience and collected in excess of 6,000 survey responses from HE students in the Southeast African country. Martins' and co-authors' research provides important insights into HE during the pandemic, and how the majority of HE students in Mozambique have a much-deteriorated experience in terms of quality education when compared to the pre-pandemic face-to-face delivery.

A fourth piece on the pandemic is provided by Salome Mshigeni, Evangel Sarwar, and Eunice Kimunai. Their article is titled "College students' educational experiences amid COVID-19 pandemic". Their study examines the impact of Covid-19 on higher education in the U.S., emphasising technology, mental health, and resources provided by a Californian university. While the difficulties experienced in California undoubtedly pale when compared to Martins' et al.'s description of the situation in Mozambique, it is remarkable that more than half of Mshigeni et al.'s respondents found the study experience challenging, with a very high overall proportion reporting increased stress and anxiety levels.

In order to include the fifth and final piece on HE and Covid-19 in our description, we temporarily depart from our discussion of contributions in sequential order. In this brief article, Butler-Henderson et al. provide an updated version of the COVID-19 Higher Education Literature Database (CHELD) that was previously featured in JALT six months on (Butler-Henderson et al., 2020). This short communication provides a snapshot of the progressive response to COVID-19 by the higher education sector. The database provides easy and unencumbered access to a rigorous and valid assessment of manuscripts that discuss the response to COVID-19 within universities and other tertiary institutions. It is hoped that this database will provide fellow Covid and HE researchers with access to the relevant scholarship of learning and teaching as we collectively learn from the successes and failures in the sector during the COVID-19 pandemic.

Apart from the aforementioned papers on COVID-19 and HE, there is a refreshing breadth of themes across the remainder of the issue that defies pigeonholing. In Kevin Adkins and co-authors' "Exploring the impact of early exposure to research on dual enrollment students: A qualitative single-case study", project-based learning as a scaffolding technique and its impact on undergraduate research in science, technology, engineering, and mathematics (STEM) is discussed. Embry-Riddle Aeronautical University (ERAU), the world's largest and oldest aviation-focused university, provides a concurrent enrolment model for high school students across the United

States.

Adkins' article on the intriguing issue of dual enrolment in STEM subjects is followed by explorations of engineering education in India and accounting education in Vietnam. Jandhyala Tilak investigates "Students' perspectives on quality of engineering education in India". It is commonly held that engineering education in India has expanded massively at the cost of quality. Tilak's research surprisingly found that the majority of students were satisfied with the quality of education in their institutions and thought of themselves as well-prepared for the world of work in India or abroad, or for further education. Tilak's article highlights the importance of considering student perspectives and is based on a massive inter-state survey across numerous public and private institutions in the subcontinent.

Mark Wheaton explores the theory of student engagement and its impact on student learning. The author used a quantitative approach and compared two strategies to teaching and learning, a teacher-centred class (lecture model) and a student-centred class (inter-teaching model). Wheaton's results of his research in Vietnam suggest that the kind of student engagement that inter-teaching generates encourages their learning in accounting courses. Given the oft-voiced prejudice that Vietnamese, and other Asian, students may prefer to be passive rote learners and listen to the 'sage on the stage' (and not to even discuss stereotypes of accountancy students as less verbal 'number-crunchers'), this would appear to be an important and inspiring result, especially to those harbouring such unfounded stereotypes.

The next two articles discuss an inspirational female lecturer as well as an important research approach on sexual misconduct. Innocent Anazia examines transformational leadership in his article on "Non-formal leadership in higher education: a case study of the transformational leadership of a young female academic in a Nigerian university". Using a qualitative approach, Bass and Avolio's four I's of idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration (that together define transformational leadership) were seen exemplified in the lecturer's teaching and her engagement with her students.

Sabrina Cherry, Melannie Pate and Zoe Leonard share their important research approach to "Assessing the campus climate on sexual misconduct: An opportunity for student-centred research". Cherry and co-authors' U.S.-based research details how universities can conduct large-scale campus climate surveys that effectively assess behaviours and attitudes regarding sexual misconduct. The authors taught and mentored undergraduate students in co-facilitating a sexual misconduct assessment and see this as an example of applied learning and research projects for students.

This disconcerting topic that is finally receiving much-needed attention in the context of the #MeToo movement, is followed by two articles that explore the ubiquitous learning management systems (LMS) as well as a more creative learning and teaching approach by using Lego. New Zealand-based Kwong Nui Sim discusses Blackboard as a dominant LMS in HE institutions. Students' perspectives on

the use of Blackboard in Sim's courses were collated through photographs, video and individual discussions over the duration of a trimester and showed questionable, though well-intentioned, uses by lecturers. Sim argues that teacher training is key for a sound pedagogical use of Blackboard.

The Singaporean-Japanese team of Desmond Ng, Florence Ng and Nobuaki Minato investigate the use of Lego in higher education and training via a systematic literature review. Ng and co-authors found that there is a clear contrast in the use of Lego in learning facilitation versus thinking facilitation, and there is also a distinct difference between individual and group application. A resultant four-quadrant typology is created to assist educators new to using Lego as a learning and teaching approach.

The final two articles in the peer-reviewed section go beyond HE and bring us into the realm of children's books and their stereotypical gender roles as well as mobile learning in two Asian emerging economies. In "Examining female characters in children picture books: an international teachers' perspective", Ibtesam Hussein and Maysoun Ali evaluate the influence of children picture books on the self-esteem, behaviour, and thinking of women in their formative years. In their analysis of award-winning children picture books, Hussein and Ali come to the conclusion that female characters are under-represented and have relatively unimportant and highly stereotypical roles. There is obviously a need to redress these misleading stereotypes, and teachers can do their part.

In the final research article of this issue, Teck Choon Teo and Aji Divakar set out to explore the gaps between traditional and mobile learning. In "Understanding the concepts of digital learning approaches: An empirical analysis of schools in developing countries", the authors reconstruct the practices of mainstream schools in Cambodia and India. Teo and Divakar discuss critical learning support along with various techniques and platforms that support effective m-learning.

In Vanessa Stafford's EdTech review, "Using Google shared files to facilitate successful online student group collaboration", she explores the use of Google's suite of cloud-based shared products (Google Docs, Sheets, and Slides) and its application to HE. Stafford argues that with a shift to mass online learning, it is crucial to maintain traditional on-campus collaborative group work benefits and ensure that learning continues during online group work. Through her providing of practical shared-file case studies, she challenges educators to be student-centred and to aim for quality learning outcomes by implementing cloud-based shared files that improve collaborative online learning experiences.

Sandra Meiras discusses "The challenges of feedback in higher education" based on her review of the literature. Meiras conceptualises the giving and receiving of feedback as a process that requires multiple inputs and should support the partnership between educators and students through dialogue and engagement. Developing feedback literacy means that emotions need to be incorporated as a critical aspect of professional and student development.

Justin O'Brien and Anastasios Siampas provide both a teaching case and a note to their case on marketing students creating a digital marketing campaign for the iconic Cirque du Soleil. The teaching case is to challenge HE students' communication skills, marketing knowledge and teamwork. O'Brien and Siampas encourage educators to use their case and invite students to build a digitally-focused, integrated marketing communications plan and work individually and in groups, using roleplay amongst other things.

The issue concludes with three book reviews that are positive throughout. Nursing education experts Vivian Tan and Sam Goh assess the second edition of *Transition to professional nursing practice* by Robert Burton and Graham Ormrod that examines the responsibilities of fully-qualified nurses from international and professional development perspectives. Shannon Tan enthusiastically reviews *Never stop learning: Stay relevant, reinvent yourself, and thrive* by Bradley Staats. In addressing the importance of lifelong learning in the knowledge economy, both Staats and Tan encourage never-ending curiosity while emphasising our individuality. Finally, Jürgen Rudolph reviews *Strategic learning: A holistic approach to studying* by Professor Robert Kamei. Kamei's excellent and highly practical book could be read in conjunction with Staats' *Never stop learning*. As knowledge workers, we are bound to spend many years of continuous learning. So we may as well be strategic about our discovering how to become experts in how we learn best.

Finally, a customary big Thank You must go to our fantastic Associate Editors, Drs Margarita Kefalaki, Joey Crawford and Nigel Starck, as well as our esteemed Editorial Board, our peer reviewers as well as the leaders of Kaplan Singapore (especially Associate Professor Rhys Johnson and COO Mike Christie) for their continued staunch support of the JALT project. In addition, we have been blessed with two outstanding research interns who ably contributed to our research and the management of the journal: Ms Ching Sheau Rong and Ms Nurrul Diyannah Binte Azman. Thanks also to our friend Mohamed Fadhil bin Mohamed Ismail for his persuasive charm in getting his students excited about doing research and assisting in an academic journal! We express our sincere gratitude to Professor James Adonopoulos for his infectious evangelism in promoting JALT to our esteemed colleagues from Kaplan Australia; Dr Mike Evans for his expert chairing of our Editorial Board meetings; and Veronica Mitchell for her social media posts on JALT on behalf of Murdoch University Singapore. Also a big shout out to our contributors and the many other friends and supporters that remain unnamed! As ever, we welcome all feedback and ideas.

References

Barney, J. (2005). Where does inequality come from? The personal and intellectual roots of resource-based theory. In Smith, K., & Hitt, M. (Eds.), *Great minds in management*. Oxford University Press, pp. 280-303.

Biggs, J., Harris, C. W., & Rudolph, J. (2019). Teaching for Quality Learning at Changing Universities. A tour de force of

modern education history – an interview with Professor John Biggs. *Journal of Applied Learning and Teaching*, 2(1), 54-62.

Brookfield, S. D., Rudolph, J., & Yeo, E. (2019). The power of critical thinking in learning and teaching. An interview with Professor Stephen D. Brookfield. *Journal of Applied Learning and Teaching*, 2(2), 76-90. DOI: <https://doi.org/10.37074/jalt.2019.2.2.11>

Butler-Henderson, K., Crawford, J., Rudolph, J., Lalani, K., & Sabu, K. M. (2020). COVID-19 in Higher Education Literature Database (CHELD V1): An open access systematic literature review database with coding rules. *Journal of Applied Learning & Teaching*, 3(2), 11-16. <https://doi.org/10.37074/jalt.2020.3.2.11>.

Butler-Henderson, K., Tan, S., Lalani, K., Mandapam, S. K., Kemp, T., Rudolph, J., & Crawford, J. (2021a). Update of the COVID-19 Higher Education Literature Database (CHELD V2). *Journal of Applied Learning and Teaching*, 4(1), 134-137. DOI: <https://doi.org/10.37074/jalt.2021.4.1.22>

Butler-Henderson, K., Tan, S., Lalani, K., Karakka Mandapam, S., Kemp, T., Rudolph, J., & Crawford, J. (2021b). COVID-19 in Higher Education Literature Database (CHELD). Version 2. *Institute of Research Innovation*. DOI: <https://doi.org/10.37074/jalt.2021.4.1.22d>

Crawford, J. (2020). *COVID-19 and higher education: A pandemic response model from rapid adaption to consolidation and restoration*. Unpublished manuscript.

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, P., & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), 9-28. DOI: [10.37074/jalt.2020.3.1.7](https://doi.org/10.37074/jalt.2020.3.1.7)

Fleming, P. (2021). *Dark academia. How universities die*. Pluto Press.

Kefalaki, M., Rudolph, J., Tan, S., & Diamantidaki, F. (2021). Face masks in education: The cases of Greece and Singapore, *Thesis*, 10(1). In press.

Parker, M., Rudolph, J., Shukaitis, S., & Tan, S. Strategic utopianism and the avoidance of dualisms: An interview with Martin Parker. *Journal of Applied Learning and Teaching*, 4(Sp. Iss. 1), 1-14. DOI: <https://doi.org/10.37074/jalt.2021.4.s1.3>.

Rudolph, J. (2021). Book review of Fleming, P. (2021): *Dark academia. How universities die*. Pluto Press. *Journal of Education, Innovation and Communication*, 3(1). In press.

Saxberg, B., Harris, C. W., & Rudolph, J. (2018). 40,000 Hours to Create a Robot Gardening Business and other Futures for Education and Training. An Interview with Dr Bror Saxberg, VP Learning Sciences, Chan Zuckerberg Initiative. *Journal of Applied Learning and Teaching*, 1(2), 43-54.

Siemens, G., Rudolph, J., & Tan, S. (2020). "As human beings, we cannot not learn". An interview with Professor George Siemens on connectivism, MOOCs and learning analytics.

Journal of Applied Learning and Teaching, 3(1), 108-119. DOI: <https://doi.org/10.37074/jalt.2020.3.1.15> org/10.37074/jalt.2020.3.2.22

Tooley, J., Rudolph, J., Melnik, S., & Tan, S. (2020). Private schools for the poor as a disruptive educational innovation. An interview with Professor James Tooley. *Journal of Applied Learning and Teaching*, 3(2), 136-149. DOI: <https://doi.org/10.37074/jalt.2020.3.2.22>

Tourish, D. (2019). *Management studies in crisis. Fraud, deception and meaningless research*. Cambridge University Press.



Concerns of college students during the COVID-19 pandemic: Thematic perspectives from the United States, Asia, and Europe

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Abstract

The COVID-19 pandemic has altered the landscape of higher education, forcing institutes across the globe to lock down campuses and shift instructional methods. To determine the impact of these changes on students, 644 currently enrolled higher education students across seven countries (USA, the Netherlands, Ireland, South Korea, China, Malaysia, and Taiwan) were asked to report their pandemic-related concerns. Qualitative responses were translated and indexed by theme, with students reporting major concerns in the areas of education, safety, mental health, employment stability/finances, uncertainty about the future, and relationships. Minor themes were also reported. The results of this study provide broadly endorsed international information on student needs for support and continuity of learning. These findings can be used by institutes of higher education to inform policy and procedure, including but not limited to mental health and risk communication, during the present pandemic and future emergency or disaster situations.

Introduction and literature review

COVID-19, declared a global pandemic by the World Health Organization (WHO) in March 2020, has created upheaval around the world (Cucinotta & Vanelli, 2020). Countries enacted a variety of lockdown procedures in an attempt to reduce viral spread, resulting in disruptions for educational institutions globally (UNESCO, 2020). To ensure student health and abide by governmental recommendations, universities worldwide have mostly transitioned to online teaching (Crawford et al., 2020), and some were also able to migrate student support services online during the Winter and Spring of 2020 (Hanover Research, 2020a). Educational facilities also implemented safety measures such as alternating residence hall occupancy and/or shifting dining halls to take-out only (American College Health Association, 2020).

This abrupt shift from face-to-face learning to online instruction has led to negative mental health consequences for higher education students (AlAteeq et al., 2020; Baloran, 2020; Hasan & Bao, 2020; Ramos-Morcillo et al., 2020). The disruption of normality that students experienced through lockdowns and quarantines also exacerbated symptoms of mental disorders in the student population (Du et al., 2020; Patsali et al., 2020; Son et al., 2020). While not solely focused on university students, Dubey et al. (2020) found that COVID-19 has caused global social impacts such as job loss, financial and political uncertainty, and relationship challenges, as well as confusion due to the proliferation of information through social media.

Before the COVID-19 pandemic, the mental health of college/university students was already a significant area of study (Center for Collegiate Mental Health, 2020). In the United States of America (USA), college students' rates of mental health diagnoses and use of services rose significantly from 2007 to 2017 (Lipson et al., 2019). Internationally, higher education students have been found to have elevated levels of stress, depression, anxiety, and other common mental disorders (Auerbach et al., 2016; Auerbach et al., 2018; Evans et al., 2018). Colleges and universities commonly offer support services for student mental health, and when campuses were locked down, these support services had to transition online quickly (American College Health Association, 2020). Some universities struggled to adapt to the online world, especially when meeting the needs of at-risk students (Hanover Research, 2020b).

All of these issues have complicated and varied the response of educational institutions to emergencies like the COVID-19 pandemic. One frame for understanding lessons learned from previous disasters/emergency situations is boundary spanning theory, which studies barriers and links between organizations and their surrounding environment. Shittu et al. (2018) applied boundary spanning theory to case studies of natural disasters to identify successful resilience factors and response strategies, which included improving information flow between organizational boundaries, adoption of new technologies, and increased flexibility in use of external resources. These strategies require continuous efforts prior to a disaster (Shittu et al., 2018). In a higher education setting, this may be demonstrated through university management

outreach to students as well as other universities.

An additional relevant model was proposed by Kapucu and Khosa (2012), who discerned ways to improve the resiliency of institutions of higher education in order to build a more disaster-resistant university (DRU). They identified the most important elements of a disaster-resistant university to stem from a culture of preparedness, with specific aspects including all-hazards comprehensive emergency management plans (CEMPs), continuity planning to avoid disruption of services, greater leadership support (avoiding over-centralization), strong community partnerships, strategies and systems for the management of emergency information, and certification training among students and staff (Kapucu & Khosa, 2012).

Indeed, past research into universities' emergency preparedness has identified communication between campus stakeholders as a critical need (Brown et al., 2016). Segmentation of university departments and structures can inhibit communication between key academic, support, and faith-based student services during an emergency (Stein et al., 2007). In a study of university response to a natural disaster, inconsistent post-disaster communication resulted in student confusion about educational continuity (Watson et al., 2011). Though many students believe they are responsible for their own preparedness, they commonly hold universities responsible for informing them and guiding their emergency response (Davis et al., 2019). Perhaps not surprisingly, the most prepared universities are those with a dedicated emergency management function (Murphy et al., 2019). However, colleges and universities of different sizes and foci can experience risk and liability differently (Klinksieck, 2016).

Institutes of higher education and their students face significant and unprecedented challenges from COVID-19 (Du et al., 2020; Cao et al., 2020; Maddumapatabandi & Grange, 2020). Researchers have reviewed many aspects of the higher education experience in the time of COVID-19, both qualitatively and quantitatively (Butler-Henderson et al., 2020). Qualitative research is critical in defining newly studied variables or contexts that are not well understood, especially with emergency situations such as the novel COVID-19 pandemic. This could help confirm and expand initial perceptions and insights that are still being formulated in the research (Feroz et al., 2020; Vindrola-Padros et al., 2021). Previous qualitative studies on COVID-19 and university students have had rather narrow foci, such as evaluating targeted topics with a single country sample (Brondani & Donnelly, 2020; Collado-Boira et al., 2020; Fawaz et al., 2021; Mukhtar et al., 2020; Nguyen et al., 2020; Ramos-Morcillo et al., 2020) or targeted higher educational programs in the health professions (Brondani & Donnelly, 2020; Ramos-Morcillo et al., 2020; White et al., 2020). Further study was needed with a more open approach to broad concerns. Therefore, the present study was designed to solicit qualitative responses from students across seven countries and three continents to determine areas of greatest concern.

The current study was part of a larger cross-sectional study of currently enrolled undergraduate and graduate students

in seven countries: China, Ireland, Malaysia, South Korea, Taiwan, the Netherlands, and the United States (USA). For this study, qualitative concerns related to the COVID-19 pandemic were examined using this larger dataset. The data collected may be used in practice by institutes of higher education to inform policy and procedure during the COVID-19 pandemic as well as future emergency situations, especially as related to student needs for continuity of learning and mental health support.

Methods

Study design

The original study used an online survey deployed between April 29 and May 31, 2020, when four participating countries (USA, Ireland, Malaysia, and the Netherlands) were under shelter-in-place orders. The other three participating countries (China, Taiwan, and South Korea) had just lifted their shelter-in-place orders, with some staff and students returning to universities.

Students completed closed-ended questions to explore how the COVID-19 pandemic impacted aspects of their lives. This data was used for an earlier study not part of the present publication. At the end of the survey, they were asked an open-ended question, the focus of the current study: Do you have any concerns related to the COVID-19 pandemic that were not covered in the survey? Please write them in detail below.

Recruitment

The study team of investigators from seven different countries recruited students from their respective universities through various communication channels including campus media, course emails, and social networks. Incentives for recruitment varied, ranging from lottery-based gift cards to select participants (USA and Netherlands), gift cards for all participants (USA, South Korea, Malaysia) or no incentives (China and Ireland). To be eligible for the study, participants needed to be at least 18 years old and be currently enrolled for a university degree (undergraduate or graduate/professional; domestic or international).

Participants

Participant age ranged from 18–63 years, though most were under 25 years (76%, $n=490$). Of the 644 students who expressed concerns, the majority ($n=426$, 66%) came from the USA. A further 69 students were from the Netherlands, 68 from Ireland, 30 from South Korea, 27 from China, 21 from Malaysia, and 3 from Taiwan. The majority of the respondents were female (73%, $n=468$), while 25% ($n=160$) were males and 2% ($n=16$) reported another gender.

Ethics

The study was approved by the Michigan State University Human Research Protection Program (East Lansing, MI, USA); the International Medical University Joint Committee on Research and Ethics (Kuala Lumpur, Malaysia); the Leiden University Faculty of Governance and Global Affairs Ethics Committee (The Hague, South Holland, Netherlands); the Indiana University Institutional Review Board for the Protection of Human Subjects (Indiana, PA, USA); the Institute of Technology Sligo Research Ethics Committee (Sligo, Ireland); the University of Taipei Institutional Review Board (Taipei, Taiwan); and the Bowling Green State University Office of Research Compliance (Bowling Green, OH, USA).

Of the total participants (2,252), 1,761 responded to the qualitative question. 63% of these students ($n=1,117$) indicated that they “did not have other concerns” beyond the questionnaire. The remaining 37% of the students ($n=644$) provided open-ended responses of their concerns related to COVID-19. These responses were the focus of this analysis.

Data analysis

All data were translated into English and inductively coded by two separate coders. After coding, all data were reviewed and discussed by the coders for consistency in content categories. Coding was done manually with the assistance of data analysis software. The coders reported over 95% consistency in identifying the same content across each case. All coded category terms were clarified and agreed upon between the coders before, during, and after the analysis. Themes that were reported by more than 10% of students (more than 64) were considered major, while those mentioned by less than 10% of students (64 or fewer) were considered minor. Qualitative themes were then compared across country, gender, age, year in school, and international student status to identify any differences.

Results and discussion

Content analysis revealed 893 concerns across 6 major and 4 minor themes. Students could report more than one concern, but individual students’ concerns were counted no more than once per theme. Convergent themes were ordered by frequency count. Major themes included Education (reported by 188 students), Safety (reported by 183 students), Mental Health (reported by 113 students), Employment Stability/Finances (reported by 105 students), Uncertainty about the Future (reported by 96 students), and Relationships (reported by 80 students). Further analysis identified subcategories within these themes (Table 1).

Education

Students’ biggest concern related to their education centered on whether the upcoming academic year would be online or in-person. Students were concerned about the quality of online learning, progress with their education, and maintaining interaction with peers and professors. Previous

Table 1. Major themes in qualitative concerns reported by students.

EDUCATION	SAFETY	MENTAL HEALTH	EMPLOYMENT STABILITY/ FINANCES	UNCERTAINTY ABOUT THE FUTURE	RELATIONSHIPS
<ul style="list-style-type: none"> • Online / Reopening / Future • Internships • Performance • Workload • Quality • Support • Financing • Study abroad • International student status 	<ul style="list-style-type: none"> • Relationships/ Concern for safety of others • Work • School • Shared housing • Behaviors of others that were not safe • High risk groups including older adults • Restrictions • Treatment (vaccine, testing, or PPE) • Health (non-COVID-19) 	<ul style="list-style-type: none"> • Psychological symptoms from uncertainty about the future • Isolation • Loss/Grief • Relationship conflict or worry • General symptoms • Existing symptoms increasing 	<ul style="list-style-type: none"> • Being able to maintain or find employment • Being able to find employment in their career field after graduation • Finances depleting • Lack of safety net (health insurance, unemployment, or childcare) 	<ul style="list-style-type: none"> • Uncertainty of the length of the pandemic • When life would return to normal • General uncertainty about their future 	<ul style="list-style-type: none"> • Having limited contact with family and friends locally and internationally • Contact with groups and communities

research found students consistently reporting similar concerns before the pandemic (Protopsaltis & Baum, 2019). A female student from the Netherlands described “the stress of moving to online learning despite having neither adequate skills nor equipment for it, and the insecurity due to professors conveying information only last minute or changing things suddenly with no or late notice.” Some students felt the transition to online learning negatively impacted their performance and were unclear how this would affect their grades. A female student from the USA said, “I have difficulty concentrating in my classes because they were never meant to take place online and I’m just not getting as much out of them in the virtual format.”

Educational concerns also related to internships and study-abroad opportunities. For some students, a large component of their degree program involved practical work associated with internships or travel. When these opportunities became unavailable, progress in the degree was uncertain. A female student from the USA expressed concern about “the ability to get education on practical skills if school is still online in the fall,” while a male student from the USA was concerned about “the possible setback of graduation due to internships not hiring.”

Safety

Safety was divided into several subcategories, with the largest being concerns about the safety of other groups from COVID-19: parents, partners, children, other family members, and the general community. Students studying away from their parents’ homes were unsure if they should return home, fearful of bringing the virus to high-risk individuals. A female student from the Netherlands said, “I personally am in a situation where I can’t go home because my mother is immuno-compromised and I don’t want to get her sick by traveling.” Concerns about unknowingly bringing home the virus to others were commonly reported by those with grandparents; concern about safety of the elderly was a specific focus within the “safety of others” subcategory. One female student from the USA also mentioned increasing rates of domestic violence during the lockdown and a concern for the safety of others that was not directly related to the virus.

Another safety-related concern centered on others’ COVID-19 preventive behaviors: whether others wore masks, kept appropriate distancing, and practiced good hand hygiene. While there was a desire to reopen, students generally recognized that reopening required others to maintain behaviors to minimize community transmission of the virus. Participants wondered whether others would follow these protocols; a female student from the USA noticed “not everyone taking [the] same measure[s] to prevent the spread of the disease.” Concern with how other people’s behaviors would impact their health was expressed by students seeking shared housing, as indicated by a female student from South Korea who was “anxious to have to share a room with others.”

Additional safety areas of concern included seeking non-COVID-19 health care, attending school, returning to work, and general travel. Participant concerns revealed tension between wanting schools and communities to reopen and worry about the virus re-emerging. Safety concerns also included treatments for COVID-19; specifically, if a potential vaccine would be safe, how it would be distributed, and when it would be available.

Mental health

Several students who reported that they had pre-existing anxiety or depression indicated an increase in symptoms due to the pandemic. Students also developed new concerns related to mental health. The majority of these psychological symptoms arose from uncertainty about the future and fears of being infected and/or contagious. A female student from the USA expressed “general anxiety at not knowing [if] I have it and constant fear of dying from it.”

Isolation and loneliness due to stay-at-home orders also created anxiety. Negative emotions stemmed from not seeing loved ones (parents, boyfriends/girlfriends, friends, and/or grandparents). An additional concern impacting students’ mental health centered on “stressors related to contracting corona and giving it to an at-risk person in my home” (female student from the USA) and the associated responsibility or guilt.

Female participants (19%) in this study provided proportionally more responses regarding mental health than male participants (13%), consistent with previous findings that women report higher rates of common mental health disorders than men do (Ritchie & Roser, 2018). This reported higher rate may not reflect actual prevalence, since males are less likely to seek health care or take preventive measures (Lefkowich et al., 2017).

Students from the USA expressed proportionally more concerns about mental health. This is consistent with the USA’s high rates of depression overall (World Population Review, 2020). While higher global rates of depression have been reported in China, there are also reports of high levels of stigmatizing beliefs about it (Yang et al., 2020). These beliefs may have influenced some student responses in the present study and resulted in the under-reporting of mental health concerns.

Employment stability/finances

The pandemic created instability related to students' present employment prospects and finances. Many students reported that they worked to pay for their tuition, and the pandemic made maintaining or seeking employment challenging. Students faced job losses or a reduction in working hours. "I have concerns with finding a job since I was laid off. I do not qualify for any stimulus package and cannot file for unemployment because I am a full-time student," said a male student from the USA.

Another concern centered on future job prospects. A female student from Ireland said, "I am graduating and going on to a postgraduate program. I am worried about jobs, moving out, how the new course will work, etc." Students were uncertain if they would be able to find employment in their selected field, worrying about "financial insecurity in the future; e.g., not finding a job" (female student from the Netherlands) or "getting a job after graduating, especially in academia, due to budget cuts" (female student from the USA). Linked to concerns about employment stability were concerns about instability in safety net protections. Students were concerned about health insurance coverage, unemployment insurance, and childcare.

While students may be more available to complete online education from home during the COVID-19 pandemic, financial pressures may compromise their ability to maintain their student status. Female students (17%) reported proportionally more concerns about employment stability than male students (13%) did. In fact, COVID-19 has exacerbated the troubling gender gap in childcare and housework at the expense of women's ability to perform paid work (Collins et al., 2020). By contrast, fathers have experienced more employment stability and significantly fewer layoffs than mothers, non-fathers, and non-mothers (Dias et al., 2020).

Uncertainty about the future

For many students, there was a general uncertainty about the future. "When would things return to normal?" was a commonly written concern. This was coupled with questions about the length of the pandemic and a desire for normalcy, but a recognition that post-pandemic normalcy might not look like pre-pandemic times. Comments included "When will they find the cure and how long will we live like this" (male student from Taiwan) or "I am just concerned about what the future will hold, what the 'new normal' will look like, and all the uncertainties that come with that" (male student from the USA).

Relationships

For students, maintaining relationships with family and friends, while critical, was a challenge. A female student from South Korea reported concern about "family members getting sick and dying while I am living abroad." In trying to shelter in place, students felt distanced from romantic or other types of relationships: "I miss my friends and my

boyfriend" (female student from the USA). Contact with neighbors and other members of their community was limited. A female student from the Netherlands said:

The things I have been looking forward to have been cancelled and my life feels emptier. I was planning a very big event for already [sic] 8 months before the COVID-19 situation abruptly put an end to it. I have lost the sense of belonging that I got out of being part of the [college] community. I miss my everyday interactions with the professors and the other students. Moreover, I have felt extremely powerless in multiple situations and this made me quite angry. I have become more aware of social differences and how unfair the world can be.

In the absence of in-person contact, students wondered how these relationships could continue to grow and be built upon.

Minor themes

Minor themes included Travel/Getting Out (45 items), Politics (36 items), Economy (28 items), and Misinformation (19 items). Further analysis identified subcategories within these themes (Table 2).

Table 2. Minor themes in qualitative concerns reported by students.

TRAVEL/ GETTING OUT	POLITICS	ECONOMY	MISINFORMATION
<ul style="list-style-type: none">• Travel restrictions• Future travel• International travel• Getting out• Missing events• Travel plans	<ul style="list-style-type: none">• Responsibility and response by the government/ leadership• Election• Lack of trust	<ul style="list-style-type: none">• General concern for the country's economy currently and in the future	<ul style="list-style-type: none">• Misleading or incorrect information to the public about COVID-19 and appropriate response

Travel/getting out

This category included concerns about general travel to visit family, friends, or for summer holidays. Related to travel was a desire to "get out"—"Not in the 'open the stores, I need a haircut!' way, but in the 'I need to at least go window shopping every now and then to at least get my mind off of stuff and get out of my damn house' [way]" (female student from the USA). "Getting out" encompassed being able to move around freely regardless of location. Linked to this was concern about missing out on planned events: "family vacation because we have all been planning it for 3 years" (female student from the USA); "I have stress related to wedding planning and COVID-19 has just made it even harder to plan for anything" (male student from Taiwan); "I can't see my favorite singer's stage directly because COVID-19 made all concerts online or prohibited" (female student from South Korea).

International students (including students from the Netherlands, who were drawn from an international program) mentioned more concerns about contact with loved ones and travel compared to domestic students. This is

not unexpected in that international students generally have greater barriers to contact with loved ones in their home countries, such as travel bans, travel safety, and the need for visas. Recent research has recommended that international students themselves be surveyed about their priorities, as these may not be the same as those of educational institutions (Page & Chahboun, 2019). Identifying these concerns is a necessary step for developing emergency/crisis response for this population.

Politics

Students expressed a lack of trust in elected leaders, noting how politics was impacting decisions to control the pandemic. Concerns were related to “insecurity in my home country and to the deterioration of democracy” (female student from Peru studying in the Netherlands) or “worry that the President is handling the situation horribly and that our country will be worse off because of it” (female student from the USA). Concerns were also expressed about “civil liberties being ignored and little to no compromises being made” (male student from the USA).

Economy

This theme encompassed broad general concerns for the economy, including potential economic collapse, future economic health, and potential for a recession. Some of the comments on this topic included: “My concerns about COVID are less about getting the disease itself and more about how our nation’s economy as a whole will be able to recover” (male student from the USA), “I am concerned that businesses I used to frequent may go out of business” (male student from the Netherlands), and “Economic recession in the aftermath” (male student from Ireland).

Students from the USA had proportionally more concerns about the economy and politics than students from Asian countries. In fact, one female student from South Korea said, “I’m not really afraid about COVID-19 and I believe in the Korean government.” This is consistent with the international attention South Korea has received about strong national responses to early cases and reduction of COVID-19 positive rates (Comfort et al., 2020). This difference in concern across countries emphasizes the importance of transparent communication based on reliable data and scientific evidence, which should be reflected in university guidance for emergencies even if local community policy varies in its approach. For example, academic institutions may consistently require safety measures (e.g., masks, social distancing, sanitation protocols) whether or not the surrounding community does so.

Misinformation about COVID-19

Student concerns about COVID-19 misinformation centered on conspiracy theories, media reporting, and worries about “how COVID-19 formed” (male student from China). Due to mistrust in information about treatments, several students expressed hesitancy about a future vaccine: “I would not

be interested in the planned vaccines for the virus because everything seems like a scam” (male student from Nigeria studying in the USA). Students were also concerned about opposing messages regarding the virus. They feared these opposing messages would lead to people not believing the virus was a real threat or not believing in the effectiveness of safety behaviors (e.g., masks and social distancing), therefore impacting spread of the virus.

Implications for practice

While response to COVID-19 might theoretically be managed in university preparedness planning, the pandemic is unique in the global scale and length of the response it has required. Institutes of higher education had to rethink and redesign rapidly how to educate students, with varying success. Going forward, universities should develop and/or update emergency preparedness plans with consideration of short-term and longer-term educational needs. Students should be involved in the development of such plans, as their welfare should be central to any preparedness plans. Consideration needs to be given to vulnerable students, especially in the event that dormitories are closed for extended periods of time. Given that students’ home realities differ, tailored approaches for certain segments of the population such as those with unstable internet connectivity and/or dangerous home living situations are warranted.

In the present study, students’ major concerns included their educational future and the uncertainty of their future in general, which impacted mental health. Problems with communication between university management and students concerning lockdowns, resumption of classes and feeling connected with fellow classmates and faculty were commonly reported, sometimes compounded by students being dispersed globally. Open communication about university plans for pandemic and post-pandemic education may help to lessen student uncertainty and concerns about the future. Risk communication principles such as consistency of message content, explanation of processes, empathy and caring, and truthful communication can provide predictability in times of uncertainty (Centers for Disease Control and Prevention, 2018). Strong systems for managing communications and the flow of information are essential elements of both boundary-spanning theory (Shittu et al., 2018) and the disaster-resistant university model (Kapucu & Khosa, 2012).

Additionally, university preparedness strategies to ensure connections between students and faculty should not be limited to academics. Universities with an active pre-pandemic campus life should consider opportunities for building community virtually. This may include the extension of services commonly offered by campus support offices (e.g., instructional design, information technology, library) through virtual tours and non-academic workshops. Universities may also want to expand the definition of student life from socializing with peers to include connecting and caring for loved ones. Support for students’ families could also be beneficial. For example, campus-supported student groups could have private or open Facebook Groups, which have been found to meet students’ information-seeking

and decision-making needs (Ahern et al., 2016). These steps could help lessen student concerns about their loved ones. As students return to in-person learning, educational institutions must be prepared to offer helping in dealing with the mental health impacts of loss and grief due to COVID-19. Mental health efforts must normalize treatment and combat stigma in order to reach populations who feel unable to seek necessary care. In the USA, organized efforts exist for fighting mental health stigma on college campuses (National Alliance on Mental Illness, 2020), while national organizations combat stigma in Canada, Europe, and Oceania (World Psychiatric Association, n.d.). The World Health Organization has developed a Special Initiative for Mental Health to meet needs, including combating stigma, in twelve priority countries (World Health Organization, 2019). Still, opportunities exist for growth in further anti-stigma initiatives, particularly in South America, Asia, and Africa (World Psychiatric Association, n.d.).

Limitations

The responses in the current study may not have provided a comprehensive accounting of COVID-19 concerns, because participants also completed quantitative items about diet, exercise, coping, stressors, finance, and resiliency as related to COVID-19. However, no other question was asked specifically about "concerns" in the larger study. Another possible limitation was that the majority of participants came from the USA, while only 21% came from Europe and 13% came from Asia. Still, most themes were consistent across countries and languages. Finally, the high rate of responses by females may be due to a response bias. While female students enroll in higher education at higher rates than male students (World Economic Forum, 2020), the disparity is not as great as that observed in responses to the present study. As the data for this paper was collected in the early months of the pandemic, some countries were still in their first phase of lockdown. The policy recommendations focus on pre-emergency and short-term efforts that could be taken by universities. Addressing all of the concerns highlighted by participating students may not be within the power of universities, such as the wider political or economic climate. Regardless, universities should be aware of how these factors impact student educational attainment.

Conclusion

The present study collected qualitative information about the pandemic-related concerns of higher education students across multiple countries and continents. Major areas of concern included education, safety of others and self, mental health, financial and employment instability, uncertainty about the future, and the pandemic's impact on relationships. Additional concerns were related to travel, politics, the economy, and misinformation. These concerns could be well addressed by increased or improved communication, participatory research, and the expansion of student services to include full virtual/online access. Key services include mental health response, career planning and placement, social support, and technical support. Overall, student feedback about concerns can guide institutes of

higher education in better supporting students during the COVID-19 pandemic, as well as other emergencies that require a modification of usual learning methods.

References

- Ahern, L., Feller, J., & Nagle, T. (2016). Social media as a support for learning in universities: An empirical study of Facebook Groups. *Journal of Decision Systems*, 25(sup1), 35-49. <https://doi.org/10.1080/12460125.2016.1187421>
- AlAteeq, D. A., Aljhani, S., & AlEesa, D. (2020). Perceived stress among students in virtual classrooms during the COVID-19 outbreak in KSA. *Journal of Taibah University Medical Sciences*, 15(5), 398-403. <https://doi.org/10.1016/j.jtumed.2020.07.004>
- American College Health Association. (2020). *Considerations for reopening institutions of higher education in the COVID-19 era*. https://www.acha.org/documents/resources/guidelines/ACHA_Considerations_for_Reopening_IHEs_in_the_COVID-19_Era_May2020.pdf
- Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., Green, J. G., Hwang, I., Kessler, R. C., Liu, H., Mortier, P., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Aguilar-Gaxiola, S., Al-Hamzawi, A., Andrade, L. H., Benjet, C., Caldas-de-Almeida, J. M., Demyttenaere, K., ...Bruffaerts, R. (2016). Mental disorders among college students in the WHO World Mental Health Surveys. *Psychological Medicine*, 46(14), 2955-2970. <https://doi.org/10.1017/s0033291716001665>
- Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., Demyttenaere, K., Ebert, D. D., Greif Green, J., Hasking, P., Murray, E., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Stein, D. J., Vilagut, G., Zaslavsky, A. M., & Kessler, R. C. (2018). The WHO World Mental Health Surveys International College Student Project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology*, 127(7), 623-638. <https://doi.org/10.1037/abn0000362>
- Baloran, E. T. (2020). Knowledge, attitudes, anxiety, and coping strategies of students during COVID-19 pandemic. *Journal of Loss and Trauma*, 25(8), 635-642. <https://doi.org/10.1080/15325024.2020.1769300>
- Brondani, M., & Donnelly, L. (2020). COVID-19 pandemic: Students' perspectives on dental geriatric care and education. *Journal of Dental Education*, 84(11), 1237-1244. <https://doi.org/10.1002/jdd.12302>
- Brown, K. L., Holguin, G., & Scott, T. H. (2016). Emergency management communication on university Web sites: A 7-year study. *Journal of Emergency Management*, 14(4), 259-268. <https://doi.org/10.5055/jem.2016.0291>
- Butler-Henderson, K., Crawford, J., Rudolph, J., Lalani, K., & Sabu, K. M. (2020). COVID-19 in Higher Education Literature Database (CHELD V1): An open access systematic literature review database with coding rules. *Journal of Applied Learning & Teaching*, 3(2), 11-16. <https://doi.org/10.37074/>

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 287, 112934. <https://doi.org/10.1016/j.psychres.2020.112934>

Center for Collegiate Mental Health. (2020). *2019 Annual report*. https://ccmh.memberclicks.net/assets/docs/2019-CCMH-Annual-Report_3.17.20.pdf

Centers for Disease Control and Prevention. (2018). *CERC [Crisis and emergency risk communication] manual*. <https://emergency.cdc.gov/cerc/manual/index.asp>

Collado-Boira, E. J., Ruiz-Palomino, E., Salas-Media, P., Folch-Ayora, A., Muriach, M., & Baliño, P. (2020). The COVID-19 outbreak — An empirical phenomenological study on perceptions and psychosocial considerations surrounding the immediate incorporation of final-year Spanish nursing and medical students into the health system. *Nurse Education Today*, 92, 104504. <https://doi.org/10.1016/j.nedt.2020.104504>

Collins, C., Landivar, L. C., Ruppanner, L., & Scarborough, W. J. (2020). COVID-19 and the gender gap in work hours. *Gender, Work & Organization*. [Advance online publication]. <https://doi.org/10.1111/gwao.12506>

Comfort, L., Kapucu, N., Ko, K., Menoni, S., & Siciliano, M. (2020). Crisis decision-making on a global scale: Transition from cognition to collective action under threat of COVID-19. *Public Administration Review*, 80(4), 616-622. <https://doi.org/10.1111/puar.13252>

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, P. A., & Lam, S.. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Teaching & Learning*, 3(1), 9-28. <https://doi.org/10.37074/jalt.2020.3.1.7>

Cucinotta, D., & Vanelli, M. (2020). WHO declares COVID-19 a pandemic. *Acta Bio Medica*, 91(1), 157-160. <https://doi.org/10.23750/abm.v91i1.9397>

Davis, C. N., Weber, M. C., Schulenberg, S. E., & Green, J. J. (2019). University students' disaster preparedness: A focus group study. *Best Practices in Mental Health*, 15(2), 29-47.

Dias, F. A., Chance, J., & Buchanan, A. (2020). The motherhood penalty and the fatherhood premium in employment during COVID-19: Evidence from the United States. *Research in Social Stratification and Mobility*, 69, 100542. <https://doi.org/10.1016/j.rssm.2020.100542>

Du, C., Zan, M. C. H., Cho, M. J., Fenton, J. I., Hsiao, P. Y., Hsiao, R., Keaver, L., Lai, C.-C., Lee, H., Ludy, M.-J., Shen, W., Chee, W. S. S., Thrivikraman, J., Tseng, K.-W., Tseng, W.-C., & Tucker, R. M. (2020). Increased resilience weakens the relationship between perceived stress and anxiety on sleep quality: A moderated mediation analysis of higher education students from 7 countries. *Clocks & Sleep*, 2(3), 334-353. <https://doi.org/10.3390/clockssleep2030025>

Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Dubey, M. J., Chatterjee, S., Lahiri, D., & Lavie, C. J. (2020). Psychosocial impact of COVID-19. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 14(5), 779-788. <https://doi.org/10.1016/j.dsx.2020.05.035>

Evans, T. M., Bira, L., Gastelum, J. B., Weiss, L. T., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature Biotechnology*, 36(3), 282-284. <https://doi.org/10.1038/nbt.4089>

Fawaz, M., Al Nakhal, M., & Itani, M. (2021). COVID-19 quarantine stressors and management among Lebanese students: a qualitative study. *Current Psychology*. [Advance online publication]. <https://doi.org/10.1007/s12144-020-01307-w>

Feroz, A. S., Ali, N. A., Ali, N. A., Feroz, R., Meghani, S. M., & Saleem, S. (2020). Impact of the COVID-19 pandemic on mental health and well-being of communities: An exploratory qualitative study protocol. *BMJ Open*, 10(12), e041641. <http://dx.doi.org/10.1136/bmjopen-2020-041641>

Hanover Research. (2020a). *HE COVID-19 support: Transitioning student services to online delivery*. <https://cdn2.hubspot.net/hubfs/3409306/Higher-Ed-COVID-19-Support-Transitioning-Student-Services-to-Online-Delivery.pdf>

Hanover Research. (2020b). *Best practices in online learning for at-risk students*. <https://cdn2.hubspot.net/hubfs/3409306/Best-Practices-in-Online-Learning-for-At-Risk-Students.pdf>

Hasan, N., & Bao, Y. (2020). Impact of "e-Learning crack-up" perception on psychological distress among college students during COVID-19 pandemic: A mediating role of "fear of academic year loss." *Children and Youth Services Review*, 118, 105355. <https://doi.org/10.1016/j.childyouth.2020.105355>

Kapucu, N., & Khosa, S. (2012). Disaster resiliency and culture of preparedness for university and college campuses. *Administration & Society*, 45(1), 3-37. <https://doi.org/10.1177%2F0095399712471626>

Klinksiek, G. (2016). Risk U: Helping colleges and universities identify their unique risks. *Risk Management*. <http://www.rmmagazine.com/2016/09/01/risk-u-helping-colleges-and-universities-identify-their-unique-risks>

Lefkowich, M., Richardson, N., & Robertson, S. (2017). "If we want to get men in, then we need to ask men what they want": Pathways to effective health programming for men. *American Journal of Men's Health*, 11(5), 1512-1524. <https://doi.org/10.1177/1557988315617825>

Lipson, S. K., Lattie, E. G., & Eisenberg, D. (2019). Increased rates of mental health service utilization by U.S. college students: 10-year population-level trends (2007-2017). *Psychiatric Services*, 70(1), 60-63. <https://doi.org/10.1176/appi.ps.201800332>

Maddumapatabandi, T. D., & Gamage, K. A. A. (2020). Novel coronavirus (COVID-2019) pandemic: common challenges

- and responses from higher education providers. *Journal of Applied Learning & Teaching*, 3(2), 40-50. <https://doi.org/10.37074/jalt.2020.3.2.20>
- Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pakistan Journal of Medical Sciences*, 36(COVID19-S4), S27-S31. <https://doi.org/10.12669/pjms.36.COVID19-S4.2785>
- Murphy, S. A., Brown, J., Shankar, A., & Lichtveld, M. (2019). A quantitative assessment of institutions of higher education disaster preparedness and resilience. *Journal of Emergency Management*, 17(3), 239-250. <https://doi.org/10.5055/jem.2019.0423>
- National Alliance on Mental Illness. (2020). *StigmaFree on campus*. <https://www.nami.org/Get-Involved/Pledge-to-Be-StigmaFree/StigmaFree-Community/StigmaFree-on-Campus>
- Nguyen, D. V., Pham, G. H., & Nguyen, D. N. (2020). Impact of the Covid-19 pandemic on perceptions and behaviors of university students in Vietnam. *Data in Brief*, 31(S1), 105880. <https://doi.org/10.1016/j.dib.2020.105880>
- Page, A. G., & Chahboun, S. (2019). Emerging empowerment of international students: How international student literature has shifted to include the students' voices. *Higher Education*, 78(5), 871-885. <https://doi.org/10.1007/s10734-019-00375-7>
- Patsali, M. E., Mousa, D. V., Papadopoulou, E. V. K., Papadopoulou, K. K. K., Kaparounaki, C. K., Diakogiannis, I., & Fountoulakis, K. N. (2020). University students' changes in mental health status and determinants of behavior during the COVID-19 lockdown in Greece. *Psychiatry Research*, 292, 113298. <https://doi.org/10.1016/j.psychres.2020.113298>
- Protopsaltis, S., & Baum, S. (2019). *Does online education live up to its promise?: A look at the evidence and implications for federal policy*. <https://mason.gmu.edu/~sprotops/OnlineEd.pdf>
- Ramos-Morcillo, A. J., Leal-Costa, C., Moral-García, J. E., & Ruzafa-Martínez, M. (2020). Experiences of nursing students during the abrupt change from face-to-face to e-learning education during the first month of confinement due to COVID-19 in Spain. *International Journal of Environmental Research and Public Health*, 17(15), 5519. <https://doi.org/10.3390/ijerph17155519>
- Ritchie, H., & Roser, M. (2018). Mental health. *Our World in Data*. <https://ourworldindata.org/mental-health>
- Shittu, E., Parker, G., & Mock, N. (2018). Improving communication resilience for effective disaster relief operations. *Environment Systems and Decisions*, 38, 379-397. <https://doi.org/10.1007/s10669-018-9694-5>
- Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19 on college students' mental health in the US: An interview-survey study. *Journal of Medical Internet Research*, 22(9), e21279. <https://doi.org/10.2196/21279>
- Stein, C. H., Vickio, C. J., Fogo, W. R., & Abraham, K. M. (2007). Making connections: A network approach to university disaster preparedness. *Journal of College Student Development*, 48(3), 331-343. <https://doi.org/10.1353/csd.2007.0031>
- UNESCO. (2020). *Education: From disruption to recovery*. <https://en.unesco.org/covid19/educationresponse>
- Vindrola-Padros, C., Chisnall, G., Cooper, S., Dowrick, A., Djellouli, N., Symmons, S. M., Martin, S., Singleton, G., Vanderslott, S., Vera, N., & Johnson, G. A. (2020). Carrying out rapid qualitative research during a pandemic: Emerging lessons from COVID-19. *Qualitative Health Research*, 30(14), 2192-2204. <https://doi.org/10.1177/1049732320951526>
- Watson, P. G., Loffredo, V. J., & McKee, J. C. (2011). When a natural disaster occurs: Lessons learned in meeting students' needs. *Journal of Professional Nursing*, 27(6), 362-369. <https://doi.org/10.1016/j.profnurs.2011.09.001>
- White, E. M., Shaughnessy, M. P., Esposito, A. C., Slade, M. D., Korah, M., & Yoo, P. S. (2020). Surgical education in the time of COVID: Understanding the early response of surgical training programs to the novel coronavirus pandemic. *Journal of Surgical Education*. [Advance online publication]. <https://doi.org/10.1016/j.jsurg.2020.07.036>
- World Economic Forum. (2020). *The global gender gap report, 2020: Female education gap*. <https://www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality/infographics#female-education-gap>
- World Health Organization. (2019). *The WHO special initiative for mental health (2019-2023): Universal health coverage for mental health*. <https://apps.who.int/iris/bitstream/handle/10665/310981/WHO-MSD-19.1-eng.pdf>
- World Population Review. (2020). *Depression rates by country 2020*. <https://worldpopulationreview.com/country-rankings/depression-rates-by-country>
- World Psychiatric Association. (n.d.). *Global anti-stigma initiatives*. <http://wpa-stigma.weebly.com/initiatives.html>
- Yang, F., Yang, B. X., Stone, T. E., Wang, X. Q., Zhou, Y., Zhang, J., Jiao, S. F. (2020). Stigma towards depression in a community-based sample in China. *Comprehensive Psychiatry*, 97, 152152. <https://doi.org/10.1016/j.comppsy.2019.152152>



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Innovative strategies to maintain nursing students' academic continuity during COVID 19 pandemic

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Keywords

Academic continuity;
nurse education;
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Abstract

In tertiary education, occasional cancellation of classes is not uncommon and often of short duration (Day, 2015). Whilst inconvenient, the impact on students and organisations is often minimal. In more recent years, cancellation of classes and in some cases, short-term closure of educational institutions has become more common in connection with a range of natural disasters such as hurricanes, floods, earthquakes, and pandemics (Day, 2015). Online teaching is reported as an appropriate and effective option during short periods of disruption, yet little is reported on the impact on course integrity and importantly, student academic continuity when courses designed to be taught face-to-face are moved online for the duration of the course. Although a relatively new concept in higher education and minimally reported in the literature, the concept of academic continuity is increasingly becoming a focus for educational institutions (Day, 2015; Di Pietro, 2018; Regehr et al., 2017). The COVID-19 pandemic that developed through 2020 required urgent responses from higher education providers around the world to comply with government directives and resulted in a rapid and comprehensive move to online teaching (Crawford et al., 2020). This paper provides a critical reflection on the experiences of three academic staff in a Bachelor of Nursing programme Clinical Health Assessment skills course delivered in Singapore, and innovative teaching strategies implemented in the online environment to successfully maintain academic continuity as the COVID-19 pandemic unfolded in 2020.

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Introduction

The World Health Organization (WHO), (2019), in their Global Influenza Strategy 2019-2030 recommended school closures / class cancellations and social distancing as strategies for prevention and control during seasonal epidemics and pandemics. Educational institution administrators and academics are becoming increasingly aware of the need to provide appropriate alternate learning environments for students when face-to-face attendance is no longer possible (Day, 2015). Academic continuity is a process of maintaining teaching, despite a disruptive event, to ensure students have an opportunity to complete courses (Bates, 2013; Day, 2015; Regehr et al., 2017). Dunlap (2016) describes academic continuity as a series of steps allowing an organisation, such as a school, to regain operational capability quickly, following an incident of some sort, across a wide spectrum of situations. While there is ample literature related to natural disasters, including pandemics, there is limited literature on the impact on professional education programmes such as nursing, and little reported on strategies for ensuring academic continuity, student achievement and progression during such events (Di Pietro, 2018; Richardson et al., 2015). The COVID-19 pandemic and biosecurity measures resulted in many significant challenges to organisations of every type globally. Universities and colleges are committed to the education of their students and therefore operations affected by COVID-19 pandemic have been of primary concern (Regehr & McCahan, 2020). With the shifting of all face-to-face teaching to an online mode in 2020, critical reflections of strategies used to maintain academic continuity for nursing students may provide useful insights for other academics.

Critical reflection

Reflective practice is the purposeful questioning and self-examination of one's own performance and actions, underlying beliefs, and attitudes, with the goal of increasing self-awareness and improving performance (Sharp, 2016). Critical reflection takes reflection deeper and involves critically reviewing practice including reviewing and scrutinising one's assumptions, ideas, concepts, and beliefs (Bass et al., 2017). Critical reflection is widely recognised in many professions and is considered an essential process for professional development and a key part of professional accountability (Bass et al, 2017; Middleton, 2017). Multiple frameworks for reflection are available dating from the early works of Dewey (1916) and the later work of Schön, (1987). The Gibbs (1988) reflective cycle, commonly used, and familiar in nursing provided a basic framework for initial individual reflections on our lived experiences. In this situation we, the two academics were fortunate to have a well-established and trusting professional relationship and were therefore ideally positioned to use critical dialogue – critical conversations designed to reflect, review actions, and develop creative solutions and learning (Middleton, 2017).

Background

A review of nursing academic programmes in Singapore reveals several pathways (Goh et al., 2019). A common pathway is for students to complete a diploma-level nursing qualification at a local college, after which they are eligible for registration as a Registered Nurse (RN) with the Singapore Nursing Board (SNB). To provide opportunity for further qualifications and promotion, and upskilling of the nursing workforce overall, several offshore universities offer a 2-year post-registration baccalaureate nursing (BN) transition programme for RNs in Singapore (Goh et al., 2019; SNB, 2020). One such programme has been provided by a large multi-campus university in South East Queensland in partnership with a higher education institution in Singapore. The programme of study consists of eight courses run over a two-year period. The structure of the programme allows for rolling enrolment with a maximum of 400 students in the programme at any one time (100 per cohort). The programme is provided in an intensive face-to-face teaching format, with two blocks of teaching for each of two courses each semester, hosted by the local partner, and ongoing student support provided online. A Programme Director (PD), who resides in Singapore oversees the programme and delivers some courses while the nursing specific courses are delivered by university staff from Australia on a fly in – fly out basis.

Students coming into this BN programme are already RNs and working full-time in healthcare. To accommodate students' work rosters, lectures are held over two consecutive weekends in each of the two teaching blocks per course. With student numbers in the lecture room capped at 100 students for quality reasons and safety regulations, the student cohort is divided into 4 lecture groups and each of the two 4-hour lectures is repeated a further three times after initial delivery, providing a total of eight hours of lecture content each teaching block for each student. While representing a heightened teaching burden for the academic staff, this arrangement has provided a somewhat smaller class size to facilitate a more positive student learning experience. Research reports that class size does impact on the student's learning experience with more positive reviews reported for smaller class sizes (Harfitt & Tsui, 2015).

The content and resources for tutorials is provided by the university academic staff and then delivered by appropriately qualified, experienced local tutors with supervision and support from the relevant academic staff. For face-to-face tutorials, several small groups are run simultaneously with student numbers capped at 25 students per room to comply with local fire safety regulations within the host college and provide a small group learning experience for students. Tutorials are repeated over consecutive evenings in the week between lectures, to facilitate the large numbers in the cohort. An outline of a typical teaching schedule is provided in Table 1.

In addition to the usual lectures and tutorials, the Clinical Health Assessment (CHA) skills course focussed on in this paper included a clinical skill learning and assessment component which was scheduled in the second teaching block through clinical laboratories in place of tutorials,

followed by an Objective Structured Clinical Examination (OSCE) as an assessment item. In order to provide supportive, student-focused learning opportunities throughout the course and the OSCE assessment, two academics, one of whom was the lead academic / convenor for the course, share the teaching workload.

Table 1: Example of teaching schedule

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Week 1 of Teaching intensive						Lecture 1 (Group 1) (4 hrs) Lecture 1 (Group 2)	Lecture 1 (Group 3) (4 hrs) Lecture 1 (Group 4)
Week 2 of Teaching intensive	Tutorial x 5 simultaneous classes	Tutorial 1 X 5 simultaneous classes	Tutorial X 6 simultaneous classes	No class	No class	Lecture 2 (Group 1) (4 hrs) Lecture 2 (Group 2) (4 hrs)	Lecture 2 (Group 3) (4 hrs) Lecture 2 (Group 4) (4 hrs)

Initial challenges and innovative strategies

In early February 2020 we, the two Australian academics flew to Singapore to begin the first teaching block of the CHA skills course for semester 1 of the academic year, the COVID-19 pandemic was just beginning to impact Singapore, but no restrictions had been put in place at the time. However, shortly after arrival, we were informed that the situation was rapidly changing, and some students would not be able to attend class as they were in quarantine at home or being called to work. Onshore in Australia, lectures are recorded through "lecture capture" technology, enabling students who are not able to attend class to view the recordings. Such automated technology was not available in the teaching space in Singapore.

Literature recommends that, in times of crisis, universities and faculty need to act quickly to implement alternative teaching and learning strategies to maintain academic continuity (Rasiah et al., 2020). Regehr and McCahan (2020) highlight stages for managing academic continuity of: pre-planning; approaching crisis; immediate crisis; prolonged uncertainty; planning for recovery and adaptation. As the pandemic situation arose and quickly developed, this reflection highlights the activities undertaken from the immediate crisis and adaptation stages, through to planning for recovery during the first trimester, 2020.

Challenge 1: Managing lectures

With the unfolding COVID-19 pandemic restricting some students' attendance, the main concern from an academic and student equity perspective was that students may be disadvantaged by not being able to attend the face-to-face lectures. Arrangements were quickly made to provide simultaneous face-to-face teaching, live-streaming with a chat facility, and recording of each lecture. Cognisant of minimising students' stress wherever possible, it was decided to use the 'Blackboard Collaborate Ultra' platform, a web conferencing or synchronous collaborative browser-based online teaching tool (Hill, 2019). This platform is already embedded in the university virtual learning environment (VLE) course site and most students were familiar with it. The

benefits of using the platform were that it not only allowed for non-attending students to join the lecture in real time, but also the ability to create recordings which provided opportunity for all students to replay the lecture, and thus would support content revision. A camera and microphone were acquired from the host college, and lectures proceeded in person, and simultaneously in the virtual classroom. The only downside to the strategy was that plans for the two academic staff to share the face-to-face teaching load for this particular course were abandoned, as one was now needed to manage the virtual classroom and respond to students' questions, while the second academic staff member delivered the lecture in the physical room. Having one instructor lead the class while a second instructor manages the online chat was also reported in recent months by staff at the Singapore University of Technology and Design (SUTD) (Rai, 2020). In our case, the teaching strategy was considered effective as feedback from students in person and online, was positive.

Challenge 2: Providing tutorials

After the initial weekend of lectures, shortly prior to the first evening of tutorials, we were informed that all face-to-face classes had been cancelled and moved online as ordered by the local authorities due to a worsening COVID-19 crisis. With little time to develop alternate strategies, it was decided to again use the virtual classroom concept. All students were urgently notified not to come to class in person, and to sign on to the virtual tutorial 'room' on the course website. Within this room, the content was delivered by the lead academic staff member for the course, with the second academic and local tutors also in the 'room' as support. However, what would normally have been five to six different small groups in different physical classrooms, each with a local tutor, had now become one large virtual class. On reflection after the class, it was recognised that, although there was active engagement from many students through the chat facility, having the one large, combined tutorial group may have inhibited engagement in the tutorial activities for some students and was not capitalising on the experience and knowledge of the local tutors. It was considered important to maintain the normal class structure for students (Rai, 2020) and therefore it was necessary to find a way to deliver the smaller tutorial group experience in the virtual platform. In discussion with the PD, advice and support was immediately sought from the technical and learning support advisors at the university in Australia. A meeting was urgently convened within the virtual platform allowing experimentation in real time in ways to create and manage a main course room and multiple smaller rooms that could run simultaneously. It was discovered that this was indeed possible and by manipulating the volume controls in each room, audio interference between rooms could be prevented.

Virtual tutorial rooms were quickly set up within the course site, with each room labelled with the assigned student group and tutor name allocated to each particular tutorial group. Students were again contacted, and tutors were briefed prior to the evening classes, including the assurance that the academic staff would be available online to support them. For that evening and the following evening classes, students joined their assigned tutorial group, with their local tutor

in the virtual world. Each class was recorded for students who were unable to attend, and for revision purposes for all students. We, the academics, and the PD were able to drop in and out of each room to provide support where needed as was the case one evening, when it was necessary to take over one class when a tutor experienced a problem with their internet connection. Immediate communications between academic staff and tutors were managed via a messaging app. One advantage of the virtual platform was that student numbers per class no longer needed to be limited by physical space and regulations, thus students could swap classes to accommodate changing work rosters more easily. However, the quality and stability of internet connections was noted as an important consideration, especially for the teaching team, to minimise disruptions. Later, following advice from IT support staff, guidance was developed for students (and teachers) in relation to minimising devices accessing Wi-Fi, closing nonimportant applications and in ensuring caches and browsers were cleared.

From observations within each of the virtual tutorial rooms, there was active engagement of students using the chat facility and microphone, including responses to tutors' questions and discussion activities. It was clear that students and tutors had adapted to the virtual platform and were actively engaged in the content for the class. Comments and immediate feedback from the students about their online tutorial experience each evening were very positive.

As the COVID-19 health crisis continued to worsen and new restrictions were put in place almost daily, including potential closure of borders and restrictions on travel, flights back to Australia for the two Australian academics were quickly rescheduled, in time for the second weekend of lectures to be delivered from the safety of office space on university campuses.

Strategic planning for block two teaching

Biosecurity and travel restrictions implemented by many countries including Australia and Singapore meant the continuation of online teaching (Commonwealth of Australia, 2020b; European Centre for Disease Prevention and Control, 2020). In addition to lectures and tutorials, the CHA skills course included clinical laboratories and OSCEs scheduled to take place in the latter half of the second teaching block. While we had already demonstrated that lectures and tutorials could be presented in the online platform relatively easily, new strategies were needed for clinical skills demonstration and student practice. In the somewhat naïve hope that the restrictions on travel and face-to-face teaching may be lifted within a few months, the second teaching block was split into two smaller blocks: Lectures and the first week of clinical labs could be delivered as scheduled in late March, with the second week of clinical labs and the OSCEs re-scheduled for June, close to the end of semester. This would still allow time for finalisation of grades and the final semester cohort to complete the course and be eligible to graduate.

Challenge 3: Clinical skills laboratories

In order to demonstrate the physical examination / assessment skills, we filmed an initial exemplar video with the help of a video technician and submitted for approval from the nursing executive of the university in Australia, and Singapore Nursing Board. With this method accepted as an appropriate teaching method, and with the addition of two medical actors we filmed several short videos, each demonstrating assessment of a body system. There is evidence that the use of videos in instruction in physical assessment can reduce stress associated with OSCEs and can improve outcomes (Bani-Issa et al., 2019). In this case, however videos were the primary means of demonstrating the assessment skills. Clinical laboratories were set up in the virtual platform in the same way the tutorials had been conducted, and videos and content worksheets were loaded for each tutor in their rooms. There were some technical challenges initially, with poor audio and video playback in individual rooms, thought to be related to varying internet speeds and other software incompatibilities on individual tutor computers. Playback issues were resolved by the lead academic showing the videos in succession in a main course room, then students moved into their group rooms with their tutors to discuss the skills and complete the worksheets. Following completion of classes, links to the videos were posted on the course site to allow all students access for further viewing and revision purposes.

Challenge 4: Exam and OSCE assessments

By March 2020, WHO had classified the worsening COVID-19 health crisis as a global pandemic (WHO, 2020a). Ongoing biosecurity measures and travel restrictions introduced by governments and local authorities meant that all teaching and classes were to remain online for the foreseeable future. Thus, a new plan was urgently needed to provide effective teaching of the final clinical laboratories and enable students to complete the OSCE assessments and end of semester multiple choice questions (MCQ) exam. The primary focus was on maintaining academic continuity - to ensure students were given an opportunity to meet the learning outcomes and complete the course while also preserving the integrity of the course content and assessments. There is evidence in the literature that online assessment can be a viable alternative to invigilated assessment in times of widescale crises (Regher et al., 2017).

Literature reports that academic integrity can be preserved in the online exam environment (Kolski & Weible, 2019). Various platforms are available for managing MCQ exams online, and several of these platforms were explored for this course. However, mindful of student workplace stress due to the pandemic, and the added stress of study, it was agreed that introducing an unfamiliar platform to students would potentially add further stress and possibly impact on opportunity for student success. In discussion with the relevant School of Nursing executive and technical staff, it was agreed to present the exam using the familiar Blackboard platform on the course site. Detailed instructions for the exam were provided to students, and several short practice quizzes set up within the platform, allowing

automatic marking to assist exam preparation. Permission for this exam process was also sought and granted by the Singapore Nursing Board (SNB).

For the objective structured clinical examinations (OSCEs), the directive from both the Singapore Nursing Board and the School of Nursing executive in Australia were that the virtual OSCEs needed to be performed and assessed in real time in preference to students' video-recording a demonstration of clinical assessment skills in a given scenario and submitting the video for marking. Again, it was important to consider the potential for increasing stress for students if an unfamiliar technology was introduced. Despite our searches and enquiries, no useful information on how to conduct OSCEs online was found. With a little experimentation, exemplar OSCEs were filmed using the Collaborate Ultra virtual web-based platform used for tutorials. The exemplar video covered the full process of an OSCE being performed including academic marker screen view, student identification check, and checking the student's environment to ensure no additional notes were being used and thus ensuring assessment integrity. The exemplar videos were then submitted as evidence to the SNB and approved, that completing an OSCE online was indeed possible and with minor adjustments to the process, the integrity of the assessment could be preserved.

Summary of assessment

The MCQ exam was successfully completed by the entire cohort, with technical assistance being made available if needed. A small number of students reported that they experienced internet dropouts but were able to return to the exam and complete within the allowed time without difficulty.

For the OSCEs, students were able to electronically self-enrol to an available timeslot. An OSCE waiting room was set up on the course site, while on a separate site within the university website, virtual rooms were set up for each examiner for each day. On the day of assessment, students presented to the virtual OSCE waiting room 30 minutes prior to their scheduled OSCE time where they were greeted by one of the academic staff and given opportunity to test their microphone and camera while waiting for an examiner. At the student's designated time, when an examiner was ready, students were provided with a link to a selected private virtual examination room to meet their examiner and complete their OSCE, thus ensuring privacy and confidentiality of each student's OSCE exam. Initially students were to have a colleague or friend to act as their patient, but increased biosecurity measures in Singapore at the time meant that most students did not have access to another adult person to be their 'patient'.

To ensure equity, it was decided to use a virtual patient in the form of images taken from the various skills videos that had been produced for the skills teaching. Images included anterior and posterior chest and abdomen views, and for the sake of modesty and cultural sensitivity, only images of the male medical actor were used. Students were able to draw and write on the interactive screen within Collaborate

virtual room to indicate various landmarks or assessment points while discussing their observations, assessment techniques and expected assessment findings with their examiner. At the completion of each student's OSCE, the examiner uploaded the marking sheet electronically to the academic staff. Again, the use of a messaging app was effective, to communicate between the academic staff in the waiting room and the examiners, to notify of problems and notify readiness for next student. Academic staff were also able to join an examination room to observe for moderation purposes. An algorithm (Diagram) was developed to document the process of virtual OSCEs (see Appendix).

A small number of students experienced technical difficulties with audio or camera operation on their devices, but these were able to be resolved and all students completed their OSCEs. With all assessment items completed, students' final results across the course were reviewed and found to be comparable with previous iterations of the course where teaching and OSCEs had been completed face-to-face. There was one issue where a student was considered to have been using a third party to provide answers during the OSCE. As this was all recorded it was investigated and the plagiarism policy was followed, demonstrating that academic integrity could also be maintained in this process.

Discussion and reflections

In many natural disasters such as hurricanes, earthquakes and floods, there is usually a defined area affected, and the period of initial disruption is of relatively short duration, followed by recovery (Day, 2015). Although there is evidence in the literature that natural disasters have a negative impact on students' academic achievement, educational institutions can, where feasible, move programs to another location and support students to resume their studies (Di Pietro, 2018). The COVID-19 global pandemic presented challenges not previously experienced on such a scale or period of time. In the weeks following the recognition of the pandemic, Governments imposed increasingly severe restrictions in an attempt to arrest the spread including the cancellation of all non-essential travel, social gatherings and sporting events, and closure of education institutions and many business operations (Commonwealth of Australia, 2020a). With restrictions put in place for several months, and in April 2020, the Director General of WHO warning there was 'still a long way to go', the personal, social, psychological, mental, and economic consequences are expected to extend beyond the period of the global pandemic (WHO, 2020b). While the future remains unclear, what was clear from the beginning was that maintaining academic continuity and student progression would require innovative strategies, and the capacity to adapt those strategies as the situation evolved.

A strong theme within the limited literature relates to the support provided by individual staff members, and by the educational institutions to assist student learning. Such support includes flexibility in delivery, ongoing communication, personal support and recognition of the impact and disruption of the events on an individual's ability to cope (Richardson et al., 2015). In critically reflecting on our actions and strategies to support student learning, as

the pandemic unfolded and continued, three main themes are recognised:

- Commitment to academic continuity and educational mission: From the beginning we were committed to providing opportunity and support for students to continue their learning and complete the course. As each challenge arose, we remained positive, student-centred, and solution-focused, finding creative ways to adapt teaching processes, including creation of additional resources such as videos, and reconfiguring assessments to function in an online format. Each change was scrutinised by the academic staff of the course, and PD, with invited input from senior academics, the Learning and Teaching advisors within the university, and executive of the Singapore Nursing Board who accredit the program, to ensure academic integrity of the course and assessment items. As part of that process, clear communication and the use of familiar platforms was considered essential to minimise student stress.
- Timely and inclusive communication: Throughout the evolving situation, students were kept informed of any and all changes as they were made. Communication via SMS messaging for urgent matters, additional regular online 'drop in' sessions, as well as announcements and discussion forums on the course site, and email proved effective. Detailed written instructions for the online exam and OSCEs were provided and extra technical support made available to support students in case of technical issues.
- Collegial support: A key factor in successful adaptation and delivery of this course has been the committed collegial relationship between us, the two nursing academic staff. From the beginning, we worked well together capitalising on our experience as nurses and strengths as educators, ably assisted and supported by the PD in Singapore and the local tutors. Despite spending most of the semester separated by different geographical locations and time zones, and government restrictions in the pandemic, we continued to communicate frequently and work collaboratively to support student learning and course completion. The collaborative and collegial culture established in the course extended to students, with students regularly sharing messages and comments expressing concern and well wishes for the welfare of fellow students and the teaching staff. An additional factor in successful adaption and completion of this course has been the positive collaborative relationship between the faculty and support staff of university in Australia and the host college in Singapore. Interpersonal relations between faculty and educational technical support are considered of significant importance in the successful delivery of online courses (Day, 2015).

Following our experiences, as part of our reflections, we again searched the literature. While there is some research on the impact of natural disasters such as earthquakes, on education and strategies to maintain academic continuity (Day, 2015; Di Pietro, 2018; Richardson et al., 2015), little is reported on maintaining academic continuity over a longer period of disruption such as that experienced during the COVID-19 pandemic. However, literature does include several recommendations and principles to plan for and maintain academic continuity during periods of disruption. In 2009, in planning to mitigate the impact of the expected H1N1 epidemic, the University of Toronto developed a policy of academic continuity with several principles. These included: an undertaking that the university would provide students with a reasonable opportunity to continue learning and complete academic requirements; the importance of the maintaining integrity of academic courses; fairness to students; and timely information (Regehr et al., 2017). Strategies also included modifying courses and moving courses to an online platform. Recommendations for academic continuity made following the 2010 New Zealand earthquake included ensuring effective and timely communication and sharing of information, providing flexibility and responsiveness of course delivery, and consideration of the additional stresses and workplace commitments of students (Richardson et al., 2015). More recently, effective strategies reported by the Singapore University of Technology and Design during the COVID-19 pandemic include having structure, maintaining prompt communication, the use of videos and online classes, and modified assessment (Rai, 2020).

When reflecting on the different strategies we developed and implemented 'on the run' in response to an unfolding and ever changing situation, it is heartening to recognise a correlation with the recommendations in the literature. Without prior knowledge of such recommendations, or a prior disaster plan, we had implemented appropriate processes and adaptations to support students and enable academic continuity in an uncertain world. Literature reports that successful adoption of online technologies requires planning, time and knowledge and training in such technologies, and a willingness by all parties including students to adapt (Day, 2015). In this course, despite little time to plan for change, and students and teaching staff having limited experience with the technologies, there was an overwhelming willingness from all parties to adapt, learn new skills and technologies, and engage in the online format.

At the end of the course, anecdotal feedback and written evaluations from the students were positive with students commenting that they felt well supported. In a Student Evaluation of Course (SEC) survey, 81% reported that they were satisfied or very satisfied with the way the course was delivered and that it engaged them in learning. An in-house survey conducted by the host higher education institution on student satisfaction with the online learning format and shared in personal communication, provided strongly positive results. With a response rate of 43%, (n=205), 93% of respondents were satisfied with the online learning experience, and of those, 47% reported they were very satisfied. Although all respondents reported they would

prefer at least 40% of content to be delivered face-to-face, 91% reported that the online experience had improved over time throughout the semester. These results were heartening and validated that the efforts and strategies we developed 'on the run' were effective in providing students, not only with opportunity to complete the course, but also provided a supportive, engaging learning experience.

Conclusion

Online course delivery and assessment is reported as an appropriate and effective option during short periods of disruption. For this Clinical Health Assessment skills course, face-to-face teaching and assessment will remain the most preferred and appropriate format. However, in this course we have demonstrated that with innovative strategies, and supportive staff, online course delivery and assessment can be a viable option to maintain academic integrity and continuity for longer periods of disruption. Strategies that were developed, learned, and used in this course were effective in providing a supportive learning environment and maintaining academic continuity for students during a global pandemic.

Recommendations

Recommendations reported in recent literature (Rasiah et al., 2020), and congruent with our experience include the urgency for Higher Education Institutions (HEI) to establish Academic Continuity plans as part of their risk management processes, and appropriate education and training in the effective use of technologies and online platforms is provided for academics and students.

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References

Bates, R. (2013). Institutional continuity and distance learning: A symbiotic relationship. *Online Journal of Distance Learning Administration*, 16(3). <https://www.learntechlib.org/p/155634/>.

Bani-Issa, W., Al Tamimi, M., Fakhry, R., & Tawil, H. A. (2019). Experiences of nursing students and examiners with the objective structured clinical examination method in physical assessment education: A mixed methods study. *Nurse*

Education in Practice, 35, 83-89. <https://doi.org/10.1016/j.nepr.2019.01.006>

Brookfield, S. D. (2015). Critical reflection as doctoral education. *New Directions for Adult and Continuing Education*, 2015(147), 15-23. doi:10.1002/ace.20138

Brookfield, S. D. (2017). *Becoming a critically reflective teacher* (2nd ed). San Francisco: Jossey-Bass.

Commonwealth of Australia. (2020a). *Coronavirus (COVID-19) health alert*. <https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert>

Commonwealth of Australia. (2020b). *Coronavirus (COVID-19) advice for travellers*. <https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-advice-for-travellers>

Crawford, J., Butler-Henderson, K., Rudolph, J., & Glowatz, M. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), 9-28. <https://doi.org/10.37074/jalt.2020.3.1.7>

Day, T. (2015). Academic continuity: Staying true to teaching values and objectives in the face of course interruptions. *Teaching and Learning Inquiry: The ISSOTL Journal*, 3(1), 75-89. <https://doi.org/10.20343/teachlearningqu.3.1.75>

Dewey, J. (1916). *Democracy and education: An introduction to the Philosophy of Education*. Macmillan.

Di Pietro, G. (2017). The academic impact of natural disasters: Evidence from L'Aquila earthquake. *Education Economics*, 26(1), 62-77. <https://doi.org/10.1080/09645292.2017.1394984>

Dunlap, E. S. (2016) Academic continuity. P305-320. In Dunlap, E.S (2016). *The comprehensive handbook of school safety*. E-book. Taylor and Francis Group.

European Centre for Disease Prevention and Control. (2020). *Guidelines for the use of non-pharmaceutical measures to delay and mitigate the impact of 2019-nCoV*. https://www.ecdc.europa.eu/sites/default/files/documents/novel-coronavirus-guidelines-non-pharmaceutical-measures_0.pdf

Goh, H. S., Tang, M. L., Lee, C. N., & Liaw, S. Y. (2019). The development of Singapore nursing education system – challenges, opportunities and implications. *International Nursing Review*, 66(4), 467-473. <https://doi.org/10.1111/inr.12539>

Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods*. Oxford: Further Education Unit, Oxford Polytechnic

Hill, L. (2019). Blackboard collaborate ultra: An online, interactive teaching tool. Review. *Academy of Management Learning & Education*. 18(4), 640-642. doi:10.5465/amle.2019.0027

Kolski, T., & Weible, J. L. (2019). Do community college students demonstrate different behaviors from four-year university students on virtual proctored exams? *Community College Journal of Research and Practice*, 43(10-11), 690-701. <https://doi.org/10.1080/10668926.2019.1600615>

Rai, B. (2020). A team of instructors' response to remote learning due to Covid-19. A 10.012 introduction to biology case study. *Journal of Applied Learning & Teaching*, 3(2), 154-156. DOI: <https://doi.org/10.37074/jalt.2020.3.2.6>

Rasiah, R., Kaur, H., & Guptan, V. (2020). Business continuity plan in the higher education industry: University students' perceptions of the effectiveness of academic continuity plans during covid-19 pandemic. *Applied System Innovation*, 3(51), 51. <https://doi.org/10.3390/asi3040051>

Regehr, C., & McCahan, S. (2020) Maintaining academic continuity in the midst of COVID-19. *Journal of Business Continuity & Emergency Planning*, 14(2), 110-121.

Regehr, C., Nelson, S., & Hildyard, A. (2017). Academic continuity planning in higher education. *Journal of Business Continuity & Emergency Planning*, 11(1), 73-84.

Richardson, S. K., Richardson, A., Trip, H., Tabakakis, K., Josland, H., Maskill, V., Dolan, B., Hickmott, B., Houston, G., Cowan, L., & McKay, L. (2015). The impact of a natural disaster: under- and postgraduate nursing education following the Canterbury, New Zealand, earthquake experiences. *Higher Education Research & Development*, 34(5), 986-1000. <https://doi.org/10.1080/07294360.2015.1011099>

Schön, D. (1987) *Educating the reflective practitioner*. San Francisco. Jossey-Bass.

Singapore Nursing Board (2020). *Post-registration programmes*. <https://www.healthprofessionals.gov.sg/snb/accreditation-of-nursing-education-programmes/accredited-nursing-programmes/post-registration-programmes>

Sharp, L. (2018). Reflective practice: Understanding ourselves and our work. *Australian Nursing and Midwifery Journal*, 25(10), 48.

World Health Organization. (2020a). *WHO Director-General's opening remarks at the media briefing on COVID-19-11 March 2020*. <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>

World Health Organization. (2020b). *WHO Director-General's opening remarks at the media briefing on COVID-19 - 22 April 2020*. <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--22-april-2020>

World Health Organization. (2019). *Global influenza strategy 2019-2030*. <https://apps.who.int/iris/bitstream/handle/10665/311184/9789241515320-eng.pdf?sequence=18&isAllowed=y>

Appendix

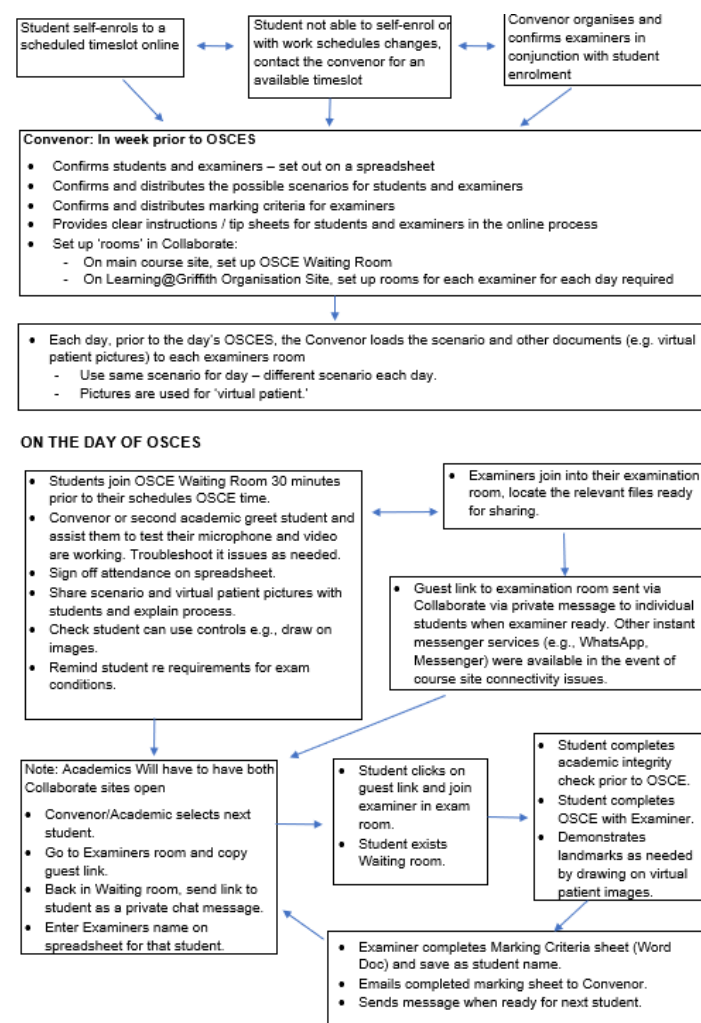


Figure 1: Online OSCE process



Online learning during COVID-19 emergency – a descriptive study of university students' experience in Mozambique

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Keywords

COVID-19;
educational technology;
emergency;
higher education;
online learning.

Abstract

Initially described as pneumonia of unknown etiology, COVID-19 emerged in China in late 2019 and quickly spread around the world. Its impact has resulted in the closure of schools in several countries, including Mozambique, and at that time, the teaching and learning process shifted to digital platforms. In this context, this research was developed with the aim of describing students' experience with the teaching and learning process using digital platforms during the state of emergency. We surveyed 6,542 students from 43 public and private higher education institutions, of whom 3,226 (52%) were male and the average age was 24 years. The survey was answered using the Google Forms platform between 4th and 12th of May 2020. Descriptive statistics were used for data analysis, and the results are presented in simple tables. 98.5% of the students were at the undergraduate level, about 1% pursued a Master's degree and only 0.3% were attending a doctoral course. The most used platforms were WhatsApp, email and Google Classroom, and about 64% reported an unsatisfactory level of competence and just over three quarters had some kind of difficulty. The most used device to access the platforms was the cellphone (59.4%), however only 45.5% had the device available full time. Only 27% of the students were able to follow all classes, and difficulty of comprehending some topics and the poor quality of the internet were the main barriers. Furthermore, only 34% of them stated that they continued to have all classes initially planned and about 78% rated the performance of their teachers as poor or reasonable. About 65% believed that the quality of the teaching and learning process had decreased, and 80% had an unsatisfactory experience in their adaptation to the process and almost the same proportion (79%) would not continue with this teaching modality. During the suspension of classes, students used a variety of digital platforms and faced constraints regarding access to the internet, as well as difficulties in adapting to the process.

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Introduction

The coronavirus disease (COVID-19), initially described as pneumonia of unknown etiology, is an infectious disease caused by the new coronavirus (SARS-CoV-2) that was first detected in the city of Wuhan, Hubei province, in the People's Republic of China in December 2019 (Lu et al., 2020; Cruz et al., 2020). Due to its rapid spread, the World Health Organization declared the disease an international public health emergency on 30 January 2020, thus alerting the international community to take measures to control the disease (World Health Organization [WHO], 2020a). The continuous disseminations of COVID-19 led to its declaration as a pandemic in less than two weeks after the disease was classified as public health emergency (WHO, 2020b).

In the first months of 2020, the disease had already a systemic impact on a global scale, not only in morbidity and mortality but also in socioeconomic life (Sohrabi et al., 2020). In this process, the closure of schools was one of the measures implemented in several countries (Huang et al., 2020). This measure, which has its scientific support from the experience of some countries with the 2009 influenza epidemic, aimed to reduce contact between people as a way of containing the spread of the disease (Viner et al., 2020).

Estimates from the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020) indicate that by 20 April 2020, around 191 countries had decreed the closure of schools, affecting more than 1,579,634,000 students. In Mozambique, the suspension of face-to-face classes was decreed on March 20, with effect from 23rd of the same month, for a period of 30 days, with the teaching and learning process being done using digital platforms, especially in higher education (Ministry of Science, Technology and Higher Education [MCTESTP], 2020). Subsequently, the government decreed a 30-day State of Emergency with effect from April 1st (Boletim da República, 2020), thus extending the suspension of face-to-face classes until April 30, 2020.

In order to guarantee the continuation of classes, the Ministry of Science, Technology and Higher Education issued an official letter instructing all public and private Higher Education Institutions to design activity plans for the 30-day period and to use the Information and Communication Technologies (ICT) such as email, WhatsApp, Skype, Google Classroom and other digital platforms to deliver lessons (MCTESTP, 2020).

According to Salimo and Gouveia (2017), in a higher education classroom in Mozambique, between 40 and 60% of students have portable computers and between 90 and 100% have cell phones with internet access. However, this does not necessarily imply that these students are prepared to migrate to a teaching and learning process based on digital platforms. In addition, considering the challenges that still exist in the use of ICT by teachers and students both in face-to-face and distance learning (Lobo & Maia, 2015), as well as the weaknesses in the provision of internet access (Krönke, 2020) and the move from onsite to online classes without proper preparation, we deemed it opportune to describe students' experience in learning

using digital platforms in order to evidence challenges and opportunities of the teaching and learning process in a context of emergency caused by COVID-19 in Mozambique.

Literature review

The study by Butler-Henderson et al. (2020) shows that there have been numerous publications on how students and institutions responded to the demands caused by the outbreak of COVID-19 during the first half of 2021, when rapid adjustments were needed to keep the teaching and learning process in place.

While there is a consensus that the outbreak of COVID-19 has disrupted education systems worldwide, the evidence suggests that the impact and response varied between and within countries (Bonk et al., 2020; Crawford et al., 2020). Although the developed countries have made a smoother transition to online classes, at least from the infrastructure point of view, still students experienced some difficulties to adapt, with their mental health and well-being affected by concerns about their academic situation and future professional life (Aucejo et al., 2020; Crawford et al., 2020; Hasan & Bao, 2020; Hawley et al., 2021). On the other side, the developing countries faced more challenges to support the transition from traditional to online learning models (Crawford et al., 2020; Nyerere, 2020).

In Africa, studies prior to the COVID-19 pandemic have shown that online education is affected by resource constraints. A study held in Kenya by Nyerere et al. (2012) revealed that the delivery of online learning faces infrastructural issues as one of the main handicaps, with students reporting low levels of satisfaction with the resource centres, programme organization and delivery. Likewise, in Zimbabwe, Mpofu et al. (2012) found that distance learning was threatened by a lack of properly trained teaching staff. These scenarios still prevail in many other African countries, where the level of digital literacy or preparedness to use electronic devices and the internet coverage and access are yet to improve (Krönke, 2020; Nyerere, 2020).

From the available literature, it is evident that the COVID-19 pandemic forced significant changes upon the teaching and learning processes. To the best of our knowledge, this is the first study to examine students' learning experiences during the early stage of the COVID-19 outbreak in Mozambique, thus contributing to document a singular event from which many lessons can be learned so as to rethink and improve the education system.

Methodology

A descriptive study with a quantitative approach was carried out through an online survey using Google Form. The objective was to describe the students' experience of the teaching and learning process using digital platforms during the state of emergency. The survey was open between the 4th and 12th of May 2020 and was disseminated through social media (WhatsApp) and also by email. Respondents were able to share the link with their network of contacts,

thus allowing the survey to reach more eligible people. The study population consisted of undergraduate and graduate students from public and private institutions in Mozambique. The data collection instrument was developed based on the literature review and contributions from the research team, covering aspects about the platforms used during the suspension of face-to-face classes, the effectiveness and quality of teaching as well as satisfaction with the process. In all, the survey had 29 closed-ended questions.

All students were informed about the research objective and participation was voluntary. The information was displayed in the opening of the survey link and students were asked to confirm their willingness to participate in the study, and only after this procedure, the study questions were displayed. No identifying information was collected, thus ensuring an anonymous and confidential participation of students.

Results and discussion

Students' general characteristics

We obtained 6,542 responses and after cleaning incoherent data and duplications, 6,224 responses were considered valid, with 3,226 (52%) male, 2802 (45%) female and 196 (3%) who chose not to identify their gender. The mean age was 24 years (SD = 6.16 years), ranging from 16 to 64 years. Altogether, the survey reached students from 43 higher education institutions. Approximately 59% of the students attended public universities. Regarding the training cycle, 98.5% were at the undergraduate level, about 1% were attending at Master's level and only 0.3% attended a doctoral course. Although it would be expected that the number of students decreases at higher educational levels, the gap between undergraduate students compared to those pursuing Master and doctoral degrees is steep. There were fewer students entering the fifth and sixth years, a fact that is explained by the small number of courses with training programs going beyond four years. Close to three quarters (74.2%) were daytime students, with the majority of them in the field of Applied Sciences and Engineering (31.8%) followed by Economic/Financial Sciences (28.8%) and Social Sciences (16%) and to a lesser extent, students of Arts and Culture (1.6%) and Sports Sciences (0.5%). Table 1 summarizes the characteristics of the study participants.

Digital platforms used by students in the teaching and learning process during the suspension of face-to-face classes

Just over half of the students (51.3%) stated that they had never used any digital platform to attend classes before the suspension of on-site classes. In the period of suspension of face-to-face classes, the predominance of a combination of different platforms in the teaching and learning process was notorious, where a combination of WhatsApp, email and Google Classroom was the most used (18.9%), followed by email (12.1%) and the combination of WhatsApp and email (10.4%). The least used were Zoom and YouTube with 0.9 and 0.1%, respectively. Only about 10% of students reported using a specific platform of their institution for the continuity

Table 1: Students' general characteristics

		n	%
Type of institution	Public	3665	58.9
	Private	2559	41.1
Training Cycle	Undergraduate	6130	98.5
	Master	78	1.3
	Doctorate	16	0.3
Studying year (for undergraduates only)	1st year	1688	27.5
	2nd year	1600	26.1
	3rd year	1320	21.5
	4th year	1387	22.6
	5th year	120	2.0
	6th year	14	0.2
Period	Daytime	4549	74.2
	Night time	1580	25.8
Major	Arts and culture	87	1.4
	Economic / Financial Sciences	1795	28.8
	Education sciences	181	2.9
	Social Sciences	995	16.0
	Health Sciences	803	12.9
	Applied Sciences and Engineering	1980	31.8
	Sports Science	34	0.5
	Linguistics	316	5.1
	Not indicated	33	0.5

of classes (Table 2).

We noted that the platforms used were predominantly asynchronous, with the information provided by the facilitator accessible anytime by the students and there often not being any real-time interaction (Basilaia & Kvavadze, 2020; Ruiz et al., 2006), though they may also be real-time interaction in cases where classes take place at a previously agreed schedule. Another salient aspect is the weak use of video platforms such as Zoom and YouTube, which can be due to costs and quality of the internet (Baticulon et al., 2020; Krönke, 2020). The small proportion of students who report using the institution's specific platforms reflects the unavailability of these platforms or the impossibility of making them operational to cover the entire academic community during the emergency period. Considering the advantages that the institution's specific platforms offer, such as ease of monitoring of the teaching process, producing academic statistics, recording activity and storing information, it is unquestionable that higher education institutions should pledge to put these tools in place. According to research by Cacheiro-Gonzalez et al. (2019) the specific learning platforms promote more autonomy in learning, facilitate access to bibliographic materials and the

interaction between teachers and students. However, studies that compare the effectiveness of learning using institution-specific platforms and tools used by students during the emergency may be more illuminating on the subject.

Table 2: Use of platforms during higher education and during the suspension of face-to-face classes

		n	%
Use of digital platforms throughout the training	No	3190	51.3
	Yes	3034	48.7
Digital platforms used in the teaching and learning process during the suspension of classes	WhatsApp, email, and Google Classroom	1176	18.9
	Email	753	12.1
	WhatsApp and email	647	10.4
	WhatsApp, Google Classroom and other	535	8.6
	WhatsApp and institution-specific platform	483	7.8
	Email and other	473	7.6
	WhatsApp, email, Google Classroom and other	437	7.0
	WhatsApp and Google Classroom	364	5.8
	WhatsApp, email and other	348	5.6
	WhatsApp, email and Zoom	255	4.1
	Institution-specific platform	146	2.3
	Google Classroom	137	2.2
	Other	108	1.7
	Email and other	95	1.5
	Google Classroom and other	83	1.3
	WhatsApp	69	1.1
	WhatsApp, email, Zoom and other	59	0.9
	Zoom	50	0.8
	YouTube	5	0.1

One important aspect for effective use of digital platforms is the level of competence that users have when using those platforms. In this regard, we found that about 64% considered their level of competence as poor or reasonable and only 4.4% said it was very good or excellent, while 19% did not know how safe they were in using those platforms. About 76% of the students faced some kind of difficulty in using the platforms, most of whom obtained support from colleagues (26.4%), and others from a family member/friend or neighbour (7.9%). However, it should be noted that about 30% of students who had difficulties did not get any support (Table 3).

The high proportion of students who reported having a poor or reasonable level of competence and difficulties in using the platforms can be seen as a consequence of the sudden transition that took place from classroom classes to the use of digital platforms, without training them in its use. Incompetence in using digital teaching platforms can compromise the quality of the teaching process and students' performance, as evidenced by Bhuasiri et al. (2012). According to data from 34 African countries, including

Mozambique, only 20% of the adult population is able to make use of digital platforms for learning or to support a family member in this process (Krönke, 2020).

Table 3: Level of competence in the use of platforms and support received

		n	%
Competence level in using digital platforms during the teaching and learning process	Poor	1457	23.4
	Reasonable	2496	40.1
	Good	806	12.9
	Very good	137	2.2
	Excellent	135	2.2
	I can't say	1193	19.2
Support received to overcome difficulties in using digital platforms	Did not face any difficulty	1524	24.5
	Did not have support	1899	30.5
	Colleague	1643	26.4
	Family member/ friend/ Neighbour	493	7.9
	Information available on the institution's website	275	4.4
	Institution technician	211	3.4
	Colleague and Family / Friend / Neighbour	68	1.1
	Colleague and institution technician	41	0.7
	Colleague and Information made available on the institution's website	40	0.6
	Colleague, institution technician and information available on the institution's website	22	0.4
	Institution technician and Information available on the institution's website	8	0.1

Electronic devices used and places from where classes were assisted

Electronic devices are essential elements when it comes to using digital platforms. In this regard, the cellphone alone was the most used (59.4%) followed by a combination of cellphone and laptop (23.3%). As with platforms, we also found a combination of various types of devices. Looking at the availability of these devices, less than half had them full-time (45.45%), almost 17% had the devices available many times, while the rest (38%) had more access restrictions. Bearing in mind that one of the objectives of suspending face-to-face classes was to limit the movements of students as a prevention strategy for COVID-19, we probe the location from which students followed classes. In this, we found that more than three quarters (77.8%) did it from home, while the rest had to move for several reasons, including the demand for internet and devices for accessing the platforms. The quality of the internet network was another element analyzed, where we found that around 87% considered it as

poor or reasonable. Approximately 10% rated it as good and close to 2% of the students rated the quality of the signal as very good or excellent (Table 4).

As mentioned, the cellphone was the most used device, however it is worth noting that most students had difficulties following the classes due to the limited availability of the devices. Indeed, in an assessment carried out in 34 African countries, it was found that only 46% of households have a cellphone or computer or both (Krönke, 2020). The quality and stability of the internet are still a challenge in developing countries and the crisis imposed by COVID-19 may have aggravated this scenario, as several other activities moved to an online environment, generating greater demand in this period. In a survey conducted in Ghana involving pre-university and university students, only 36.4% said they had access to the internet to attend classes (Owusu-Fordjour et al., 2020). Adnan & Anwar (2020) identified that about 52% of students in Pakistan indicated the quality of the internet as one of the main obstacles to the use of platforms.

Table 4: Electronic devices used and location of students

		n	%
Used electronic devices	Cell phone	3942	59.4
	Cell phone and laptop	1548	23.3
	Cell phone and desktop	229	3.4
	Laptop	139	2.1
	Cell phone, laptop and desktop	92	1.4
	Cell phone, tablet and laptop	70	1.1
	Tablet	55	0.8
	Cell phone and tablet	47	0.7
	Desktop	35	0.5
	All	30	0.5
	Tablet and laptop	16	0.2
	Cell phone, tablet and desktop	11	0.2
	Tablet and desktop	6	0.1
	Laptop and desktop	4	0.1
Availability of used electronic devices	Always	2828	45.4
	Oftentimes	1049	16.9
	Few times	2347	37.7
Place from where the teaching and learning process was followed	Home	4827	77.8
	Home and elsewhere	756	12.2
	Elsewhere to access the internet	289	4.7
	Elsewhere for another reasons	238	3.8
	Elsewhere to access electronic devices	59	1.0
	Elsewhere to ask for technical support	36	0.6
Internet quality	Poor	2198	35.3
	Reasonable	3245	52.1
	Good	598	9.6
	Very Good	66	1.1
	Excellent	62	1.0
	No access	54	0.9

Barriers to online classes

Considering the limited time that higher education institutions had to migrate from face-to-face to distance learning, we explored possible barriers that may have existed in the teaching and learning process, especially if students were able to attend all the classes. We found that only 27% were able to do so. Among those who were unable to follow all classes, the biggest barrier was the difficulty in comprehending the content (58.3%), followed by the poor quality of the internet (24.6%) and also the costs associated with access (10.3%) (Table 5).

Difficulty in comprehending the contents may be due to students' lack of preparation for remote learning, associated with the fact that it has to take place in an environment that was eventually not usual. A similar scenario was identified in Ghana by Owusu-Fordjour et al. (2020) where only 19% of students said they experienced effective learning from home after face-to-face classes were suspended due to COVID-19. In addition, regular students regard online teaching negatively and believe that face-to-face interaction is necessary for learning (Adnan & Anwar, 2020).

Table 5: Barriers to attending online classes

		n	%
Attendance of all virtual classes	No	4526	72.9
	Yes	1682	27.1
Barriers among students who could not attend all classes	Difficulties in comprehending the classes	2631	58.3
	Restrictions in using the internet due to signal quality	1111	24.6
	Restrictions in using the internet due to financial reasons	463	10.3
	Reduced interaction with teacher	64	1.4
	Other	57	1.3
	Difficulties in using digital platforms	52	1.2
	Unavailability of electronic devices to access digital platforms	46	1.0
	No proper schedule of classes / activities	19	0.4
	Absence of regular interaction with teacher	18	0.4
	Lack of clarity in the given instructions	16	0.4
	Weak mastery of the subject by teachers	12	0.3
	Teachers not following a logical approach	8	0.2
	Teachers with difficulties in using digital platforms	7	0.2
	Non-compliance with the agreement between the teacher and the class	6	0.1

Disciplines taught and teachers' performance

Only 34% of the students stated that all disciplines planned at the beginning of the semester continued to be taught after the suspension of face-to-face classes, while 27% stated that most were being taught via digital platforms and about 3% reported that no discipline was being taught. Digital platforms allow implementing a variety of teaching strategies that can enhance student learning. In this sense, we probe the strategies deemed useful by the students, where the most pointed were classes for discussing reading materials and assignment (37.4%), classes for clarifying doubts (20.7%) and the combination of test, individual and group tasks (11.5%). Just over 78% of students rated their teachers' performance as poor or reasonable, approximately 17% as good and only 4.6% as very good or excellent (Table 6).

The two preferred forms of learning, where interaction with the teacher is necessary, show that students are more adapted to a model where the teacher is a present element in the teaching and learning process. The study by Dietrich et al. (2020) also shows that students have little affinity with models where the teacher is an absent figure. The appreciation of the teachers' performance can be seen from two perspectives. On the one hand, it may reflect the impartial appreciation that students have of their teachers. But on the other hand, it may be that the difficulties with, and negative perceptions of, the digital platforms by the students influenced them to negatively evaluate their teachers. However, it is possible that teachers had difficulties in implementing or adapting an appropriate teaching methodology to the context. Baticulon et al. (2020) identified poor communication and lack of instructions on teachers' side as one of the main barriers pointed out by students in online education. In addition, body language and facial expressions are two important teaching instruments that teachers cannot use in online learning, particularly in a situation where they were not prepared to compensate for these limitations (Bao, 2020).

Students' satisfaction with the use of digital platforms as a support of the teaching and learning process

We sought to explore some variables that could reflect student satisfaction with the teaching and learning process via digital platforms. The majority's perception is that quality has decreased (64.7%); to about 30%, the quality was not affected, while almost 6% said it had increased. Approximately 80% of students considered their adaptation to the teaching and learning process via digital platforms as poor or reasonable, whilst it was good for close to 12% and very good or excellent for 3.3%. The whole process was seen as poor or reasonable by 90.9% of students, good for about 8% and very good or excellent for less than 2%. Finally, about 79% would not choose to continue this teaching format (Table 7).

Data from Krönke (2020) shows that the level of readiness for online education in Mozambique, assessed by digital literacy,

Table 6: Number of disciplines taught and teachers' performance

		n	%
Disciplines that continued to be offered during the suspension of face-to-face classes	All	2321	37.4
	Most of them	1673	27.0
	Less than half	1182	19.1
	Half	845	13.6
	None	182	2.9
Strategy that best helped to understand the contents taught	Online classes by appointment and classes to discuss reading materials	2226	37.4
	Classes to clarify doubts	1228	20.7
	Test, individual and group task	683	11.5
	Online classes by appointment	463	7.8
	Classes for discussion of reading materials and other strategies	222	3.7
	Individual task	197	3.3
	Exercise resolution classes	167	2.8
	Group work	112	1.9
	Teacher's Feedback on tasks	71	1.2
	Other	578	9.7
Students' evaluation of teachers' performance during online classes	Poor	1358	22.1
	Reasonable	3464	56.4
	Good	1041	16.9
	Very good	165	2.7
	Excellent	115	1.9

is around 36%. In addition, student-teacher interaction, teacher's performance and teaching and learning evaluation are important factors for student satisfaction when it comes to distance learning (Ali & Ahmad, 2011), factors that have been greatly affected by the pandemic and which may have led to a perception of reduced quality of education.

The perception of reduced quality of education cannot be dissociated from the difficulty of adaptation revealed by the majority of students, a fact identified in a research by Baticulon et al. (2020), where only 41% of students in the Philippines felt able to adapt to online teaching, which has turned out to be one of the main barriers to remote learning.

Although this reduction in the quality of education is plausible, one must consider the negative impact that the pandemic had on students' well-being, as some studies reveal feelings of anxiety, despair and stress among students (Bao, 2020; Baticulon et al., 2020; Cao et al., 2020; Hasan & Bao, 2020) that certainly interfere with learning, and may lead to their evaluation the process in a negative way. In addition, the lack of interaction with colleagues was also identified as a negative aspect affecting learning in this period (Baticulon et al., 2020). Moreover, there were demands from social

life that led students to become involved in household or income-generating tasks that limited the time available for studies (Baticulon et al., 2020).

The high proportion of students who would not choose to continue the learning process via digital platforms is consistent with their evaluation of their adaptation and the process itself. However, this result should not be interpreted as a rejection of digital platforms or distance learning, taking into account the context in which the process took place, where neither students nor teachers had the necessary preparation. In addition, the data presented here must be interpreted with caution, particularly because it describes the situation in the initial phase of the higher education institutions' transition and adaptation process, which may have changed over the six-month suspension of face-to-face classes.

Table 7: Student satisfaction with the teaching and learning process via digital platforms

		n	%
Students appreciation on teaching and learning process quality	Reduced	4027	64.7
	Unchanged	1840	29.6
	Increased	357	5.7
Self-assessment of the adaptation to the teaching and learning process	Poor	2058	33.1
	Reasonable	2935	47.2
	Good	739	11.9
	Very good	129	2.1
	Excellent	76	1.2
Assessment of the process as a whole	I can't say	287	4.6
	Poor	2763	44.4
	Reasonable	2897	46.5
	Good	475	7.6
	Very good	61	1.0
Would continue with this learning modality	Excellent	28	0.4
	No	4898	78.7
	Yes	1326	21.3

Conclusion

In this study, we show that teaching and learning processes were highly heterogeneous, given the diverse profile of students from public as well as private institutions in Mozambique. A notable aspect was the multiplicity of platforms used to guarantee the continuity of the teaching and learning process and the weak use of specific online teaching platforms that could allow students to access teaching content in a standardized manner. Internet access also represented a considerable constraint during this period. But despite these obstacles, we believe that higher education institutions in Mozambique should capitalize on the teaching experience based on digital platforms, which can be useful in enhancing the teaching and learning

process, increasing students' autonomy and creativity in learning.

Not least important is the need for the government in general and the higher education institutions themselves to find a mechanism to facilitate access to digital devices such as cell phones and laptops by students and to adopt or consolidate specific teaching platforms in view of the numerous advantages for the teaching process when compared to the common platforms widely used in this period. Given the high proportion of students who stated that there has been a reduction in the quality of teaching, it would be elucidative to assess the extent to which the basic skills for each level were achieved.

Finally, the objective of this research was to provide an overview of the teaching and learning process in Mozambique after approximately a month of teaching via digital platforms. There are certainly differences between courses that should be explored in future research and that can reveal peculiarities of certain areas of teaching, facilitating an innovative approach to distance learning or via digital platforms. We think that this research constitutes an opportunity for reflection on the importance of using available technologies and digital platforms, as well as the need to prepare and train teachers and students for their application and use in different learning contexts.

Availability of data and materials

The data that support the findings of this study are available from Hélio Martins but restrictions apply to the availability of these data, which are not publicly available.

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References

- Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students perspectives. *Journal of Pedagogical Research*, 1(2), 45–51. doi: 10.33902/JPSP.2020261309
- Ali, A., & Ahmad, I. (2011). Key factors for determining students' satisfaction in distance learning courses: A study of Allama Iqbal open university. *Contemporary Educational Technology*, 2(2), 118-134.

- Aucejo, E. M., French, J., Ugalde Araya, M. P., & Zafar, B. (2020). The impact of COVID-19 on student experiences and expectations: Evidence from a survey. *Journal of Public Economics*, 191, 1-25. doi: 10.1016/j.jpubeco.2020.104271
- Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, 2(2), 113-115. doi: 10.1002/hbe2.191
- Basilaia, G., & Kvavadze, D. (2020). Transition to online education in schools during a SARS-CoV-2 coronavirus (COVID-19) pandemic in Georgia. *Pedagogical Research*, 5(4), 1-9. doi: 10.29333/pr/7937
- Baticulon, R. E., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., Jenkin S. J., Tiu, C. J. S., Clarion, C. A. M. D., & Reyes, J. C. B. (2020). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines [Preprint]. *Medical Education*. doi: 10.1101/2020.07.16.20155747
- Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education*, 58(2), 843-855. doi: 10.1016/j.compedu.2011.10.010
- Boletim da República. (2020). *Decreto presidencial nr 11/2020: Declara o estado de emergência por razões de calamidade pública, em todo o território nacional*. Maputo: Imprensa Naciona de Moçambique.
- Bonk, R. J., Kefalaki, M., Rudolph, J., Diamantidaki, F., Rekar Munro, C., Karanicolas, S., Paraskevi, K., & Pogner, K. H. (2020). Pedagogy in the time of pandemic: From localisation to glocalisation. *Journal of Education, Innovation, and Communication*, 17-64.
- Butler-Henderson, K., Crawford, J., Rudolph, J., Lalani, K., & Sabu, K. M. (2020). COVID-19 Higher Education Literature Database (CHELD). *Journal of Applied Learning & Teaching*, 3(2), 11-16. doi: 10.37074/jalt.2020.3.2.11d
- Cacheiro-Gonzalez, M. L., Medina-Rivilla, A., Dominguez-Garrido, M. C., & Medina-Dominguez, M. (2019). The learning platform in distance higher education: Student's perceptions. *Turkish Online Journal of Distance Education*, 71-95. doi: 10.17718/tojde.522387
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 287, 112934. doi: 10.1016/j.psychres.2020.112934
- Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, A. P., & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), 9-28. doi: 10.37074/jalt.2020.3.1.7
- Cruz, P. M., Santos, E., Cervantes, V. M. A., & Juárez, M. L. (2020). COVID-19, una emergencia de salud pública mundial. *Revista Clínica Española*, 211, 55-61. doi: 10.1016/j.rce.2020.03.001
- Dietrich, N., Kentheswaran, K., Ahmadi, A., Teychené, J., Bessière, Y., Alfenore, S., Laborie S., Bastoul, D., Loubière, K., Guigui, C., Sperandio, M., Barna, L., Etienne, P., Cabassud, C., Liné, A., & Hébrard, G. (2020). Attempts, successes, and failures of distance learning in the time of COVID-19. *Journal of Chemical Education*. doi: 10.1021/acs.jchemed.0c00717
- Hasan, N., & Bao, Y. (2020). Impact of "e-learning crack-up" perception on psychological distress among college students during COVID-19 pandemic: A mediating role of "fear of academic year loss". *Children and Youth Services Review*, 118, 105355. doi: 10.1016/j.childyouth.2020.105355
- Hawley, S. R., Thrivikraman, J. K., Noveck, N., Romain, T. St., Ludy, M.-J., Barnhart, L., Chee, W. S. S., Cho, M. J., Chong, M. H. Z., Du, C., Fenton, J. I., Hsiao, P. Y., Hsiao, R., Keaver, L., Lee, H-S., Shen, W., Lai, C-C., Tseng, K-W., Tseng, W-C., & Tucker, R. M. (2021). Concerns of college students during the COVID-19 pandemic: Thematic perspectives from the United States, Asia, and Europe. *Journal of Applied Learning & Teaching*, 4(1). [Advanced Online Publication]. doi: 10.37074/jalt.2021.4.1.10
- Huang, R. H., Liu, D. J., Tlili, A., Yang, J. F., & Wang, H. H. (2020). *Handbook on facilitating flexible learning during educational disruption: The Chinese experience in maintaining undisturbed learning in COVID-19 outbreak*. Beijing: Smart Learning Institute of Beijing Normal University.
- Krönke, M. (2020). Africa's digital divide and the promise of e-learning. *Afrobarometer Policy Paper*, 66, 1-18.
- Lobo, A. S. M., & Maia, L. C. G. (2015). O uso das TICs como ferramenta de ensino-aprendizagem no Ensino Superior. *Caderno de Geografia*, 25(44), 16-26. doi: 10.5752/P.2318-2962.2015v25n44p16
- Lu, H., Stratton, C. W., & Tang, Y. (2020). Outbreak of pneumonia of unknown etiology in Wuhan, China: The mystery and the miracle. *Journal of Medical Virology*, 92(4), 401-402. doi: 10.1002/jmv.25678
- Ministério da Ciência e Tecnologia, Ensino Superior e Técnico Profissional (2020). Medidas de prevenção da pandemia do coronavírus (COVID-19) nas Instituições de Ensino Superior e Técnico Profissional, 169(2), 1-24.
- Mpofu, V., Samukange, T., Kusure, L., Zinyandu, T., Denhere, C., Ndlovu, S., Chiveya, R., Matavire, M., Mukavhi, L., Gwizangwe, I., Magombe, E., Huggins, N., Magomelo, M., Sithole, F. & Wiseman, C. (2012). Challenges of virtual and open distance science teacher education in Zimbabwe. *The International Review of Research in Open and Distributed Learning*, 13(1), 207-219. doi: 10.19173/irrodl.v13i1.968
- Nyerere, J. A. (2020). *Kenya's university students and lecturers face huge challenges moving online* [Conversation]. <https://theconversation.com/kenyas-university-students-and-lecturers-face-huge-challenges-moving-online-136682>

- Nyerere, J. A., Gravenir, F. Q., & Mse, G. S. (2012). Delivery of open, distance, and e-learning in Kenya. *The International Review of Research in Open and Distributed Learning*, 13(3), 185-205. doi: 10.19173/irrodl.v13i3.1120
- Owusu-Fordjour, C., Koomson, C. K., & Hanson, D. (2020). *The impact of COVID-19 on learning—the perspective of the Ghanaian student*. doi: 10.5281/ZENODO.3753586
- Ruiz, J. G., Mintzer, M. J., & Leipzig, R. M. (2006). The impact of e-learning in medical education. *Academic Medicine*, 81(3), 207–212. doi: 10.1097/00001888-200603000-00002
- Salimo, G. I., & Gouveia, L. B. (2017). *Contributos para o Ensino Superior em Moçambique: Os desafios da Era Digital*. 16.
- Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A., Iosifidis, C., & Agha, R. (2020). World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery*, 76, 71–76. doi: 10.1016/j.ijsu.2020.02.034
- United Nations Educational, Scientific and Cultural Organization. (2020). *COVID-19 educational disruption and response*. 2020. <https://en.unesco.org/covid19/educationresponse>
- Viner, R. M., Russell, S. J., Croker, H., Packer, J., Ward, J., Stansfield, C., Mytton, O., Bonell, C., & Booy, R. (2020). School closure and management practices during coronavirus outbreaks including COVID-19: A rapid systematic review. *The Lancet Child & Adolescent Health*, 4(5), 397–404. doi: 10.1016/S2352-4642(20)30095-X
- World Health Organization. (2020a). *Novel coronavirus (2019-nCoV) situation report—11*. Geneva.
- World Health Organization. (2020b). *Novel coronavirus (2019-nCoV) situation report—51*. Geneva.



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College students' educational experiences amid COVID-19 pandemic

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Abstract

Introduction: While lockdown and shelter-at-home strategies enforced by governments were critically needed to contain the rapid progression of the COVID-19 virus, in the U.S., hundreds of millions of learners and higher education institutions were significantly impacted with their daily operations. This study looks at the COVID-19 impact on higher education, with an emphasis on technology, mental health, and resources provided by the university. Methods: We utilized primarily qualitative research methods to assess students' responses of our survey and examined emerging themes. We analyzed each question for word order and identified phrases and keywords that students provided. Results: Our findings show that 49 of the participants did not find online education to be difficult nor did they have any technical issues, and this is promising for the future of virtual education. On the other hand, 68 of the students found the whole experience to be challenging, owing to a number of reasons (internet access, Blackboard knowledge, lacking motivation, and instruction-related challenges). In terms of stress levels, the majority of the students were stressed due to multiple factors (i.e., catching COVID-19, financial difficulties, staying engaged, finding childcare, maintaining relationships, losing family members). Interestingly, 96 of the students reported not using campus-provided virtual workshops. Conclusion: Recommendations for improvement are provided.

Introduction

The rapid progression of COVID-19 resulted in governments worldwide resorting to lockdown and shelter-at-home strategies to contain the spread of this deadly virus. With 161,513,458 confirmed cases and 3,352,109 confirmed deaths globally (World Health Organization [WHO], 2021), the United States has experienced 599,464 deaths as a result of this virus (Worldometer, 2021). Hence, COVID-19 became the deadliest pandemic of the 21st century. Due to the significant threat to human life and health posed by this virus, most governments around the world had to temporarily close (in 150 countries) educational institutions or switch to alternate delivery methods in a short time to protect vulnerable students, staff, and faculty populations. As a result, global higher education faced significant challenges that impacted hundreds of millions of learners (Crawford et al., 2020; Sahu, 2020; UNESCO, 2020).

The transition from traditional face-to-face teaching to the online environment created challenges for many educational institutions that tested the organizational agility and technological capabilities to ensure fair and equal student success. As Crawford et al. (2020) and Zhong (2020) point out, this transition has affected poorly resourced universities and socially disadvantaged students with limited access to technology in negative ways. Although online education is not a new method of teaching, the full transition to online mode initially was not prepared with adequate, high-capacity IT infrastructure, not all faculty were technology-savvy to teach online classes, and not enough resources were available to provide all students with the necessary online access in safe and quiet places (Sahu, 2020). However, it must be noted that, this study will only focus on students' experiences to transitioning to fully online mode as a result of COVID-19.

Uncertainties from such closures and social restrictions also affected the student population's health and well-being, which may have long-lasting effects, and need to be taken into consideration. Studies reported that students experienced anxiety, tension, and fears that cause psychological disorders such as acute stress disorder, post-traumatic stress disorder, depression, and suicide (Pragholapati, 2020). Students have reported that they are worried about their health, their family's health, finances, loss of family members' income, and the severe challenges of a global recession caused by this pandemic. Moreover, students are concerned about their grades and their future careers, which can demotivate them and hurt their academic performance and social engagement (Sahu, 2020; Dorn et al., 2020; Cao et al., 2020).

As affirmed by scholars like Son et al. (2020), mental health issues negatively affect student academic success due to loss of motivation, concentration, and social interaction, leading to social isolation. There is a need for effective and robust social support for students to help reduce these psychological pressures and change student attitudes regarding seeking support during such public health emergencies. Government and universities should work collaboratively to identify and address the mental health crisis by providing high-quality, easy to access, timely psychological and counseling services

to college students (Cao et al., 2020).

Study purpose

As such, this paper aims to look at the impact of COVID-19 on higher education and the challenges faced by university college students during their transition to online learning, focusing on three themes *a) Technology, b) Mental Health and Stigma, and c) Resources Available* to the students. Currently, there is a gap in the literature to address the intersection between these three unique elements presented in our study. There are a myriad of literature that talks about the impact of the pandemic to higher education whilst they focus on the themes separately. However, we realized that there is much research needed to look at all three areas in combination, reflecting on the impact they have together in the success of higher education and the student population who were inadvertently forced to adopt this learning style of online education. As such we have specifically examined students' feedback regarding issues of transition to fully online instruction and access issues related to technology with the intention of providing recommendations for future preparation and transition to virtual education in a first-generation minority serving academic institution. Given that COVID19 raises many uncertainties about the future, our study also looks at the mental health challenges, available university resources, and students' coping mechanisms to address these various issues in one study. Based on our findings, we also make evidence-based recommendations on how to address such challenges, limitations, and the need for future studies to address other shortcomings.

Literature review

According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2020), 107 countries including the United States had implemented national school closures by March 18, 2020. The abrupt closure of many learning institutions led to uncertainties about what the future holds for both students and faculty as virtual learning became the new norm. According to Van Wart et al., (2020), online education is frequently discussed, and its insight highly influenced by what one values. For example, most accreditation bodies are concerned about technical standards and teaching effectiveness. Many academic institutions are concerned about reputation, rigor, and students' satisfaction rates. Further, faculty may care about their workload, subject coverage, and student engagement, while students may be concerned about their learning achievement, instructors' interactions, and timely responses to needs, and the comfort of classroom environments (Van Wart et al., 2020).

In this paper, we explore students' perception on the delivery of online education during a pandemic with an emphasis on three main areas: technology; mental health and stigma; and the availability of campus resources. These three main areas were chosen based on our literature review and needs observed for our university demography, which is further elaborated below. We applied the tenets of Moore's Theory of Transactional Distance and its significance to promoting

quality in virtual education (Fallon, 2011). Further, this theory helps us demonstrate how complex it is to implement a successful virtual learning environment keeping in mind that every system has pros and cons. It must be noted that the constantly evolving environment surrounding virtual education makes it difficult for educators to use a single theory upon which to base practice and research on. Although there are many other theories in the literature that can be employed for the purposes of this study, we will only be focusing on Moore's theory. For example, classical theories that emphasize on the independence and autonomy of the learner, industrialization of teaching, or interaction and communication style theories were not our preferred method simply because this study focuses on two elements found in Moore's theory: Dialogue and structure that leads to enhanced learner autonomy, in order to mirror our study purpose (Fallon, 2011).

(i) Technology

Technology has always been an important tool to deliver many forms of learning materials in institutions of learning. Its usefulness cannot be emphasized enough in delivering and accessing education during school closures. Students' experiences with the transition to fully online learning has both been positive and also negative. Some students had a smooth transition as they were already utilizing online classes, while other students had obstacles, including the lack of internet access. According to Chick et al. (2020), there are a number of challenges with the use of technology for learning, such as some faculty struggling with novel technology or some participants struggling with poor bandwidth connections. These issues can be overcome by having technology-savvy staff conduct large classes or conferences at a multi-institutional or regional level with rotating faculty among more than one program (Chick et al., 2020). Most universities continued to struggle with the issue of technology. Other challenges include students lacking proper equipment, online security threats, inability to deliver in-person labs remotely, and strained Information Technology departments.

(ii) Mental health and stigma

The pandemic has left many people vulnerable to mental health problems and suicidal ideation (Gunnell et al, 2020). Mental health consequences are likely to be present for longer and peak later than the actual pandemic timeframe (Gunnell et al., 2020). There are many psychological effects that school closures and uncertainties have had on learners including students sharing feelings of being stressed, anxious, and isolated. Many studies have highlighted the plight of low-income students in the wake of COVID-19. Aucejo et al. (2020) found that 55% of lower-income students were more likely to delay graduation when compared to their higher-income counterparts. Further, the negative economic and health impacts of COVID-19 have been significantly more pronounced for less advantaged groups.

Some of the public health responses to reducing or eliminating any suicide risk associated with the COVID-19 pandemic include mitigations that can be provided by mental health services and individual providers, such as delivering care in different ways (e.g., digital modalities); developing support for health-care staff affected by adverse exposures (e.g., multiple traumatic deaths); ensuring frontline staff are adequately supported, given breaks & protective equipment, and have access to additional support (Gunnell et al., 2020). Other modalities can be provided by the government, such as adequate resourcing for interventions (Gunnell et al., 2020). Hence, universities should place an emphasis on mental health support by updating the health guidelines and providing online guidance and lectures to offer strategies for managing stress when coping with the pandemic. Any student experiencing feelings of heightened anxiety about COVID-19 should be provided with prompt and proper psychological support (Al-Rabiaah et al., 2020). Universities should consider matters relating to financial support and the general living expenses of needy students. Universities should pay more attention to students with anxiety and depression symptoms and provide more mental health knowledge, such as the common symptoms of anxiety and depression and ways of alleviating negative psychological effects by opening online training courses or setting channels of one-to-one online counseling for students (Wang et al., 2020).

For many universities, addressing mental health issues among students can be challenging especially since the students are remote and not in campus. Furthermore, students may not be able to access resources provided by the university as a result of not knowing their availability and also not being present on campus.

(iii) Resources available

Resources available for students that are provided by universities include academic and advising support services, online learning support, counseling services, career services for students concerned about employment opportunities, and resources for international students (Center for Disease Control and Prevention [CDC, 2020a]). For students struggling with coping during the pandemic, the CDC offers the following considerations for learning institutions, which include: (1) encourage employees and students to take breaks from watching, reading, or listening to news stories, including social media if they are feeling overwhelmed or distressed; (2) promote employees and students eating healthy, exercising, getting enough sleep and finding time to unwind; (3) encourage employees and students to talk with people they trust about their concerns and how they are feeling; (4) communicate with faculty, staff, and students about mental health support services available at the university; (5) consider having an employee assistance program (EAP) through which faculty and staff can get counseling; (6) share facts about COVID-19 regularly with students, faculty, and staff through trusted sources of information to counter the spread of misinformation, reduce stigma, and mitigate fear; (7) encourage positive, proactive messaging, education, and role-modeling and speak out against negative behaviors that stigmatize individuals who

test positive for or are exposed to COVID-19, including negative statements on social media, by promoting positive messaging that does not discourage mitigation behaviors and testing; (8) consider posting signs for the national distress hotline; (9) ensure continuity of mental health services, such as offering remote counseling; and (10) encourage students, faculty, and staff to call 911 or the National Suicide Prevention Lifeline if they are feeling overwhelmed with emotions like sadness, depression, anxiety, or feel like wanting to harm themselves or others (CDC, 2020a).

Most universities do not offer all the resources recommended by the CDC but do offer some of the resources mentioned above. While many students are still reporting challenges during the pandemic, they are generally not taking advantage of resources provided by universities.

Methodology

Study design

This study draws from undergraduate students' responses to their virtual education experience during the 2020 COVID-19 pandemic time. We utilized primarily qualitative research methods to assess students' experiences and their willingness to utilize free campus resources provided to them during a pandemic (i.e., virtual workshops and counseling services). Also, we gathered information regarding their technological challenges. Qualitative research can be used as a vehicle for gaining new perspectives on known phenomena that can help researchers access more in-depth information that may be difficult to obtain using quantitative methodology (Mshigeni et al., 2020). As suggested in the literature, qualitative data can tell a story from the perspective of the study participants, researchers, and of the reader (McCall et al., 2019). Therefore, this study has aimed at presenting stories of undergraduate students' experiences of virtual education by drawing from real life examples of what first-generation college students have had to endure during a pandemic.

Study population and ethics

We decisively chose health students because of their diverse student body. Although the student population's chosen major may help them better grasp the public health issues faced by the majority of students and also aid in the understanding of creating solutions for navigating the issues now and in the future, we acknowledge that the students' experiences in navigating the issues during a pandemic will be different than that of a public health or healthcare professional. Upon Institutional Review Board (IRB) approval, we distributed a survey among 150 students and received 117 responses from those who were enrolled during the past academic year in one specific course (Spring 2020 through Spring 2021). A well-structured informed consent was administered whereby participants were informed that their contribution to this study was completely voluntary and that it will not affect their current grade in the course. No student was coerced to participate in the study. Further, participants were informed that there were no right or wrong answers,

and they were free to discontinue their participation at any time if they felt uncomfortable to continue. There are no public use data for this study. This study was approved by the Institution Review Board (#IRB-FY2021-29) of the university being studied.

Study setting

As a designated minority serving institution, the university where this study was conducted is comprised of a large number of low-income first-generation college students with a diverse racial and socio-economic backgrounds. Eighty-eight percent of students are seeking an undergraduate degree, 82% attend college on a full-time basis, 81% are first-generation college students (parents without a bachelor's degree); 66% are Hispanic, 12% are White, 6% are non-resident foreign students, 5% are African American, 5% are Asian, 4% Unknown, 2% are Two or More Races, and <1% are Native American/Alaskan Native or Native Hawaiian/Pacific Islander. Fifty-eight percent of the undergraduate students are identified as low-income students and solely depend on Pell Grants for their source of financial support. The average age for undergraduate students is 22 years. Overall, the university resembles the average state university campus with a slightly greater number of females (63%) enrollees than male (37%), very similar to most other programs in the United States.

Instrument development

A survey was constructed after a thorough literature review and input gathered from the research team after examining emergent themes from other studies. We asked a sample of students in this program five questions that solicit their experiences regarding the delivery and access of higher education. We asked the following: (i) *what is your experience with the transition to fully online instruction from March 2020 through March 2021?* (ii) *What challenges have you experienced accessing your virtual classes?* (iii) *What is your experience (if any) with stress and/or anxiety during the pandemic?* (iv) *What coping mechanism has worked best for you?* and (v) *what University stress-free workshops have you taken advantages of?* The simplicity of our survey design allowed for an easy interpretation of the data as we only focused on three key areas: technology, mental health and stigma, and available university resources.

Data analysis plan

We used qualitative analytic methods to analyze the responses of our survey by examining emerging themes. We analyzed each question for word order and gave special attention to phrases and keywords that the students provided in their responses. We created word themes that we closely examined, and color coded the responses manually into appropriate labels in the context of Moore's Theory of Transactional Distance and its significance to virtual education (Fallon, 2017). Based on this theory, the questions were designed with data collection in mind that examined the efficacy of the virtual classroom as it exists,

pertaining to the quality of dialogue and structure and the overall impact on learner autonomy. The study was designed to gauge these two areas of dialogue and structure as it pertains to the quality of the student's learning autonomy taking into consideration both the positive and negative impacts, and identifying ways to break down the student's sense of isolation by forming university communities of practice by providing the tools necessary, improving the interaction, and support.

During the coding process, we detected over 85% consistency in identifying the same themes across each question. As a team, we agreed on all coded category terms prior to data collection, during, and after data analysis and this is a technique that we have found to be effective as documented in the literature (Hawley, et al., 2021). Further, we used Moore's ideas on structure and dialogue as essential parts of distance learning. Themes that were shared by more than 90% of the students were considered to be our major findings. For example: students technological experiences & challenges (Tables 1 and 2) present the structural aspect of online education. Secondly, students sharing their stress/ anxiety levels, how they cope, and how often they utilized campus free workshops (Tables 3, 4, and 5) presents the dialogue aspect of online education (Fallon, 2011; Hawley, et al., 2021).

Results

Analysis of data based on the three areas namely (i) Technology, (ii) Mental Health and Stigma, and Available Resources are presented below.

Students' Experiences

Table 1: College Students' experience with the transition to fully online instructions (N = 117)

<i>i. What is your experience with the transition to fully online instructions?</i>	
Trending Responses	Number
Not Difficult Transition	49
Difficult Transition	43
All Others (Miss in-person experience/less motivated/self-teach/adjustment to new routine/time management issues)	25

Table 1 above presents students' responses on their overall experience with transitioning to fully online instructions in the past year (Spring 2020 through Spring 2021). Forty-nine of the responses were positive about fully online transition, on the other hand at least 43 students faced significant challenge transitioning to fully online instruction. Also, there is a sample of 25 students who found the experience as annoying, confusing, having to adjust, and difficult initially but got better with time.

Challenges

Table 2: College Students' Challenges experienced in accessing fully online classes (N = 117)

<i>ii. What are some challenges (if any) in accessing fully online instructions?</i>	
Trending Responses	Number
Non-Technical Challenges: Group Assignments/ Staying Focused/ Time Management/ Power Outage/ Resource Sharing at home/ Missing In-Person Activity Adjusting/ Self-Learning; No Peer Support	46
Technical Challenges: Internet Access/ Slow Wi-Fi/ No Wi-Fi/ ZOOM/ Blackboard	37
No Challenges: Prefer Online, No Technical Issues	27
Instructions Challenges: Lots of assignment/ Professor not used to Online Teaching/ Lack of Communication/ Lack of Clear Instructions	7

Table 2 above presents students responses on the challenges they experienced while accessing fully online instruction during the past year (Spring 2020 through Spring 2021). Among respondents, 46 of the students reported challenges that were not technical (staying focused, not liking group work, lack of resources, lack of peer support, etc.). On the other hand, 37 of the students reported challenges related to technical issues such as internet access, slow or no Wi-Fi, challenges with Blackboard navigation, and how to use ZOOM technology. Further, on a lighter note, 27 of the students reported they did not face any challenges. Only 7 students reported challenges that were related to communicating with professors and unclear instructions due to professor's transition to teaching online.

Stress and/or anxiety

Table 3: College students' experience with stress and/or anxiety (N = 117)

<i>iii. What is your experience with stress and/or anxiety during this period, (if any)?</i>			
Trending Responses (Stress)	Number	Trending Responses (Anxiety)	Number
Staying engaged while learning online	35	High Stress/ Very Anxious	94
Catching COVID-19	14	Low Stress/ Not Anxious	14
Balancing different aspects of life/ Childcare/ Schooling	13	Medium Stress/ Slightly Anxious	9
Financial difficulties	12		
Getting job/ Internship after graduation/ Uncertainty/ Not knowing what the future holds	10		
Maintaining relationships/ Loss of loved ones	10		
Mental well-being	9		
Lockdown/Graduating on time	8		
Other	6		

Table 3 above presents students' responses pertaining to stress and/or anxiety experienced during the pandemic (Spring 2020 through Spring 2021). A large number of the students (35) found it stressful to stay engaged while learning online; others (13) found it challenging to achieve a balance between different aspects of life such as schooling and finding childcare. Some of the students experienced stress as a result of catching COVID-19 (14) or going through

financial difficulties (12). For a number of the students (10) shared that the future has been very uncertain as a result of the pandemic (i.e., job hunting, internship hunting) and others (10) have found it stressful to maintain relationships. At least nine students reported their mental well-being has been challenged and some have worried (8) about the lockdown or graduating on time. When asked specifically about their anxiety levels, at least 94 of the students were very anxious, followed by nine students who experienced moderate levels of anxiety, and the remaining 14 students had a low stress level.

Coping mechanism

Table 4: College students' coping mechanism (N = 117)

<i>iv. What coping mechanism has worked best for you?</i>	
Trending Responses	Number
Take care of your body: Exercise regularly	27
Connect with others/ Talk to others/ Support animal (pet)	25
Arts and craft/ Paint/ Coloring/ Gardening/ Cook/ Bake/ Hike	19
Distracting oneself/ Staying positive/ Optimistic/ Music/ Watch movies/ Video games	13
Take care of your body: Meditate/ Prayer/ Breathing	12
Attend a workshop/ Use of online apps	6
Take care of your body: eat healthy/ Get plenty of sleep/ Massages	7
Take breaks from watching, reading, or listening to news stories	5
Maintaining a journal/ Poems	3

Table 4 above presents students responses on different types of coping mechanisms that they used during the pandemic (Spring 2020 through Spring 2021). The majority of them either exercised (27) or connected with friends/families (25). Also, a good number of students (19) kept busy by self-engaging in arts & crafts, painting, coloring, gardening, cooking, baking, or hiking. At least 13 of the students found self-distraction activities to be useful (i.e., watching movies, playing video games, or just staying optimistic). Others (12) opted for meditation, prayer, and breathing activities, while some students (7) engaged in healthy eating habits, getting plenty of sleep, and getting massages. A small minority of the sample (6) attended workshops or used online apps to stay busy. The remaining sample either abstained from TV watching, reading, or listening to the news (5), while others distracted themselves by maintaining a journal or reading/ writing poems (3).

Resources utilization

Table 5 above presents students' responses on their utilization of stress-free campus workshops and services that were provided virtually during the Spring 2020 through Spring 2021 pandemic time. Despite the availability of free workshops, 96 of the students did not attend any of the free offered university stress-free workshops. On the other hand, 10 students reported taking advantage of virtual services such as: Stress Management; Pet Stress Away; Destressing

Table 5: College students' use of university stress-free workshops (N = 117)

<i>v. What university-provided stress-free workshops have you taken advantage of?</i>	
Trending Responses	Number
No or None	96
Yes: Stress Management/ Pet Stress Away/ Destressing the Holidays/ Managing Your Moods/ Avoid Burnouts	10
Yes: Faculty: One-on-One counseling session/ Direct Email Tips	5
Yes: REC Center App: Zumba/ Yoga/ Pilates/ Cardio	6

the Holidays; Managing Your Moods; Avoid Burnouts. Further, we learned that, at least five students either reached out to faculty directly, utilized tips from direct campus emails, or received one-on-one counseling sessions. Finally, six students reported utilizing Campus Recreation Center App that provides them with instant virtual classes such as Zumba, Yoga, Pilates, and Cardio.

Discussion

Although it is not possible to discuss in detail every student experience shared in this study, there are five emergent themes we consider to be the most relevant points.

Students experiences

As indicated in Tables 1 and 2, nearly half the participants did not find online education to be difficult nor did they have any technical difficulties, and this is promising for the future of virtual education. On the other hand, however, a number of students found the whole experience to be difficult or rather challenging owing to a number of reasons (internet access, slow or no Wi-Fi, poor Blackboard navigation knowledge, lacking motivation to self-teach or adjust to the routine, or simply missing the in-person experience). This finding is supported by previous literature. Chick et al. (2020) mentions several challenges with the use of technology for learning including both faculty and students struggling with novel technology and/or poor bandwidth connections. It is very much possible that the students were missing out on the "social presence" that they are accustomed to when they are in a campus learning environment. Van Wart et al., (2020) discussed the importance of student-to-student interaction and how it can be achieved in a virtual environment by allowing students to experience shared learning through the use of threaded discussion boards. Hence, for those students who miss the in-person experience, tools to support online interactions should be used in order to foster an interactive online experience.

Challenges

Further, we found out that a sample minority of the students experienced instruction and content-related challenges such as assignments accompanied by poor communication

or instructions from their professors, making them draw their own conclusion that some professors were not used to online teaching. These findings call for a structured, planned, and sustained learning environment whereby instructors are prepared to design their courses in a way that affords students an easy-to-work-with platform, using added features that will enhance communication (i.e., blackboard-generated emails and announcements – Fallon, 2011). Further, we recommend a teaching presence, a concept that refers to student's perception on the quality of communication in lectures, direction, and individual feedback from their instructor (Van Wart et al., 2020). If properly planned, the students may not have to experience the social isolation that can lead to unnecessary anxiety regarding their classroom environment.

Stress and/or anxiety

We also explored another area in this study that focused on stress and the levels of anxiety the students experienced as a result of online education (Table 3). We found more than half of our students were stressed due to multiple factors (i.e., contracting the virus, having financial difficulties, staying engaged, finding childcare, maintaining relationships, losing family members to the virus, or simply not knowing what the future holds after graduation). This finding is supported by previous literature. Some of the issues that have been a cause of stress and/or anxiety for many students include being worried about their health, their family's health, finances/loss of income, grades and their future careers (Pragholapati, 2020; Sahu, 2020; Dorn et al., 2020; Cao et al., 2020). The lockdown experience did, in fact, increase student's anxiety levels on how to best plan for their lives upon graduation (Bozkurt & Sharma, 2020).

Coping mechanism

We asked the students to share what coping mechanism worked best for them (Table 4) as part of their online learning experience during the COVID-19 pandemic. It is impressive to learn how the students kept busy with regular exercise or meditation, breathing, and prayer, while some of the students opted to eat healthy and get plenty of sleep as part of their physical health regimen. On the other hand, some students found self-preservation in a positive way by doing a number of activities such as talking to friends and family, using support animals, and learning arts and crafts (painting and coloring). Others improved their kitchen skills by baking, cooking, or gardening. Further, some students chose to stay optimistic and keep busy by watching movies or playing video games while making sure to stay away from depressing news stories. This finding is supported by the CDC, which offers the following considerations for students including to take breaks from listening, reading and watching news stories, including social media; promoting healthy eating, exercising, and getting enough sleep; and talking with trusted individuals regarding feeling of stress and/or anxiety (CDC, 2020a).

Resources utilization

Finally, we asked student participants to share with us what university-provided stress-free workshops they have taken advantages of while pursuing their education in the midst of the pandemic (Table 5). It was interesting to learn that only a small sample of the students have been utilizing the resources by attending workshops such as stress management, pet-stress away, destressing the holidays, how to manage your moods, and avoiding burnout. While these resources were provided during the day in between classes, particularly during lunch times, some students found the efforts to be at odds with their "school or work schedule" and did not attend. Other students shared that they did not feel comfortable attending these workshops on Zoom, and in front of strangers, as they did not wish to be perceived as people who are struggling with mental health, depression, stress, or high anxiety levels as a result of the pandemic.

Implication for practice

The American Council on Education (ACE) released a Mental Health, Higher Education, and COVID-19 guideline in the spring of 2020 as part of their approach to leadership support on campus well-being. One of their major strategies is the need to ensure that communication to students is consistent, caring, and clear at all times since many students have reported a lack of regular and compassionate communication from their institution as a primary stressor during COVID-19 (ACE, 2020; Gates et al., 2020). Also, despite robust campus emails to advertise these workshops, some students still shared that they were not aware of such services. Perhaps a different approach in connecting with the student population, perhaps by using mobile apps, should be applied in order to reach out to college students, who are technologically inclined to use mobile devices rather than read emails from their desk- or laptop computers (an old-fashioned means of communication). A few students took their own initiative by either contacting faculty directly for one-on-one counseling or by using the recreation center apps where they self-engaged in Zumba, Yoga, Pilates, or Cardio exercises.

Learning loss and dropout rates as a result of COVID-19

According to Dorn et al. (2020), learning loss among low-income, Black, and Hispanic students is greater because lower income students are less likely to have access to high-quality remote learning or to a conducive learning environment, such as a quiet space with minimal distractions, electronic devices that they do not need to share, high-speed internet, and parental academic supervision. Only 60 percent of low-income students are regularly logging into online instruction while 90 percent of high-income students do (Dorn et al., 2020). Engagement rates are also lagging behind in schools serving predominantly Black and Hispanic students, with just 60 to 70 percent reported logging in regularly (Dorn et al., 2020). This poor virtual attendance increased low performance outcomes for low-income students.

Other challenges that can reduce academic motivation and hurt academic performance and general levels of engagement that are harder to quantify include the likelihood that the pandemic is likely to cause social and emotional disruption by increasing social isolation and creating anxiety over the possibility that parents may lose jobs and loved ones could fall ill (Dorn et al., 2020). Milestones such as graduation ceremonies have been canceled nationwide, along with sports and other extracurricular events, and this may have discouraged full academic participation for low-income minority students. At the institution where this study was conducted, the total dropout rate for freshmen who did not re-enroll in Fall 2020 was 15.20% (EdSource, 2020). The dropout rates by race/ethnicity are as follows: Asian students (14.7%), Black students (17.5%), Latino students (14.4%), and White students (17.9%) (EdSource, 2020).

Limitations

Although our study is very timely and highlights students' challenges transitioning from a face-to-face, traditional style of instruction to a fully online mode of education, there are some limitations and gaps that require additional research. The challenges discussed here are limited to student experiences of the digital transformation of instructional operations during the COVID-19 pandemic. There is a need for additional research on instruction migration and delivery methods adopted by various university faculty and students as they got accustomed to the online mode of instruction, focusing on tools that positively and negatively facilitated the process (Adedoyin & Soykan, 2020). Based on student responses, technology competency/prior experience was frequently cited as a challenge. However, we want to underscore the need to assess student/faculty/university administrators' levels of competency in accessing and using technology for future classes/courses as campuses continue to remain closed while they maintain social distancing during this pandemic (Adedoyin & Soykan, 2020).

Another limitation identified is the lack of student collaboration/involvement to strengthen the research. Including students as collaborators in identifying questions and solutions to students' challenges would have positively reinforced this study (Gates et al., 2021). Moreover, our study is limited in that we did not gather responses about the challenges that faculty also faced during this transition. Future studies that reflect the struggles of faculty in their transition to full-time online instruction can help provide better instruction migration and delivery models that can enhance students' learning experience and alleviate the stress of educators to provide effective online education. As noted by Adedoyin and Soykan (2020), we also advocate for research actions that will facilitate the development of a uniform online learning model that will apply to all disciplines to solve the problem of compatibility.

Finally, as Tasso et al. (2021) bring to our attention, there is a lack of research devoted to students' overall life circumstances not related to university experiences which can affect their overall academic performance. There is a need for research that studies college students' interest in engaging psychotherapy and teletherapy delivery methods

and how college counseling centers can impact student willingness to get involved during a pandemic.

Recommendations

Per our study, the transition to a fully online mode was much needed to conform to the CDC guidelines of social distancing (i.e., staying six feet away from others avoiding crowds and poorly ventilated spaces, etc.: CDC, 2020b). However, we also acknowledge that many challenges were identified. In this section, we provide recommendations that are based on observations and findings from the student needs as reflected by their survey answers.

Technology

Several logistical challenges, including compulsory modification in technology and behavioral attitudes of embracing online learning and teaching, were associated with remote learning platforms. Universities engaged in digital transformation that involved the movement of instruction online to give room for flexibility in teaching and learning from anywhere. The transition took place at an extraordinary speed. However, not all universities had a smooth transition. Instruction delivery, methods, and tools were prioritized while overlooking the digital competence of students and faculties. From our findings, many of the students did not have prior experience with this platform and, as a result, it took them longer to attain a full understanding of how to navigate online platforms or fall behind. Based on the evidence, we recommend offering digital literacy/training to all stakeholders and building resources at the beginning of the semester/quarter to ensure an effective learning environment, such as easy access to all learning modules, and seamless navigation of technology such as ZOOM, Blackboard, and so on (Pandit & Agrawal, 2020).

Moreover, online learning is dependent on devices and internet capabilities. Bad internet connections, no access to computers, or outdated software/devices will not allow smooth, or any, online learning. This dependence was also reflected in the student responses. Therefore, a way to gauge the technological equipment needs of faculty and students is critical. Universities should have some provision of equipment in place to help the students and faculty with this transition.

Technology and research innovations

This pandemic is not the first encountered, nor will it be the last. Higher academic institutions ought to be prepared for future needs. Based on our findings we acknowledge the need for more research on online learning/distance education to provide novel innovation to meet the latest challenges of online learning (Adedoyin & Soykan, 2020): models that are tailored to the new online learning changes, continuous review of the institutional digital transformation process, more scalable, personalized, and efficient online learning models that will reduce instructor workload implementation, and renovation of the learning process

with student expectations in mind.

Socioeconomic

We are aware of the inequality due to the socioeconomic status of students. Not all students own a personal computer or rely on university computer and free internet services and this was affirmed by students in their responses. Transition to fully online education has affected students with low socioeconomic backgrounds significantly (*Los Angeles Times*, 2020). The rate of internet accessibility has been affected by the level of poverty due to the inability to afford a broadband connection and is susceptible to additional challenges such as sharing or even lack of devices or space to study (Adedoyin & Soykan, 2020). Moreover, Adedoyin and Soykan (2020) also point out the obligations of governments and universities to make sure socioeconomic interventions are put in place, in the form of service innovation or corporate social responsibilities to provide free internet. Students in our survey felt they were being cheated because of being charged the same fees despite the university closures. Therefore, we recommend universities begin providing some sort of discounts for students on books from the bookstores, laptops, and connect students with other nonprofit organizations which provide needed resources such as food boxes, clothes drives, and bill pay, to name a few, in order to alleviate financial hardships.

Professor and online instruction delivery

Palvia et al. (2018) highlight the lack of institutions' understanding of online pedagogy and online learning styles and faculty competence teaching online. All of these reduce the quality of education and student's learning experience. Not all classes are suitable for online teaching such as chemistry or biology laboratory courses as pointed by the students who participated in this study. There is a need for adequate planning, training, and implementation of best practices and innovative strategies that enhance student learning beyond face-to-face classes, increasing faculty-student interaction, and reducing the workload on faculty (Palvia et al., 2018). Instructors play an essential role in motivating students to interact in online classes through their presence and communication patterns and transferring the teacher-centered approach to learner-friendly learning environment (Zboun & Farrah, 2021; Paudel, 2021). Lecturers/instructors must be trained in online technology to improve their ability to use online learning applications to make interesting and acceptable teaching materials that will increase enthusiasm and positivism in studying (Ladyanna & Aslinda, 2021). Careful planning from instructors as well as students is needed for a successful online learning experience to occur. Ullah et al. (2021) recommend using blended learning methods to achieve student learning outcomes in the 21st century.

Psychological

We acknowledge that a crisis like COVID-19 has caused students to be stressed and traumatized; and students have affirmed this through their survey answers. We agree with

Bozkurt and Sharma (2020) that universities should focus on teaching how to share, collaborate, and support instead of only focusing on educational content. The online platform is an excellent opportunity to test online pedagogy-centric approaches. Still, we should amplify the emotional presence by acclimatizing empathy and care by focusing on different types of presence, such as teaching presence, cognitive presence, and social presence (Bozkurt & Sharma, 2020). We recommend building a support community where knowledge and experience are shared to provide an efficient and meaningful learning process that is directed not only to learning, but also to provide therapy, empathy, and care. We would also like to highlight Gates et al. (2020) in their recommendation of self-compassion, akin to self-love, that entails recognizing that "our imperfection is part of human experience." Much work using mindfulness, a form of present-moment attention, is also recommended based on our findings that entails professors being connected with students to foster a sense of being more available to students via emails, Zoom meetings, discussion boards, phone calls, and so on.

Cuseo and Figueroa (2021) note the need for greater emotional wellness of students during this pandemic. We feel campus counseling centers should include ways to reach out to students using the online platform to provide emotional support to students seeking help in addressing emotional challenges. For example, we found many students did not take advantage of the online workshops provided via Zoom due to their busy work schedules; however, a small percentage of them found it very convenient to use the recreation center app. Further, from our survey, we observed that not many students-initiated contacts with counseling services for emotional challenges. This could be due to the stigma associated with seeking help for mental health. We agree with Cuseo and Figueroa (2021) that the online platform can be used to deliver increased emotional wellness programs, infused into existing programs such as the beginning of semester student orientations, seminars, and peer mentor training. Research suggests that mindfulness training, which involves intentional practice in the art of detecting distraction, has been associated with helping students remain focused. Training will give students less defensive and more effective coping strategies to keep their minds on lectures, 'get more out' of their academic work, and experience lower levels of anxiety in response to academic stressors. We recommend university counseling centers incorporate 15-minute, focused-breathing mindfulness exercises for students that will help them to destress and alleviate negative emotions (Cuseo & Figueroa, 2021).

Conclusion

Certainly, the transition to fully online education during the COVID-19 pandemic has been a unique experience for most higher learning institutions. COVID-19 experience has given academic institutions a new perspective on how to act and react on a short notice. In times of crisis, academic institutions should be equipped to act quickly in order to implement alternative teaching and learning strategies that will maintain instruction continuity (Grafton et al., 2021). While we acknowledge the limited scope of this study, it

does present a valuable insight on effective preparation of college education in times of crisis. Our study offers a unique perspective by not only taking into consideration the effects of distance learning on communication, structure and learner's autonomy due to issues of technology, and effects that have on mental health and the stigma related to mental health issues, but also points out the importance of enabling students with available resources as part of a holistic approach in addressing the impacts of this pandemic on higher education. We have highlighted the application of Moore's theory to address the quality and the extent of communication in improving the learner's outcomes. Academic institutions succeed when students are mentally and emotionally healthy, and technologically prepared to function despite the absence of face-to-face interactions (ACE, 2020). The COVID-19 experience is urging us to change how we run academic institutions, with a simple reminder of taking a holistic approach by incorporating all aspects of a university campus in an over-arching support system.

References

Adedoyin, O. B. & Soykan, E. (2020). Covid-19 pandemic and online learning: The challenges and opportunities, *Interactive Learning Environments*. DOI:10.1080/10494820.2020.1813180

Al-Rabiaah, A., Temsah, M. H., Al-Eyadhy, A. A., Hasan, G. M., Al-Zamil, F., Al-Subaie, S., & Somily, A. M. (2020). Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. *Journal of infection and public health*, 13(5), 687-691.

American Council on Education (ACE, 2020). *Mental health, higher education, and COVID-19: Strategies for leaders to support campus well-being*. <https://www.acenet.edu/Documents/Mental-Health-Higher-Education-Covid-19.pdf>

Aucejo, E. M., French, J., Araya, M. P. U., & Zafar, B. (2020). The impact of COVID-19 on student experiences and expectations: Evidence from a survey. *Journal of public economics*, 191, 1-25.

Bozkurt, A. & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to Corona Virus pandemic. *Asian Journal of Distance Education*, 15(1), i-iv.

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry research*, 287, 1-5.

Center for Disease Control and Prevention (CDC, 2020a). *Considerations for institutions of higher education*. https://www.cdc.gov/coronavirus/2019-ncov/community/colleges-universities/considerations.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fcommunity%2Fguidance-ihe-response.html#preparing

Centers for Disease Control and Prevention (CDC, 2020b).

COVID-19: How to protect yourself & others. <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>

Chick, R. C., Clifton, G. T., Peace, K. M., Propper, B. W., Hale, D. F., Alseidi, A. A., & Vreeland, T. J. (2020). Using technology to maintain the education of residents during the COVID-19 pandemic. *Journal of surgical education*, 77(4), 729-732.

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, P. & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), 1-20. DOI: <https://doi.org/10.37074/jalt.2020.3.1.7>

Cuseo, J. B. & Figuero, S. (2021). Three timely tools for promoting first-year student success during & after COVID-19: Positive psychology, mindfulness, & self-compassion. *US-China Foreign Language*, 18(11), 329-334.

Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2020). COVID-19 and student learning in the United States: The hurt could last a lifetime. *McKinsey & Company*. <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-student-learning-in-the-united-states-the-hurt-could-last-a-lifetime>

EdSource. (2020). *CSU freshmen dropout rates by race/ethnicity for 2019*. <https://edsources.org/2020/csu-freshmen-dropout-rates-by-race-ethnicity-for-2019/644394>

Falloon, G. (2011). Inside the virtual classroom: Students perspectives on affordable and limitation. *Journal of Open, Flexible, and Distance Learning*, 16(1), 187-209.

Falloon, G. (2014). Making the Connection: Moore's Theory of Transactional Distance and Its Relevance to the Use of a Virtual Classroom in Postgraduate Online Teacher Education. *Journal of Research on Technology in Education*, 43(3), 187-209.

Gates, T. G., Ross, D., Bennett, B., & Jonathan, K. (2021). Teaching mental health and well-being online in a crisis: Fostering love and self-compassion in clinical social work education. *Clinical Social Work Journal*, 1-13. <https://doi.org/10.1007/s10615-021-00786-z>

Grafton, E., Elder, E., & Burton, R. (2021). Innovative strategies to maintain nursing students' academic continuity during COVID-19 pandemic. *Journal of Applied Learning & Teaching*, 4(1), 1-8.

Gunnell, D., Appleby, L., Arensman, E., Hawton, K., John, A., Kapur, N., Khan, M., O'Connor, R. C., & Chan, L. F. (2020). Suicide risk and prevention during the COVID-19 pandemic. *The Lancet Psychiatry*, 7(6), 468-471.

Hawley, S. R., Thrivikraman, J. K., Noveck, N., St Romain, T., Ludy, M. J., Barnhart, L., Swee Chee, W. S., Cho, M. J., Chong, M. H. Z., Du, C., Fenton, J. I., Hsiao, P. Y., Hsiao, R., Keaver, L., Lee, H.-S., Shen, W., Lai, C.-C., Tseng, K.-W., Tseng, W.-C., & Tucker, R. M. (2021). Concerns of college students during the COVID-19 pandemic: Thematic perspective from the

United States, Asia, and Europe. *Journal of Applied Learning & Teaching*, 4(1), 1-10.

Ladyanna, S., & Aslinda. (2021). Problems and challenges of online lectures in indonesia during the pandemic COVID-19: Advances in social science. Education and Humanities Research, 506, *Proceedings of the 3rd International Conference on Educational Development and Quality Assurance (ICED-QA 2020)*.

Los Angeles Times. (2020). A generation left behind? Online learning cheats poor students, Time's survey finds. <https://www.latimes.com/california/story/2020-08-13/online-learning-fails-low-income-students-covid-19-left-behind-project>

McCall, B., Shallcross, L., Wilson, M., Fuller, C., & Hayward, A. (2019). Storytelling as a research tool and intervention around public health perceptions and behaviour: A protocol for a systematic narrative review. *BMJ Open*, 9(12), e030597. Doi: 10.1136/bmjopen-2019-030597

Mshigeni, S. K, Okolo, S., Mshigeni, D., & Becerra, M. (2020). What diversity means to undergraduate health science students. *Journal of Higher Education Theory and Practice*, 20(6), 55-62.

Palvia, S., Aeron, P., Gupta, P., Mahapatra, D., Parida, R., Rosner, R., & Sindhi, S. (2018). Online education: Worldwide status, challenges, trends, and implications, *Journal of Global Information Technology Management*, 21(4), 233-241, DOI: 10.1080/1097198X.2018.1542262

Pandit D, & Agrawal S. (2021). Exploring challenges of online education in COVID Times. *FIIB Business Review*. doi:10.1177/2319714520986254

Paudel, P. (2021). Online education: Benefits, challenges, and strategies during and after COVID-19 in higher education. *International Journal on Studies in Education (IJonSE)*, 3(2), 70-85.

Pragholapati, A. (2020). *COVID-19 and student learning in the United States: The hurt could last a lifetime*. <https://doi.org/10.17605/OSF.IO/NUYJ9>

Sahu, P. (2020). Closure of universities due to coronavirus disease 2019 (COVID-19): Impact on education and mental health of students and academic staff. *Cureus*, 12(4), 1-6.

Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of covid-19 on college students' mental

health in the United States: Interview survey study. *J Med Internet Res*, 22(9), e21279.

Tasso, A. F., Sahin, N. S., & San Roman, G. J. (2021). COVID-19 disruption on college students: Academic and socioemotional implications. *Psychological Trauma: Theory, Research, Practice, and Policy*, 13(1), 9 –15.

Ullah, A., Ashraf, M., Ashraf, S., & Ahmed, S. (2021). Challenges of online learning during the COVID-19 pandemic encountered by students in Pakistan, *Journal of Pedagogical Sociology and Psychology*, 3(1).

UNESCO. (2020). *COVID-19 educational disruption and response*. <https://en.unesco.org/themes/education-emergencies/coronavirus-school-closures>

Van Wart, M., Ni, A., Medina, P., Canelon, J., Kordrostami, M., Zhang, J., & Liu, Y. (2020). Integrating students' perspectives about online learning: A hierarchy of factors. *International Journal of Educational Technology in Higher Education*, 17(1), 1-22.

Wang, Z. H., Yang, H. L., Yang, Y. Q., Liu, D., Li, Z. H., Zhang, X. R., Zhang, Y.-J., Shen, D., Chen, P.-L., Song, W.-Q., Wang, X.-M., Wu, X.-B., Yang, X.-F., & Wang, X. M. (2020). Prevalence of anxiety and depression symptom, and the demands for psychological knowledge and interventions in college students during COVID-19 epidemic: A large cross-sectional study. *Journal of Affective Disorders*, 275, 188-193.

World Health Organization. (2021). *Coronavirus disease (COVID-19) pandemic*. https://www.who.int/emergencies/diseases/novel-coronavirus-2019?gclid=CjwKCAjwpKCDBhBPEiwAFgBzjwun3ZQnbuDHL0aaBtuMX8-Hic_R3w4jLNvaMozKBNDxvAlPhhb0khoCAOWQAvD_BwE

Worldometer. (2021). *COVID-19 coronavirus pandemic*. <https://www.worldometers.info/coronavirus/>

Zboun, J. S. & Farrah, M. (2021). Students' perspectives of online language learning during corona pandemic: Benefits and challenges. *Indonesian EFL Journal*, 7(1), 13-20. <https://doi.org/10.25134/iefjl.v7i1.3986>

Zhong, R. (2020). The coronavirus exposes education's digital divide. *New York Times*. <https://www.nytimes.com/2020/03/17/technology/china-schools-coronavirus.html>



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Exploring the impact of early exposure to research on dual enrollment students: A qualitative single-case study

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Abstract

Embry-Riddle Aeronautical University (ERAU) provides a concurrent enrollment model to high schools across the United States. The concurrent enrollment opportunity offers science, technology, engineering, and mathematics (STEM) college-credit coursework taught by college-credentialed instructors on the student's high school campus. One faculty member transitioned to Embry-Riddle's main residential campus following seven years of service with ERAU's concurrent enrollment program. During his tenure with ERAU's concurrent enrollment program, in addition to instructing a variety of concurrent enrollment courses, he maintained an active research agenda that involved concurrently enrolled students. His transition was preceded by the matriculation of a subset of these students to Embry-Riddle's main campus. Each of these students immediately reengaged in undergraduate research with the faculty member while he continued to serve in a strong mentoring role. This presentation explores the affect this opportunity had on individual members of this tight-knit cohort as they progressed through their concurrent enrollment and undergraduate studies, participated in a long-standing mentoring relationship, and undertook their post-graduation decision-making. The research showcases project-based learning as a scaffolding technique for meaningful undergraduate research and how it may illuminate a pathway for students who do not initially see STEM as a viable option.

Introduction

The Gaetz Aerospace Institute (GAI) at Embry-Riddle Aeronautical University provides a concurrent enrollment model to over 85 high schools across the United States. The concurrent enrollment model offers college-credit coursework taught by college-credentialed instructors, frequently serving in dual roles as high school teachers, on the student's high school campus. This latter characteristic is commonly used to differentiate this model from the dual enrollment model where students leave their high school campus, most often undertaking coursework at their local community college (NACEP, 2020).

Embry-Riddle, through the GAI, specifically offers science, technology, engineering, and mathematics (STEM) oriented coursework for concurrently enrolled students. The coursework administered at the high school reflects the pedagogical, theoretical, and philosophical orientation of Embry-Riddle courses. Further, Embry-Riddle residential faculty provide course-specific training regarding course curriculum, pedagogy, and assessment criteria to the concurrent enrollment instructor.

One faculty member transitioned to Embry-Riddle's Daytona Beach residential campus, following seven years of service with the GAI. During his tenure with GAI, in addition to instructing a variety of concurrent enrollment courses, he maintained an active research agenda that involved concurrently enrolled students. His transition was preceded by the matriculation of a subset of these students to Embry-Riddle's main campus. Upon his arrival at the main campus, one student was enrolled as a sophomore undertaking a meteorology degree program and four engineering physics students were beginning their junior year of study. Each of these students immediately reengaged in undergraduate research with the faculty member while he continued to serve in a strong mentoring role. This unique circumstance, with a relationship that spanned six to seven years for each student, provided an opportunity to investigate how substantive early exposure to rigorous academic research subsequently influences a student's academic and career decision.

Literature review

The positive link between early exposure to research, projects, and real-life experiences and student success across a variety of content areas has been shown repeatedly with various methods (Griffard & Golkowska, 2013; Russell et al., 2007). Field (2002) explored the impact that high school-level exposure to undergraduate level research has on a student's desire to pursue higher education. Student perception of research that lasts several semesters is more influential than a project that last only one or two semesters and that the faculty member involved, "had an important effect on their decision to attend graduate school and in their career choice" more so than their peers who were not involved in research activities at the undergraduate level (Zydney et al., 2002).

However, while much of the current literature addresses the benefits and accessibility to postsecondary research opportunities for dual enrollment students (An, 2013; Pretlow & Wathington, 2014), there is limited research conducted on the longer-lasting impact of early exposures to academic research for such students (Wang et al., 2015). Russell et al. (2007) provided some insight on gender and ethnic influence on mentorship relationships and Lescak et al. (2019) in their *Ten simple rules for providing a meaningful research experience to high school students*, lists a long-term mentoring relationship as their final rule. However, much of the research that exists on healthy relationships with students focuses solely on the teacher-student relationship that existed while the student was in that classroom or course and not on the extended impact of a longer mentoring relationship (Carr, 2005; Claessens, 2016; Hagenauer & Volet, 2014; Wang et al., 2013).

How is research a stepping stone to project-based learning?

According to the Council of Undergraduate Research (n.d.), undergraduate research can be defined as, "an inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline." In comparison, Project Based Learning Works (n.d.) defines project-based learning (PBL) as, "a teaching method in which students learn by actively engaging in real-world and personally meaningful projects." Both organizations are leaders in their respective fields and strive to achieve the same goal: to encourage the progress of the next generation of experts to continue to ask questions, explore new ideas and contribute to their respective fields of study as lifelong learners. The PBL framework aligns closely with the modality in which the students in the GAI courses experience their education and then correlates to their continued involvement in research or project activities. PBL can be viewed as a scaffolding technique to prepare students for undergraduate research.

In the classroom setting project-based learning establishes what Helle et al. (2006) calls the 'problem orientation' which allows a given question to dictate following activities in which the students are led down a more open-ended learning process. While, in this presentation, the outcome is largely predictable by the faculty/teacher advisor on the project, in a research endeavor the outcome is less understood up front. However, the same principles apply, and the processes present a positive transfer of learning. Feedback from students participating in the ASTER (Access to Science Through Experience in Research) program at Weill Cornell Medical College in Qatar indicated that their exposure to various aspects of research not only helped them make connections between the classroom and subsequent application of problem solving skills in other classes and clubs, but that repeated exposure to research in small doses decreased the associated intimidation factor and made them more likely to return for more research projects later (Griffard & Golkowska, 2013). This confidence factor is acknowledged by many researchers when discussing the impact of undergraduate research and the sooner students engage in the experience the greater the benefit (Field, 2002;

Robnett et al., 2015). Robnett et al. (2015) went on to explain that early exposure to research was essential because the impact of a given experience may not take root for years. Additionally, she gave examples of how to properly scaffold and link classroom learning opportunities to present-day challenges at the undergraduate level. Ward et al. (2016) also advocates that early exposure to research should be developed within the K-12 education system in order to help develop passion and an understanding of how to apply the material outside of the classroom.

Complementing the aforementioned studies, it is recognized that these types of experiences assist students by making them feel more connected to the science and research community and other like-minded individuals (Griffard & Golkowska, 2013). The group of students associated with this work were able to experience project-based style activities while in high school and, subsequently, continue to connect with their faculty advisor from the high school environment throughout their undergraduate experience. This paper explored this group of undergraduate students' experiences as they relate to project-based learning and early exposure to robust academic research during concurrent enrollment. Specifically, it analyzes the factors that they perceived to be the most impactful on their learning experiences.

Methodology

Participants

This case study explores the experiences of a group of five students who were all concurrently enrolled through the GAI at Embry-Riddle Aeronautical University (see Table 1). Following completion of their high school diploma, each matriculated to Embry-Riddle Aeronautical University's Daytona Beach residential campus to earn their bachelor's degree. Four of the five participants chose a major in Engineering Physics, the fifth double majoring in Meteorology and Computational Mathematics. Three of the engineering physics majors also minored in various programs including applied mathematics, aviation law, computer science and computer engineering. Of the group of five, three participants have immediate plans to pursue a graduate level degree. A fourth participant intends to pursue a graduate degree following a year of full-time employment and subsequent enrollment in a Federal Work-Study program.

Table 1: Participants (Pseudonyms)

Pseudonym	Major(s)	Minor(s)
Carson	BS. in Engineering Physics	Computer Engineering
Elijah	BS. in Engineering Physics	None
Jackson	BS. in Engineering Physics	Applied Mathematics & Aviation Law
Liam	BS. in Engineering Physics	Computer Science
Oliver	BS. in Meteorology/Computational Mathematics	None

Procedures

This research aimed to draw conclusions from a purely qualitative research approach. Yin (2014) states that a case study is useful for answering the questions of how and why for a social problem, such as what encourages students to pursue research activities at the undergraduate level of post-secondary education. Moreover, Stake's (1995) exploratory single case study approach was selected because it utilizes a constructivist foundation that complements the educational context of this study. The literature supports a gap in research regarding extended research experiences prior to a student entering a higher education institution (Amaya et al., 2018; Clasesens et al., 2016; Lile, 2017). Data was primarily collected from one focus group interview, comprised of five participants, in which questions were asked of the whole group and the participants led the conversation while also contributing to each other's responses. To achieve triangulation of the data, individual semi-structure interviews with each member were conducted and a digital short narrative was requested (Creswell & Poth, 2018; Stake, 1995). All data collection methods had pre-determined questions to guide the discussion; however, the method gave freedom to the respondents to discuss what they felt was most appropriate. Prior to this data collection, each participant was given an informed consent form which disclosed that the risks associated with participation in this study were no greater than those encounter in daily life activities.

The focus group interview consisted of seven open-ended questions that targeted the high school experience and group interactions of the participants. The group interview lasted approximately an hour and was scheduled during a mutually convenient time for all participants and researchers. The semi-structured individual interviews were composed of six questions which targeted the participants' individual interactions with the mentor and their transition from high school to college. At the end of the interview, the researchers allowed the participants to share any relevant information or experience that was not covered during the interview and that they felt was important to disclose. Each individual interview lasted an average of 20 minutes. Lastly, the narratives probed the experiences that the students had while undertaking research as concurrently enrolled students. Each narrative was between 200-300 words in length. The five participants satisfy both Yin (2014) and Creswell and Poth's (2018) suggestion for employing at least five participants for purposeful sampling. It is important to note that this study was not designed to yield generalizable results but to generate an understanding of the phenomenon and lay a foundation for future inquiries.

Data analysis

The data analysis for the investigation was purposefully undertaken. First, all interviews were transcribed and sent back to the participants for review and approval. After receiving the approval from the participants, the researchers read the transcriptions of the interviews individually and exercised memoing as they immersed themselves in the data. While reading through the transcripts, the researchers

created notes in the margins of the data, beginning with the development of the codes and then the formation of themes from the codes. This strategy of coding the data for its major categories of information is referred to as open coding (Creswell & Poth, 2018). Merriam (2009) suggests that assessing the codes is the initial step in categorizing and gathering meaning from the data. Furthermore, reviewing open codes and grouping similar data together into axial codes created "coding that comes from interpretation and reflection of the meaning of the data" (Merriam, 2009, p.180).

Personal perspectives

The applicable faculty advisor that transitioned from the high school program to the University is one of the paper's authors. Consequently, this individual did not take part in formulating any of the student questions as to not lead the students' answers toward any particular outcome. Further, this member of the research team was removed from the data collection portion of the project as to not influence the students' responses, perceptions and descriptions of the questions during any of the interviews.

Findings

The overarching question that the research team asked was, how does substantive early exposure to rigorous academic research impact students' perception of their learning experience. The two major themes that emerged from the study were mentorship and motivation through industry connection. These themes support arguments made by other case studies that have studied PBL activities at different levels of education (An, 2003; Blumenfeld, 1991; Hagenauer & Volet, 2014). Through the various methods of interviewing, mentorship was coded in every single file and had 64 references, while motivation was also acknowledged in each file with 76 references of the nearly 300 reference points singled-out.

Mentorship. The first major theme to emerge from the data, mentorship, highlights the role that human interaction played between, not only, the faculty member and the students but within the team as a whole. Within the first major theme of mentorship, two subthemes associated with comradery and relationship over time appeared. The comradery found within the team as a whole allowed the students to open up to one another in a family style relationship, and the presence of this continuity over time increased their ability to rely on one another and work together as a cohesive unit. All participants expressed how comradery allowed them to maintain their confidence not only in successfully performing academic research but also in determining their career paths. Elijah articulated this notion when he stated, "just knowing that we have some sort of a support system here [ERAU] already and that we all had individual different [career goals] made the idea of [pursuing my] degree and doing something out of the ordinary [more achievable]." As previously established, because PBL can be conducted in shorter or longer-term commitments and has various aspects of research involvement based on the level of student understanding, comradery adds a depth

to the students' willingness to engage in new research. Furthermore, the deeper that these relationships can be built between the students over time, the more encouraged the students are to engage in various research endeavors (Wilkins, 2019). Comradery can assist in establishing the roots for the pursuit of an undergraduate research agenda. Carson solidified this by explaining that having a strong group of like-minded peers, "that we know support each other helped us a lot, especially early on when you are still trying to figure out who your study partners and who your friend groups are."

The relationships between the mentor and mentees developed and further deepened over the course of the time spent conducting the assorted research projects. Each participant relayed that both formal and informal interactions guided how they navigated their undergraduate studies, engaged with the campus community during the course of their studies, and influenced their post-graduation choices. Liam referred to the faculty advisor as an "academic dad" while Oliver expressed the benefit of "having someone you can talk to normally since we knew each other well, something which [he] couldn't do with other professors." This type of relationship brought about reflective conversation that resulted in Jackson having to develop, "an immense level of self-knowledge and a true understanding of one's passion" and resulted in discovering, "a path [that] was truly meant for me" and upon reflection stated, "my career path would not be the same." For Carson, the unique relationship made him feel "important" and afforded him the opportunity to receive "individualized advice." Just as Robnett et al. (2015) found in their research that a student's involvement in research over time helps them develop their identity as a scientist, our students realized that these relationships helped them discover their academic passions and the correct path for the pursuit of these.

The comradery between the team, including the faculty advisor, that was developed over several years and that spanned several seminal milestones in these young people's lives, including the transition from high school to post-secondary studies for the students and the advisor's completion of his terminal degree, brought this group together in a profound manner. In other research investigating the impact of PBL on student's perspective of education, Virtue & Hinnant-Crawford (2019) found students explained the benefit of PBL as, "knowing their work was important to others." Having this relationship with their mentor knowing that he, "treated us like engineers and expected us to come up with a product which eventually got used" was what Carson stated as being the most profound aspect of his research experience with his professor while still in high school. Oliver felt that this mentorship's biggest impact was "the stuff that you cannot see on paper". Oliver and others went on to explain that they gained valuable skills, such as the ability to write a professional e-mail, how to organize thoughts and spreadsheets in a manner that someone else can utilize, and an openness to receiving feedback that was not judgmental or intimidating but in fact came from a nurturing and caring perspective.

Motivation through connection to industry. The second major theme that emerged from the interviews with the undergraduate researchers was motivation through connection to industry. The research projects' open-ended nature provided motivation in that the researchers felt like this better approximated problems that the students' would face in industry. Carson felt "treated like an engineer" due to the "freedom to decide how to get from there to the end product". He found this aspect "really rewarding" and believed that it provided a "sneak peek into the way the world [industry] works." Oliver believed that the research that he undertook "connected the University to the business and engineering of industry." This proxy for industry experience also afforded the students to better assess their desired outcome following completion of their degree programs. Liam indicated that, "undergraduate research allows getting a little bit of a taste of the field without having to fully decide or sign a contract." It was project work that Jackson completed that first opened a door to industry, in the form of an internship. The work ethic that he developed during his research experience brought about "admiration from his first boss in industry despite not having any real experience" and this feedback "changed a bit of the path [he] was looking to take for [his] career." Further, the interdisciplinary nature of the research that he was associated with "pushed me into a career path that I felt would fit with my interdisciplinary interests." After his initial research experiences, Elijah was motivated by the fact he believed his research work products better portrayed his capabilities than his GPA. Elijah shared that at various times during the course of his program of study that, "I was basically told that I should switch degrees or that I was not capable of being an engineer. However, undergraduate research showed me that not only am I capable of solving problems but that I can also excel at it." This success has, "helped [Elijah] to keep going in my undergraduate studies" and "has given me hope to complete my degree" and "shown me that I am capable of being an engineer." The students' ability to stay connected to the industry through their faculty advisor encouraged the above enthusiasm and motivation that Moore et al. (2013) found to be two of their five key "mentor facets" that their mentor embodied in their case study of research mentorship.

Conclusion & future research

This qualitative case study examined a unique group of students who formed a cohort through a unique concurrent enrollment program ripe with substantive research opportunities. They continued their studies at the same undergraduate institution in closely aligned degree programs. When their faculty advisor similarly transitioned to the same residential campus, the previously established cohort resumed its research. This experience created a unique opportunity to obtain insight into the factors that directly impacted their subsequent decisions to continue to pursue research activities during their undergraduate studies despite a heavy course load.

All of the participants in this study realized similar benefits from this experience centering on mentorship and motivation based on the connection to industry. Through the faculty

advisor's guidance, the students felt that there was a safe person available to them who had a substantive connection to their industry of interest and who could, consequently, provide them a clear and objective, but personalized, path to achieve their goals. This research adds to the existing body of literature that heavily emphasizes the direct impact that a faculty advisor can have on a student's willingness, eagerness, and confidence to pursue research at any level of education.

It is this research team's recommendation that high schools and institutes of higher education collaborate to establish relationships with faculty who are willing to work with student cohorts on research or applied projects. Student cohort projects could either have a connection with a specific course, preferably, or as an extracurricular activity for the student, outside of class times. Though the uniqueness of the scenario evaluated in this case-study might be hard to replicate, placing faculty members in high school classrooms could provide an opportunity for students to experience the advantages afforded through team bonding and by the mentoring of an actively engaged researcher that is well-connected to industry. School administrators should consider employing a four-year cyclical approach in which they enable a higher education faculty member to work with a high-school student cohort. This cyclical approach will be beneficial for all parties as it maintains the community of mentor and mentees but without the strains of a longer commitment. Integrating this approach could certainly strengthen students' confidence in themselves to pursue higher education, benefitting both high schools as well as institutes of higher education.

Future work will investigate the impact of the aforementioned experience on the students' decisions to pursue additional graduate studies or to proceed directly into their professional careers. While only a limited number of students have the opportunity to work with the same team or faculty mentor from high school through their entrance into graduate school, continuing to evaluate the impact of this connection could prove insightful into the structuring of an analogous program and its potential impact on students' future educational activities and subsequent level of success.

References

- Amaya, L. R., Betancourt, T., Collins, K. H., Hinojosa, O., & Corona, C. (2018). Undergraduate research experience: Mentoring awareness, and perceptions: A case study at a Hispanic-serving institution. *International Journal of STEM Education*, 5(9), 1-13. <https://doi-org.ezproxy.libproxy.db.erau.edu/10.1186/s40594-018-0105-8>
- An, B. P. (2013). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation and Policy Analysis*, 35(1), 57-75. <https://doi.org/10.3102/0162373712461933>
- Barrows, H. S., & Tamblyn, R. M. (1980). *Problem-based learning: An approach to medical education*. Springer
- Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S.,

- Guzdail, M., & Palincsar, A. (1991). Motivation project-based learning: Sustaining the doing, supporting the learning. *Educational Psychologist*, 26(4), 369-398. <https://doi.org/10.1080/00461520.1991.9653139>
- Bradley, C. (2013). Undergraduate research: The short list of things I want my little brother to know. *Council on Undergraduate Research Quarterly*, 33(3). <https://go-gale-com.ezproxy.libproxy.db.erau.edu/ps/i>.
- Carr, D. (2005). Personal and interpersonal relationships in education and teaching: A virtue ethical perspective. *British Journal of Educational Studies*, 53(3), 255-271. <https://doi.org/10.1111/j.1467-8527.2005.00294.x>
- Chen, X. (2014). *STEM attrition: College students' paths into and out of STEM field's statistical analysis report*. <https://nces.ed.gov/pubs2014/2014001rev.pdf>
- Clasessens, L., van Tartwijk, J., Pennings, H., van der Want, A., Verloop, N., den Brok, P., & Wubbels, T. (2016). Beginning and experienced secondary school teachers' self-an student schema in positive and problematic teacher-student relationships. *Teaching and Teacher Education*, 55(4), 88-99. <https://doi.org/10.1016/j.tate.2015.12.006>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry & research design: Choosing among five approaches* (4th ed.). Sage.
- Field, P. (2002). The influence of research-based high school science programs on undergraduate student. *Journal of College Science Teaching*, 32(2), 109-113. <https://search-proquest-com.ezproxy.libproxy.db.erau.edu/docview/200273426?pq-origsite=summon>
- Griffard, P., & Golkowska, K. (2013). Early exposure to research: Outcomes of the ASTER certification program. *Journal of College Science Teaching*, 43(1), 36-42. https://doi.org/10.2505/4/jcst13_043_01_36
- Hagenauer, G., & Volet, S. E. (2014). Teacher-student relationship at university: An important yet under-researched field. *Oxford Review of Education*, 40(3), 370-388. <https://doi.org/10.1080/03054985.2014.921613>
- Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationship and the trajectory of children's school outcomes through eighth grade. *Child Development*, 72(2), 625-638. <https://doi-org.ezproxy.libproxy.db.erau.edu/10.1111/1467-8624.00301>
- Hirschi, T. (1969). *Causes of delinquency*. University of California Press.
- Khoiriyah, U., Roberts, C., Jorm, C., & Vleuten, C. P. (2015). Enhancing students' learning in problem-based learning: Validation of a self-assessment scale for active learning and critical thinking. *BMC Medical Education*, 15(1), 140. <https://10.1186/s12909-015-0422-2>
- Kolodner, J. L., Camp, P. J., Crismond, D., Fasse, B., Gray, J., Holbrook, J., Puntambekar, S., & Ryan, M. (2003). Problem-based learning meets case-based reasoning in the middle-school science classroom: Putting learning by design into practice. *Journal of the Learning Sciences*, 12(4), 495-547. https://doi-org.ezproxy.libproxy.db.erau.edu/10.1207/S15327809JLS1204_2
- Lescak, E. A., O'Neill, K. M., Collu, G. M., & Das, S. (2019). Ten simple rules for providing a meaningful research experience to high school students. *PLOS Computational Biology*, 15(4). <https://doi.org/10.1371/journal.pcbi.1006920>
- Lile, J. R., Ottusch, T. M., Jones, T., & Richards, L. N. (2017). Understanding college-student roles: Perspectives of participants in a high school/community college dual-enrollment program. *Community College Journal of Research and Practice*, 42(2), 95-111. <https://doi-org.ezproxy.libproxy.db.erau.edu/10.1080/10668926.2016.1264899>
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. Jossey-Bass.
- Moore, J., Scarduzio, J. A., Plump, B., & Geist-Martin, P. (2013). The light and shadow of feminist research mentorship: a collaborative autoethnography of faculty-student research. *Journal of Research practice*, 9(2), 1-24. <https://search-proquest-com.ezproxy.libproxy.db.erau.edu/docview/2230954183?pq-origsite=summon>
- PBLWorks. (2020). *PBLWorks*. <https://www.pblworks.org>
- Peeters, J., De Backer, F., Buffel, T., Kindekens, A., Struyven, K., Zhu, C., & Lombearts, K. (2014). Adult learners' informal learning experiences in formal education setting. *Journal of Adult Development*, 21(3), 181-192. <https://doi.org/10.1007/s10804-014-9190-1>
- Protlow, J., & Wathington, H. D. (2014). Expanding dualenrollment: Increasing postsecondary access for all? *Community College Review*, 42(1), 41-54. <https://doi.org/10.1177/0091552113509664>
- Robnett, R. D., Chemers, M. M., & Zurbriggen, E. L. (2015). Longitudinal associations among undergraduates' research experience, self-efficacy, and identity. *Journal of Research in Science Teaching*, 52(6), 847-867. <https://doi.org/10.1002/tea.21221>
- Russell, S. H., Hancock, M. P., & McCullough, J. (2007). The pipeline: Benefits of undergraduate research experiences. *Science*, 316(5824), 548-549. <https://doi.org/10.1126/science.1140384>
- Stake, R. E. (1995). *The art of case study research*. Sage
- Tenebaum, L. S., Anderson, M., Ramadorai, S. B., & Yourick, D. L. (2017). High school students' experience with near-peer mentorship and laboratory-based learning: In their own words. *Journal of STEM Education*, 18(3), 5-12. <https://search-proquest-com.ezproxy.libproxy.db.erau.edu/docview/1949081352?pq-origsite=summon>
- The Council on Undergraduate Research. (2020). *Homepage*. <https://www.cur.org>.

- Tsybulsky, D., Dodick, J., & Camhi, J. (2017). High-school students in university research labs? Implementing an outreach model based on the 'science as inquiry' approach. *Journal of Biological Education*, 52(4), 1–14. <https://doi.org/10.1080/00219266.2017.1403360>
- Virtue, E. E., & Hinnant-Crawford, B. N. (2019). "We're doing things that are meaningful": Student perspective of project-based learning across the disciplines. *Interdisciplinary Journal of Problem-Based Learning*, 13(2). <https://doi.org/10.7771/1541-5015.1809>
- Wang, M.-T., Brinkworth, M., & Eccles, J. (2013). Moderating effects of teacher–student relationship in adolescent trajectories of emotional and behavioral adjustment. *Developmental Psychology*, 49(4), 690–705. <https://doi.org/10.1037/a0027916>
- Wang, X., Chan, H., Phelps, L. A., & Washbon, J. I. (2015). Fuel for success: Academic momentum as a mediator between dual enrollment and educational outcomes of two-year technical college students. *Community College Review*, 43(2), 165–190. <https://doi.org/10.1177/0091552115569846>
- Ward, T. J., Delaloye, N., Adams, E. R., Ware, D., Vanek, D., Knuth, R., Hester, C. L., Marra, N. N., & Holian, A. (2016). Air toxics under the big sky: Examining the effectiveness of authentic scientific research on high school students' science skills and interest. *International Journal of Science Education*, 38(6), 905–921. <https://doi.org/10.1080/09500693.2016.1167984>
- Yin, R. K. (2014). *Case study research: Design and method* (5th ed.). Sage
- Zydney, A. L., Bennet, J. S., Shahid, A., & Bauer, K. W. (2002). Impact of undergraduate research experience in Engineering. *Journal of Engineering Education*, 20(1), 151–157. <https://onlinelibrary-wiley-com.ezproxy.libproxy.db.erau.edu/doi/epdf/10.1002/j.2168-9830.2002.tb00687.x>

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Students' perspectives on quality of engineering education in India

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A

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Keywords

Engineering education;
evaluation;
India;
knowledge;
quality skills;
student survey;
teaching.

Abstract

It is widely held that engineering education in India has expanded massively at the cost of quality, quality being perceived in terms of, *inter alia*, ranking of institutions in the national and global university ranking systems, and employability and attributes of graduates. Evidence on these aspects is based on the perspectives of the policy makers, administrators in higher education and employers in the labour market. Rarely the students' perspectives on quality of their education are considered in formulating these conclusions. Assuming that students' perceptions on the quality of education, which may differ from prevailing perceptions of the others, are important and they need to be paid attention to in research and policy making, the attempt in this study is to examine this aspect and fill the gap in research to some extent. Based on a survey of about 7,000 students enrolled in undergraduate engineering studies in 48 public and private institutions in four major states in India, this article presents a contrasting perspective on quality of engineering education in India. The findings are indeed perplexing, as a majority of students are 'satisfied' with the quality of education in their institutions, and they are well prepared for the world of work in India or abroad, and/or for further education. These findings will compel the researchers to widen their approach to study quality-related problems of higher education in India, and administrators and policy makers to rethink on their perspectives and associated actions.*

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1. The problem

Engineering education has expanded in India at a high rate of growth during the post-independence period. In 1950-51, when development planning was launched after independence in 1947, India had a meagre 53 engineering degree level institutions. In 2018-19, this number is about 59 times higher, 3,124, with an enrollment of 4.1 million students at first degree level. In 1960-61, there were hardly 37,000 students¹. The 3,124 institutions include, apart from public institutions, private universities and colleges which account for 87 per cent of the total. The growth in enrollments has probably been faster than anywhere else in the world, and India is now regarded as having the second largest number of engineering students in the world, producing about 0.9 million graduates a year (2017-18). Around 25 per cent of the world's engineers are produced in India (Madheswari & Mageswari, 2020); and India is regarded as the world's number one country in producing engineering and science graduates (National Science Foundation, 2018).

However, it is widely felt that this massive expansion was propelled by democratic and populist pressures, and it has taken place at the cost of quality of education. Except for a small number of graduates produced by a few institutions like the Indian Institutes of Technology (IITs) and National Institutes of Technology (NITs), a vast majority of graduates are regarded 'unemployable' in any appropriate occupation (Aspiring Minds, 2019); in the global university ranking systems, very few institutions figure with high ranks, except a few IITs which also figure after top 100 or 200; in the national system of ranking (National Institute of Ranking Framework), a little less than two per cent of the institutions have been found to have scored above 50 per cent marks; less than five per cent of the engineering graduates are found to have been qualified in the graduate attitude test in engineering (GATE); hardly five per cent of the colleges received 'full accreditation' by the national accreditation body, the National Board of Accreditation (NBA) (VIF, 2019); and even the pass rates in undergraduate studies are very low (Mani & Arun, 2012). Thus, there are strong and well-articulated views on the poor quality of engineering education in the country. The widely prevalent views on the quality of education are also based on robust empirical evidence, but mostly based on the information collected from the educational institutions, employers and other stakeholders – suppliers or producers and users of engineering graduates. Experts and several committees (for example, AICTE, 2003, 2018; MHRD, 2011; Government of India, 2020; Anandkrishnan, 2014; Banerjee & Muley, 2009; Biswas et al., 2011; Loyalka et al., 2016; World Bank 2013; Government of India, 2019) who examined the status of engineering education in India have also commented extensively in this context on institutional expansion, poor infrastructure, less provision of postgraduate and research programmes, commercialisation, ineffective regulation, lack of governance, state control and absence of autonomy, lack of qualified teachers, inadequate public funding, policy vacuum, outdated curriculum, old-fashioned teaching methods, irrelevant skills and knowledge provided by the engineering colleges and universities, weak linkages

between universities and industry, and so on. They also made valuable recommendations on these aspects. Many recommended improvement in infrastructure, recruitment of quality faculty, institutional and faculty autonomy, increased public funding, raise in student fees, faculty training and development, restructuring of regulatory institutions, efficient planning and effective regulation of the growth in universities and colleges, focus on research and post graduate programmes, restructuring of curriculum including increase in market relevance of curriculum and introduction of values and ethics, and so on.

Some of the studies are based on surveys of institutions; and so are many of the reports of the expert committees; but not necessarily based on students' perceptions. There are a few studies in India which are also dated that are based on student surveys; but these surveys covered several aspects relating to their socio-economic background, expenditures on education, and employment/unemployment (Rao, 1961; Bose et al., 1983; Senthilkumar & Arulraj, 2011) but rarely focused on quality related aspects and how students perceived the quality of their education. Using students' surveys, Uplaonkar (1983) analysed occupational preferences by gender and Singh (1993) examined costs of higher education in University of Delhi. Vijay (2013) analysed student ratings of quality of higher education using a sigma model approach in India. Using a part of the data used here (on Delhi), Choudhury (2012, 2019) analysed students' assessment of quality of engineering education in India.

This paper examines student perspectives on quality of engineering education in India, a study area that has been rarely examined in the scholarship of learning and teaching literature. Assuming that students' perceptions on the quality of education, which may differ from prevailing perceptions of the others, are important, and that they need to be paid attention in research and policy making, in this paper, an attempt is made to contrast these macro level perspectives of the stakeholders – the employers, the economic and educational planners and policy makers, higher education bodies and other wings of the government, and the society at large, with micro level evidence, essentially the students' perspectives. Rarely students' experiences and views on the quality of education were analysed, though they are the main stakeholders. In this sense, this study contributes to a new dimension of examining quality related aspects of engineering education, as it largely depends upon students' perspectives on about a dozen aspects of quality, and supplements the existing knowledge on the quality of engineering education in India. The paper also highlights the differences between public and private institutions and also between 'traditional' and 'modern' branches of engineering (as explained later). The latter is a new facet that is added here, which has been rarely studied. Merely the results of the survey are reported here, and the paper does not claim any advances in theoretical knowledge or any contribution to methodology, but the empirical evidence is indeed rich and unique. No advanced statistical tools are used. The mere descriptive empirical evidence provided should be of interest to many scholars, administrators and policy makers for their better reflection on the quality and related aspects of engineering education in India. In the current scenario of engineering education in India (see Tilak & Choudhury

¹ These figures exclude polytechnics which are diploma (below degree) level institutions in engineering, and students in postgraduate studies (Masters' level studies and research programmes).

2021), the problem identified and the analysis attempted here assume special significance.

2. Database

For this purpose, we use primary data collected through a purposive random survey of about 7,000 students in 48 institutions of engineering education in four major states, namely (National Capital Region of) Delhi², Karnataka, Maharashtra, and Tamil Nadu in India. These four states witnessed rapid growth of engineering education in the country. In fact, Karnataka, Maharashtra and Tamil Nadu were the states which took the initial lead in setting up large numbers of institutions. Engineering education expanded very fast in southern and western parts of India, followed by a couple of states in north India. The presence of engineering education is rather minimal in central and eastern India. Karnataka and Tamil Nadu in the south, Delhi in the north and Maharashtra in the west thus represent the three major regions in the country where engineering education grew fast. A structured questionnaire was administered on all the students in the final semester/year of under graduate degree level studies in selected departments – mechanical, civil/electrical, electronics, computer science, and information & technology (IT) related departments were surveyed. While mechanical, civil and electrical engineering are traditionally highly popular branches of engineering, in recent years, electronics engineering, computer science engineering and IT engineering have become more popular.

We term these two groups respectively as 'traditional' and 'modern' branches/streams of engineering here, as we analyse the differences between these two broad categories. Information on students' views on four important aspects, viz., teaching methods used in the classroom, evaluation pattern, skills acquired by students during the course and the involvement of students in different activities, are collected through a questionnaire administered on and interviews conducted with the students. The institutions surveyed include Indian Institutes of Technology (IITs), National Institutes of Technology (NITs) – earlier known as Regional Engineering Colleges (RECs), state universities and colleges, and private universities and private colleges. IITs and NITs are funded by the union (central) government, state universities and state colleges by state (provincial) governments, and private universities and colleges are mostly funded through student tuition and other non-state sources. Private institutions of course enjoy access to research and special funds provided by the state under different heads and the students in private institutions can access state-subsidised loans and fee-reimbursement by the state. Thus the sample includes public, state-aided private and private (self-financing, also known as unaided) institutions. We refer to unaided/self-financing institutions here simply as 'private.' State-aided private institutions are very few in India, and the other type of private institutions account for about 85-90 per cent of the engineering education in the country, both in terms of institutions and enrolments. Our

sample also represents these relative sizes of the variety of institutions.

Since government-aided private institutions are very few in number, and being funded by the state they follow almost all rules, regulations, practices applicable to government institutions, we combine 'public' and state-aided private into one category as public, unless otherwise mentioned, as against private institutions. Comparison of public and private institutions also forms a focus of the study. Most of the colleges offer only under graduate study programmes, while universities, IITs and NITs enroll students for master's level engineering programmes and research programmes as well, in addition to undergraduate studies. But we considered only the students in the final year of first (Bachelor's) degree studies in all the selected institutions. These various types of institutions might have adopted different kinds of procedures and criteria for admitting students in their institutions. Some students might have taken national level common entrance test, some state level examination, and some institution-level examination. Students include those who secured admission on merit, some on merit cum reservation (quota)³, some in private institutions under 'management quota' and some under other criteria. Their educational and socioeconomic profiles are varied⁴. Thus, the sample represents the diversity of the institutions and the students in terms of geographical coverage, variety of institutions, and other features, prevalent in Indian higher education, though the numbers of sampled institutions and the students are small compared to the large network of institutions and vast student population. The survey was conducted in the context of a wider international study covering BRIC countries (Brazil, Russian Federation, India and China: Carnoy et al., 2003), of which the author is a part. The sample selection of states, institutions and departments and the design were based on the considerations of the larger study.

The questionnaire used for the students' survey includes a variety of questions on students' perceptions and experiences in the colleges and universities. They relate to their views on the quality the institution the student was enrolled in, the quality of education she/he was receiving, the level of skills and knowledge acquired during the studies, the level of confidence or preparedness for future, the students' participation in various academic and related activities, number and type of major and non-major subjects chosen as a part of their study, etc. We also obtained information through them on the pedagogic methods and the methods of evaluation adopted in the respective institutions. Finally information is also collected on how the students use their time. The descriptive analysis attempted here is based on such information collected by the author from the students' survey and interviews with them, supplemented with the information collected through a questionnaire and interviews of heads/deans of departments/institutions on general, academic, faculty, financial and governance aspects of the institutions and from information collected from a small number of major employers of graduates. So there

2 The sample survey data on Delhi was used by Choudhury (2012) for his PhD dissertation. Based on the same, a few aspects similar to ones we analyse here relating to quality are also analysed (Choudhury, 2019).

3 Constitutionally guaranteed reservations in admission are provided to socially backward sections of the society.

4 See Tilak (2020a, 2020b) for a socioeconomic and educational profiles of the students surveyed.

are some direct and indirect measures that are used here to understand quality and related aspects of engineering education in India. The attempt has been to cover comprehensively the quality aspects of education.

3. Analysis of survey results

i) How do students feel about the quality of their engineering education?

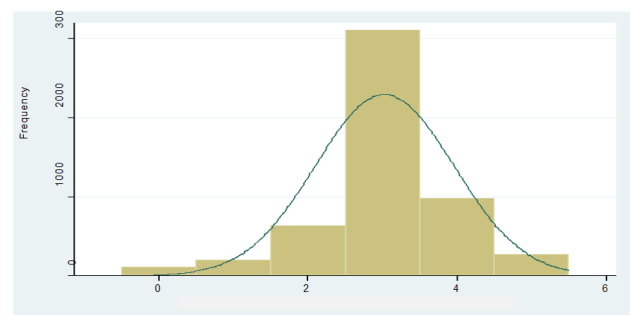
First, we analyse students' perceptions on the quality of education. Reports of many expert committees and media reports often complained about the poor quality of education that is imparted to the students in engineering institutions, particularly in private institutions, which actually dominate the whole engineering education scene in the country. They commented on the poor quality attributes of the engineering graduates and their lack of knowledge, skills and proper attitudes. How do the students feel about it? Do they know that they are receiving substandard education that does not provide any knowledge and skills relevant for employment or for the society at large? One of the most interesting results of our student survey is that students are largely satisfied with the quality of their engineering. Evidence can be cited on quite a few aspects relating to this issue.

a) Improvement in knowledge, skills and abilities

First, students were asked how they felt about their technical knowhow at the time of survey/interviews compared to the time of admission, i.e., after three to three and half years of studies. Most students responded that they felt 'stronger' or 'much stronger' (Figure 1). The knowledge related aspects include essentially knowledge of technology, knowledge of new technology, and knowledge of engineering practices. The details are discussed in the following pages.

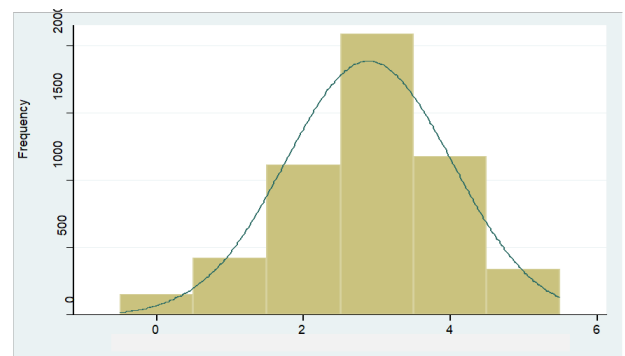
Similarly, when asked about their current level of abilities and skills compared to when they entered the institution, they also felt stronger or much stronger, on average (Figure 2). The abilities and skills on which enquiry was made include ability for collaborative work, problem-solving skills, writing skills, communication skills, academic skills, leadership abilities, intercultural understanding, and knowledge of global affairs.

It will be interesting to look into the details on some of these aspects. Fourteen attributes relating to knowledge, skills and abilities have been identified for assessment. They are: Knowledge of technology, knowledge of new technology, knowledge of engineering practices, knowledge about global markets/economies, ability to communicate in any foreign language, leadership ability, problem-solving ability, academic ability, ability and skills for collaboration for work, writing skills, oral communication skills, intercultural skills, entrepreneurial skills, and ability to appreciate the importance of lifelong learning. As expected, the response of the students varies across these several attributes, as one can note from Figure 3.



0 = much weaker; 1 = weaker; 2 = same; 3 = stronger; 4 = much stronger; 5 = don't know.
Source: based on author's survey.

Figure 1. Students' opinion of current subject knowledge compared to when they entered the Institution (distribution of frequency)

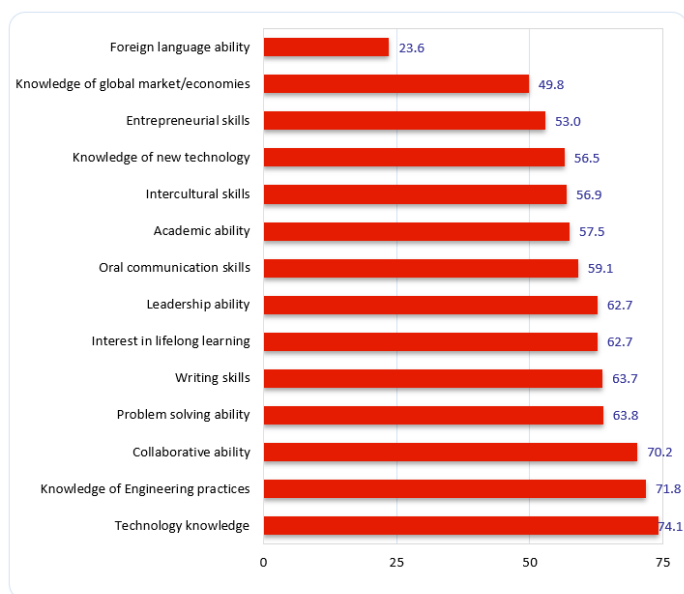


0 = much weaker; 1 = weaker; 2 = same; 3 = stronger; 4 = much stronger; 5 = don't know.
Source: based on author's survey.

Figure 2. Students' opinion on confidence in academic abilities, compared to when they entered the institution (distribution of frequency)

The students responded differently to different questions. They reported that they acquired and advanced considerably their knowledge, skills, and abilities with respect to many aspects. 75 per cent of the students felt that they advanced their knowledge of technology and knowledge of engineering practices. More than 50 per cent of the graduates have reported that their knowledge and abilities are 'stronger' and even 'much stronger' than when they entered the engineering colleges/universities. Among the abilities and skills in other areas, only in case of communication in any foreign language, the improvement has been poor: about 75 per cent of the students did not feel to have improved after starting their studies in engineering education. The areas in which they felt about the same as when they entered were in foreign language skills and entrepreneurial skills. For others, the change is marginal, or towards worsening of the levels of abilities, as given in Table 1. In cases of the others, it is only a small proportion of students, who reported 'weaker' or 'much weaker' or 'the same' than what they were at the time of admission in the institutions.

Table 1 gives these details of responses of students separately by public and private institutions and by streams of engineering – modern and traditional. With respect to almost every aspect students of public institutions score



Source: based on author's survey of students.

Figure 3. Percentage of students reporting that their current knowledge and abilities are 'stronger (+ much stronger)' than at the time of admission in the institution

higher than students in private institutions. Similarly students in 'modern' streams of engineering feel stronger (+ very stronger) than students of traditional streams. This is true with respect to knowledge, skills, and abilities in different aspects. Table A1 in the Appendix give further details in responses, such as how many felt 'average' or 'worsened'.

Table 1. Current knowledge & abilities, compared to the time of admission in engineering studies (% of students who reported 'stronger + much stronger')

	Institutions		Branches		All
	Public	Private	Traditional	Modern	
Knowledge of Technology	76.7	72.8	70.9	75.6	74.1
Knowledge of Engineering practices	74.7	70.3	68.2	73.4	71.8
Knowledge of new technology	60.1	54.7	52.4	58.4	56.5
Leadership ability	65.4	61.3	58.3	64.7	62.7
Writing skills	65.0	63.0	62.3	64.3	63.7
Academic ability	59.1	56.6	56.2	58.0	57.5
Oral communication skills	64.3	56.5	55.0	60.9	59.1
Problem solving ability	66.4	62.5	60.0	65.5	63.8
Collaborative ability	72.0	69.3	66.2	72.0	70.2
Interest in lifelong learning	65.2	61.5	60.0	63.9	62.7
Intercultural skills	59.0	55.8	54.2	58.1	56.9
Entrepreneurial skills	55.7	51.6	49.3	54.6	53.0
Knowledge about global markets/economies	53.3	48.1	47.3	51.0	49.8
Foreign language ability	25.9	22.4	24.5	23.2	23.6

Source: based on author's survey of students.

Thus, a majority of students feel that they learnt a lot during their studies and improved their knowledge levels, skills and abilities considerably. With respect to a variety of aspects of knowledge and skills, they felt 'stronger' or 'much stronger' when they were in the fourth year of their studies, compared to the levels with which they entered engineering institutions about three-and-a-half to four years earlier. This is true not only in case of knowledge of technology, and knowledge of engineering practices, but also with respect to abilities and skills for collaboration, problem solving, writing, communication, and leadership. As most projects nowadays

require efforts of teams of engineers, collaboration and skills for collaboration are important in engineering education. About one-fourth of the students felt that there was no improvement or deterioration, while about ten per cent felt that there was deterioration in their skills, knowledge, and abilities in most of the identified areas. A majority of the students felt that their abilities to learn/communicate in any foreign language worsened. Many institutions in India might not offer opportunities for learning foreign languages, unlike in the western universities.

b) Assessments by institutions

We posed similar questions to the heads of departments/deans to make an assessment of their graduates on various parameters of competence. Such an assessment may raise questions of bias. However, we also asked recruiters to provide their assessment of the average recruit, who is primarily a fresh graduate of a private college. The assessments are ranked low, medium and high. The results are shown in Table 2.

Table 2. Assessment of quality of their graduates by engineering institutions and by employers

Competence of students in	Engineering Institutions			Employers		
	Public	Government-Aided Private	Private	Firm 1	Firm 2	Firm 3
Core Science & Engineering	High	High	Medium	High	High	High
Science & Engineering knowledge in Major English	High	High	Medium	High	High	High
Basic Use of Computers	High	High	High	High	High	High
Programming	High	High	Medium	High	High	Medium
Communication	High	High	Medium	High	High	High
Management	High	High	Medium	High	High	High
Sales	Medium	Medium	Medium	High	Medium	High
Organisation	High	Medium	Medium	High	High	Low
Teamwork	High	Medium	Low	High	High	High
Local networks	Medium	Medium	Medium	High	High	High
Global Networks	Medium	Medium	Medium	High	High	High
Problem solving	High	High	Medium	Medium	High	Low
Innovativeness	High	High	High	Medium	High	High
Multi-cultural awareness	Medium	Medium	Medium	Medium	High	Medium

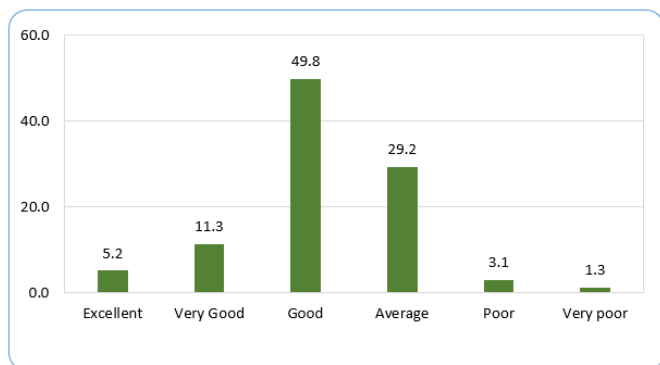
Note: The last three columns refer to opinions of three IT firms in India, which together employ 235,000 persons as of April 2010. Firm 1 is a product company in ICT design, while firms 2 and 3 are IT services firms. Source: Based on author's survey of Heads/Deans and employers.

It appears that there is a remarkable similarity between the attributes of students assessed by recruiters and colleges. However, we need to keep in mind that these three firms were large employers and therefore had the "pick of the crop" from both public, and government-aided private institutions and even private colleges as well. The opinion of smaller firms which may actually be predominant in the market that offer lower salaries and hire more average students, might be quite different. Yet, at least as far as the large firms are concerned, it appears that the objective of engineering colleges to produce an employment-worthy graduate is being met.

c) Overall quality of education

Second, how do the students perceive the overall quality of education they were receiving? The response has been mixed. The non-response rate is high: one-third of the

students did not answer this question or stated, “do not know” – more students in public institutions and traditional branches saying so, than their respective counterparts. If the non-responses are excluded, then out of the total, 66 per cent of the students felt that the quality was above average (including, good, very good and excellent). 30 per cent of the students felt the quality was just average, and according to a very small proportion of students the quality of the education they were receiving was poor/very poor (Figure 4).



Note: Non-responses/'do not know' are excluded (See Table 3). Source: based on author's survey.

Figure 4. Students' perceptions about the quality of their education

	Excellent	Very Good	Good	Average	Poor	No response/ Do not Know	Total
<i>Institutions</i>							
Public	3.2	8.4	31.5	15.9	3.1	37.9	100
Private	3.5	7.0	33.3	20.7	2.7	32.7	100
<i>Branches</i>							
Traditional	3.0	7.7	29.2	17.9	2.7	40.7	100
Modern	3.6	7.4	34.5	19.9	3.5	31.2	100
Total	3.4	7.5	32.7	19.2	2.8	34.3	100

Source: based on author's survey.

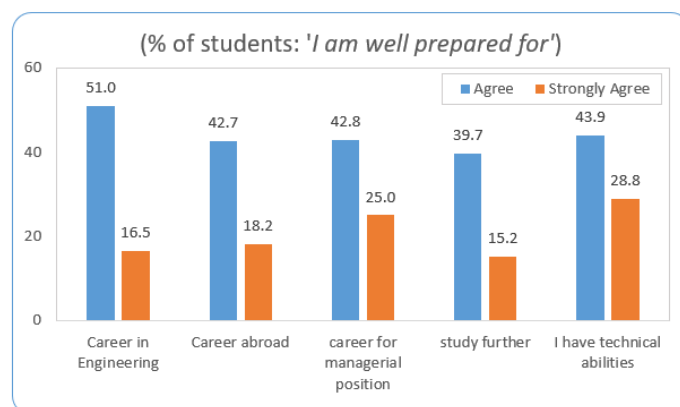
Table 3. Students' perceptions about quality of their education

Surprisingly, we also do not find much noticeable difference between the perceptions of students enrolled in public and private institutions or between traditional and modern departments (Table 3). Note that in Table 3, non-response category is included. There are differences between traditional and modern departments, though the differences are not very high. Those who felt the quality of their education is 'good' were also high in case of modern departments, which is about five percentage points higher than traditional departments. 45.5 per cent of students in modern departments felt that their education was good (and above), compared to 40 per cent students in traditional branches of engineering.

d) Preparedness for future and the level of confidence

Third, what about the confidence levels of the students regarding their preparedness to enter the world of work or go for further education? We asked in the survey, whether the student agrees with the statement “I am well prepared for ...” Given the responses in the earlier sections, one may not be surprised to note that a majority answered that they agreed, with some answering that they strongly agree than those who had no opinion one way or the other. As high as three-fourths of the students claimed to have acquired technical abilities to enter the next phase of life. Two-thirds of the students felt that they were well-prepared for a good career in engineering; a similar proportion also stated that they were well prepared for managerial jobs; 60 per cent of the students were confident that they were well prepared for jobs in foreign lands; and only 54 per cent of the students 'strongly agreed' or 'agreed' with a view that that they were prepared for further education (Table 4). It is possible that the students are inherently not interested in further higher education or research for many reasons, the main being the academic environment in most places, which is not necessarily promotive of postgraduate education and research⁵, and the second reason being the prospects of quick employment with the Bachelor's degree in engineering education.

The branches of study do not matter much with respect to confidence levels of students, as we find no big differences between students in modern areas and traditional departments. The only exception is, in case of preparedness to go abroad, a higher proportion of students (64 per cent) in modern branches claimed to have been well prepared than others (55 per cent: Table 4). Students might get influenced, while expressing this opinion by the general trends: larger number of graduates in electronics, computer sciences and IT-related engineering going abroad, compared to graduates in traditional branches of engineering.



Source: based on author's survey.

Figure 5. Confidence of students (in all branches in all institutions)

⁵ At the macro level, we found that very few engineering students go to postgraduate studies or research programmes (Tilak & Choudhury 2021).

Table 4. Confidence of the students on their preparedness for future

	Public		Private		Traditional Branches		Modern Branches	
	Agree	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree	Strongly agree
<i>I am well prepared for</i>								
Career in engineering	54.3	15.2	49.4	17.1	48.3	16.7	52.3	16.4
Career in abroad	46.4	14.7	40.8	20.0	39.2	15.6	44.3	19.4
Career goal for managerial position	46.7	20.4	40.8	27.4	42.4	21.6	43	26.5
Study engineering further	45.4	13.7	36.8	16.0	36.4	14.5	41.2	15.5
<i>'I have technical abilities'</i>	45.6	24.9	43.1	30.8	44	21.6	43.9	29.3

Source: based on author's survey.

While we do not find much difference between the students of public and private institutions, a marginally higher proportion of students in public institutions feel more confident; but with respect to technical abilities, students in private institutions feel better than others. Nearly two-thirds of students were also optimistic about the availability of jobs for graduate engineers in India in near future.

ii) Curriculum and course structure

Now we look at some selected aspects of curricula the students undergo during their studies. As per our survey and interviews, students in engineering studies take four to six courses and two to three courses of practical training which are laboratory-based, every semester for four years—a total of 36-40 courses and 16-18 laboratory-based courses in their undergraduate training. Students are in classrooms and/or laboratories for about 25 hours per week and 13 hours on computers. According to our interviews with students, they spend relatively little time working on their studies on their own at home. As shown later, students spend about 9 hours a week on homework. Tables 5 and 6 provide some important details on course structure in the IIT Madras.

Table 5: Computer Science Engineering: subjects studied

	Indian Institute of Technology Madras
<i>Engineering Fundamentals</i>	5
<i>Computer Science classes</i>	16
<i>Senior Project</i>	1
<i>Minor (Engineering)</i>	3
<i>Mathematics</i>	4
<i>Physics</i>	2
<i>Chemistry</i>	2
<i>Humanities & Social Sciences</i>	3
<i>Total</i>	36
	(8 semesters)

Source: based on author's survey and interviews with students.

There is one lab for every two to three courses, depending on the institution, compared to each technical subject course having laboratory work associated with it in countries like the USA. Students in India are required to take more courses in sciences and engineering. For example, at IIT Madras, in

the computer science engineering department, the core requirement (in sciences) consists of two classes in physics, two in chemistry and four in mathematics. The core subject classes are spread over three years. Further, with respect to course content, it has been found in our interviews that IIT Madras begins its programming sequence with training in Pascal, a language no longer taught in most American universities like Stanford, where the introductory course on computer science engineering emphasises modelling⁶. In India, it appears the focus is on numerical analysis, such as Gaussian eliminations or Euler's method. In IIT Madras, all the classes in the first year are in core sciences or the major. In the second year, the student takes one humanities class (out of 6) in each semester, and one more in the final year. The range of courses described under the term 'humanities' is wide, and includes the social sciences. While the class time for the humanities accounts for about six per cent, its share in total time spent is much less. There is a need to integrate courses from humanities and social sciences with engineering curricula as there is interdependence between technology and the social and economic foundations of the society, and as it will help the engineers' understanding of the societal norms of the workplace better (Sharan, 2004; Sheppard et al., 2009; Government of India, 2019).

Table 6. Structure of coursework and student study patterns

Category	Structure
Lecture : Laboratory	3 : 1
Supervised : Unsupervised	3 : 1
Total Hours/week on Major	40
Total Hours/week on Other Subjects	3
Lecture : Small Group Work	2 : 3:1
Total Units in Major, including prerequisites	88%

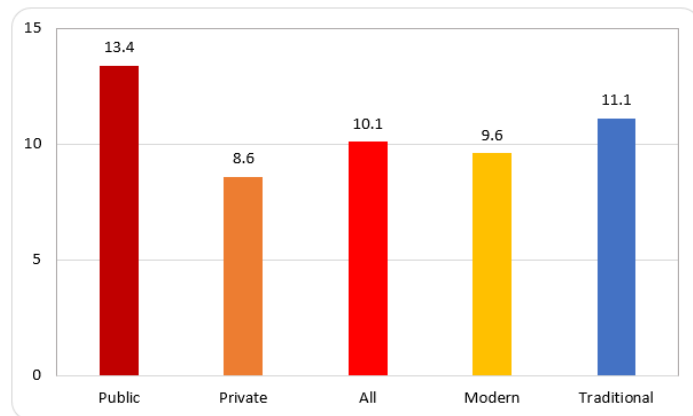
Source: based on interviews conducted by the author.

Table 6 gives further details on course structure. It shows the distribution of work between lecture courses and laboratory courses, lectures and group work, and time spent by students in classrooms/laboratories versus work outside the classroom. The ratio of classes to supervised labs is 3:1, and the ratio of unsupervised work (outside class hours) to supervised hours (in classroom lectures and laboratories) is 1:3. Students learn less on their own and depend extensively on classroom lectures. Within supervised teaching the lecture method dominates.

Let us look at some more details on the same, based on our four-state survey. First, what kind of courses are chosen by the students while studying engineering education for their undergraduate degree? The survey reveals that students tend to be focusing on major subjects only, as very few students were found to have opted for any courses outside their major/primary course. More students in public institutions took courses outside their majors than students in private institutions (Table 7). When it comes to students in modern branches of engineering, still fewer students took courses outside their major. Many institutions probably do not offer many courses outside their majors and students

6 Thanks are due to Martin Carnoy for providing inputs on US universities used here.

might not have many choices, or might not necessarily be aware of such probable choices. Note the high non-response rate, which is nearly 50 per cent.



Source: based on author's survey.

Figure 6. How many students have taken courses outside primary/major? (%)

The courses that engineering students can take in addition to major courses and laboratory courses are design courses, oral or written communication courses, professional courses such as business ethics, collaboration, entrepreneurship, leadership, management, preparation of projects for grants, international courses etc. Students can choose the type of course and number of courses in each category. Very few students seemed to have taken design courses, or courses in communication skills, or courses in business ethics etc. Fewer students (17 per cent) opted for international courses and those few might take just one such course (Table 7).

Secondly, even among the core courses, students have options to choose the number of majors, laboratory courses, design courses, communication courses, professional courses such as courses in ethics, leadership, and communication skills, and also international courses. We examined what is the course combination the students choose? We have found that 34 per cent of the students took 27 majors, 33 per cent 14 laboratory courses, and three design courses by one-fourth of the students.

Table 7. How many students have taken the following courses and how many courses?

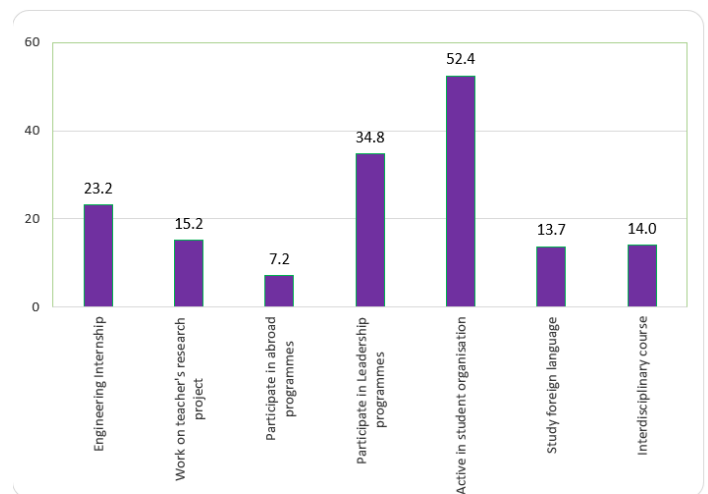
		Major courses	Laboratory courses	Design courses	Oral communication courses	Professional courses	International courses
<i>By Type of Institution</i>							
Public	No. of Courses	30	15	4	3	2	1
	% of Students	46.2	45.4	31.4	39.0	36.8	17.1
Private	No. of Courses	23	12	3	2	2	1
	% of Students	27.6	26.3	21.9	22.8	21.0	16.1
<i>By Branches of Study</i>							
Traditional	No. of Courses	25	14	3	3	2	1
	% of Students	26.6	25.4	21.8	21.4	20.0	12.5
Modern	No. of Courses	27	14	4	2	2	1
	% of Students	37.6	36.4	26.9	31.7	29.5	18.4
All	No. of Courses	27	14	3	2	2	1
	% of Students	34.1	33.0	25.3	28.5	26.5	16.6

Source: based on author's interviews with students.

Both in terms of proportion of students and in number of courses – majors, laboratory and design courses, students in public institutions excel as compared to the students in private institutions. While students in private institutions chose 23 major courses and 12 laboratory course, their counterparts in public institutions chose 30 major course and 15 laboratory courses. In public institutions, more than 45 per cent of the students took courses likewise, while the corresponding number was just above 25 per cent in private institutions.

iii) "Quality" as reflected in student practices

What are the major academic activities the students are engaged in? As the responses summarised in Table 8 show, hardly one-fourth of students were found to have ever participated in internship programmes.



Source: based on author's survey of students.

Figure 7. Students' participation in various study-related activities

Except for active participation in activities of student organisations, a vast majority of students were not involved in any activity and did not take up or get a chance to work in teachers' research projects, did not participate in any programme abroad, took any interdisciplinary courses of study in sciences, or studied any foreign language. As mentioned earlier, foreign languages are not offered in many institutions of engineering education in India. The students also did not seem to be interested in leadership programmes/classes. We also note that this was more or less the same situation in case of students enrolled in traditional and modern streams, differences between the two being very marginal. Students in public institutions were marginally at an advantage almost in every aspect than those who were in private institutions. On the whole, that more than 75 per cent of the students have not worked in any internship programme, and that more than 85 per cent of the students have not worked on any research project of their teachers must be a matter of serious concern, as they have direct impact on the quality of education they receive. The exception is only in the case of IITs and to some extent NITs. It is important to recognise that internships provide

some valuable exposure to the industry and it is essential in transforming fresh engineering graduates to ready-to-use professionals (Prabhu & Kudva, 2016). After all, exposure to industry through a variety of ways helps in developing abilities to solve practical problems.

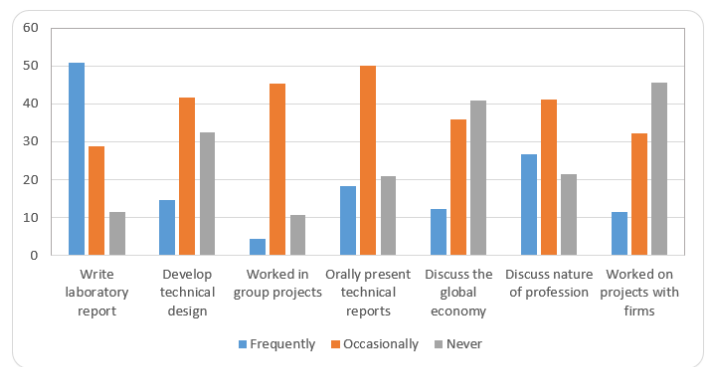
Table 8. Students' participation in internships, etc.

	Public	Private	Traditional	Modern	All
Internship in Engineering Projects	25.4	22.1	21.2	24.2	23.2
Work on Teacher's Research Project	17.0	11.8	15.4	15.1	15.2
Participated in abroad program	6.4	7.6	7.8	6.9	7.2
Participate in Leadership programmes/classes	36.9	33.7	32.1	36.0	34.8
Active in student organisation activities	55.1	51.1	50.4	53.4	52.4
Study a foreign language	14.1	13.5	13.4	13.9	13.7
Interdisciplinary course	16.6	12.7	14.4	13.9	14.0

Source: based on author's survey.

Then, one may be curious to understand the academic activities of the students. Writing laboratory/technical reports seemed to be the major academic activity that the students were involved in. Laboratories are the best places that help in integration and synthesis of knowledge development, skills of solving problems and skills of collaboration. Learning from preparing lab reports is very valuable. The next important activity the students were engaged in was participation in group projects. Project-based and problem-based learning is generally regarded as very effective in engineering education. But they were least used practices as per our survey. Students also make oral presentation of the technical reports. Half the students never had any opportunity to work with any firm. Occasionally, students prepared some technical reports or participated in group projects. 37-43 per cent of the students never discussed issues relating to the global economy, markets etc., among themselves or with others. They might be least concerned with global (and even national) issues, being caught up with tight academic work relating to their studies. They do, however, discuss about their profession more frequently than other issues (Figure 8). It seems that a majority of the students seemed to be focused on their basic studies, and participated in the essential activities related to their academic studies. Laboratory and design experiences are valuable. Design projects offer opportunities to approximate professional practice. But involvement in designing of projects is limited. It is unfortunate that the students also do not seem to be much interested in co-curricular and additional activities that may also impact the overall quality of the students and their personality development.

Table A2 in the Appendix gives details by type of institutions and by branches of engineering. Students in public institutions were found to be performing better than their counterparts in private institutions with respect to writing laboratory reports, develop technical designs and work in group projects. With respect to other activities, there was no big difference between the two. Likewise, the students in modern departments were engaged more frequently than those in traditional departments in writing laboratory reports, working in group projects, developing technical designs and presenting oral reports. But in working with firms, or discussing global issues or their profession, the students in modern streams were involved less frequently.



Source: based on author's survey.

Figure 8. Participation of students in academic activities (% of students)

It is often stated that students in engineering education do not take interest in social and political issues at national and global levels. We have not collected any information on this, except how frequently the students discuss global markets and the economy and related issues. However we collected information on students' voting behavior in general elections at the local/state/national levels, as a civic attribute. Only 55 per cent of the students have reported that they ever voted in elections. The differences between public/private institutions or departments were marginal. There were differences between the four states: while 70 per cent of the students voted in Delhi, only 51 per cent did so in Maharashtra. This is not much different from the voting behavior among the overall population in India in general.

iv) Time use by students

How do students in undergraduate engineering studies spend their time? Figure 9 shows the activities the engineering students spent their time on. These data support the findings in Table 9 showing that a much higher fraction of student time on academic work is devoted to attending classroom lectures and supervised work, rather than studying on their own or at home. The other time is distributed across socializing with friends, entertainment, sports, clubs, and 'other' activities such as voluntary/paid work, and transport.

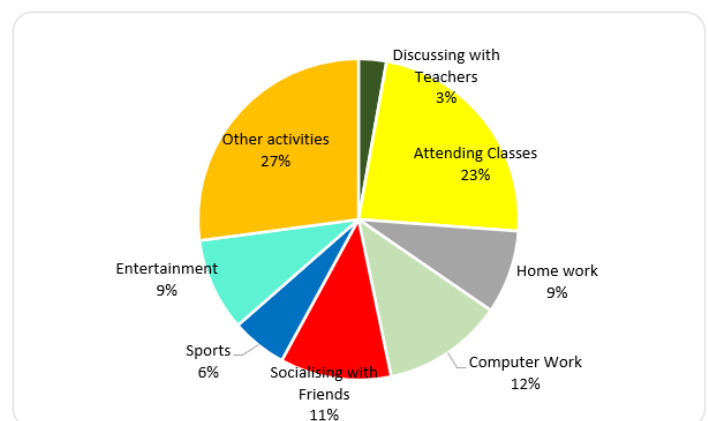


Figure 9. Time use by the engineering students in India

While we cannot comment whether this was an efficient pattern of time use or not, we note that the time spent on home work on self-learning is relatively very small, compared to time spent in classrooms. This also means that the classroom is the main place for learning by the engineering graduates like in the rest of higher education. Long ago, the Radhakrishnan Commission (1949) expressed concerns that mass lectures were the most common method in higher education and it was not supplemented by any regular work by students post-lecture (Mathew 2016). This continues to be the case.

Table 9. How do engineering students spend their time (hours/week)

Category of Activity	Delhi	Karnataka	Maharashtra	Tamil Nadu	Total
Attending classes / labs	17.9	29.8	27.4	33.4	27.0
Studying / homework	9.2	10.1	9.3	9.3	9.6
Socialising with friends	12.3	13.1	11.8	10.5	12.4
Meeting teachers outside classroom	2.5	2.4	1.8	3.0	2.3
Computer work	13.6	13.7	12.3	12.0	13.2
Volunteer work	2.9	3.4	2.7	4.4	3.3
Student clubs / groups	3.9	3.6	4.1	4.6	3.9
Sports/Exercise	6.2	6.7	6.0	6.2	6.4
Entertainment (movies, games, going out, etc.)	9.2	12.4	10.0	13.0	11.3
Paid Work	2.3	1.4	1.4	1.5	1.6
Transport	8.3	6.9	8.0	7.0	7.6
Total	95	113	106	112	108

Source: based on authors' student survey.

Much difference could not be found in students' time use between traditional and modern departments or between types of institutions. Even by gender, there are not much differences. But we find differences between the four different states in the total number of hours and their distribution as well. Students in Tamil Nadu used to spend 27 hours on attending classes/labs and 13 hours on entertainment, while students in Delhi spent 17 hours on classes/labs and nine hours on entertainment. Students in Tamil Nadu also spent less time than their counterparts in other states on computers and with friends.

v) Teaching practices and methods of evaluation

Teaching, learning and evaluation are inseparably linked together and the results depend upon the methods adopted for each of them. An important aspect on which we obtained valuable information from the survey of students and interviews with them refers to the pedagogic methods of teaching and methods of evaluation followed in their institutions, which have their own implications for quality of education.

a) Teaching and instructional practices

As the UGC (1973) listed, the objectives of teaching in higher education are manyfold, not just confined to transmission of knowledge⁷. To fulfil the objectives one needs an appropriate blend of various methods and practices in the delivery of education. Lectures in classrooms are the most common used method of teaching in all levels of education, including higher education in India. One may expect that engineering institutions may focus relatively more on technical demonstrations, laboratory work, field visits to

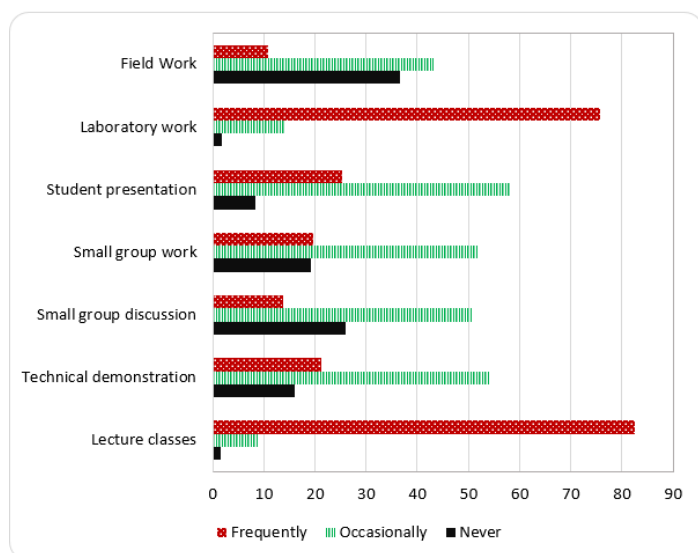
industries, etc., as more effective pedagogic tools. But as per our survey, the traditional lecture method in the classroom, often known as chalk and talk method, seemed to be the most frequently used method in engineering colleges as well, whether it is teaching in traditional areas of engineering or modern (IT-related) areas or in public or private institutions. We noted during our survey that many institutions have smart classrooms, smart boards, computers and computer labs. The classroom lecture method is followed by use of laboratory for teaching as the second most common method of teaching. Other methods like students' oral presentations and discussions or work in small groups are only occasionally used. Technical demonstration is also only occasionally used by teachers. Field visits to industries and/or work there is also a tool not used much in the teaching/learning pedagogy in the traditional departments. On the whole, no major innovative pedagogic methods seemed to have been adopted in engineering institutions in India that will stimulate creative and imaginative thinking among the students or teachers. Presently, teachers seem to be primarily engaged with imparting technical knowledge and the teaching strategies are confined to structured problems, and demonstrations.

Compared to public institutions, private institutions appeared to be using technical demonstrations, discussions in small groups and laboratories more frequently than public institutions. But presentations by students and work in small groups were more frequently used in public institutions than in private institutions. Surprisingly, modern departments relied more on classroom lectures than traditional departments. With respect to every other method, traditional departments seemed to be performing better than modern departments.

b) Methods of evaluation

The method of evaluation of students' performance is generally regarded as one of the most important dimensions, reflecting on the quality of education. Evaluation or assessment is a very important part of the constructive alignment process in education. A well-designed evaluation system helps in understanding the level of mastery attained by students in a subject. The assessments help teachers in further improvement in their teaching practices. If the methods are defective, they may not be able to give any proper picture about the quality of teaching, quality of education or of the graduates. Year/semester-end examinations are the most traditionally used methods of evaluation in education in India. Continuous evaluation through assignments, group discussions, work in small groups, seminar presentations, project work etc., is extensively used in universities, but they

⁷ They are: to transmit a body of facts, figures and theories etc.; to create a grasp and an understanding of the theories and principles so that one may apply them to new situations; to produce a capacity of critically evaluating hypotheses when they are presented; to cultivate an open and flexible mind, so that one may retain the capacity to learn new things in future; to cultivate an urge for perfection, an appreciation of beauty and inclination to search for newer and better solutions to problems; to discover and invent; to train the mind for imagination, intuition and speculation into the realm of the unknown; to produce motivation and drive in the individual to result in capacity for sustained intellectual effort, to possibly cultivate qualities of leadership as well as teamwork; to cultivate specific manual, technical, intellectual and other soft skills; to train in the ability to communicate at a high intellectual level through specific media and so on (UGC 1973).

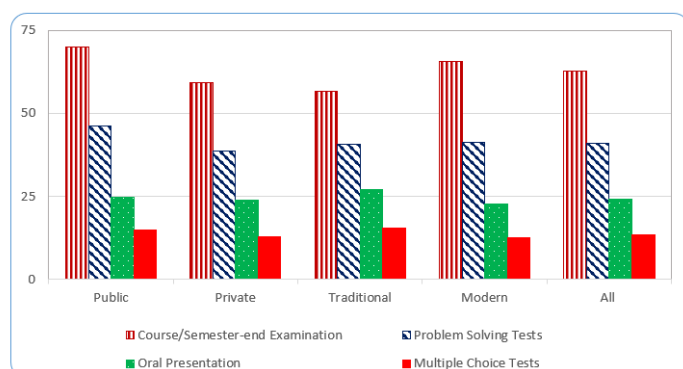


Source: based on author's survey of students.

Figure 10. Used and 'never used' teaching methods

mostly supplement semester/year-end examinations. Some reforms in examinations are attempted in higher education in India. It is widely agreed that a harmonious set of tests, quizzes, tutorials, home assignments, seminar presentations, group discussions, orals, project work, etc., have to be designed if an all-round assessment of the fulfilment of the objectives of a course has to be made. What are the practices in engineering institutions in India?

According to our survey, the semester-end examination was the most frequently used method in all institutions and branches. It is used more frequently in public institutions and also in modern departments than in private institutions and traditional departments respectively. Problem solving tests were the second most frequently used method, again more frequently in public institutions and modern branches than in others. In case of other methods, no big differences can be found between the several categories. Multiple choice tests are not common; they are least used. Oral presentations for evaluation were also only occasionally used.



Note: 'Occasionally used' are not included here. Source: based on author's survey.

Figure 11. 'Frequently' used methods of evaluation in engineering education, response by students (%)

It appears that the engineering education system, like the rest of higher education, needs drastic reforms in teaching and evaluation. The parameters of testing and evaluation that are being in practice need a relook and reorientation so that the system creates a new generation of technically competent, professionally knowledgeable and socially progressive knowledgeable citizens for the emerging national and global knowledge society. Now, based on the survey of the institutions and interviews with Deans/Heads of departments, let us look at a couple of related dimensions of quality of education.

vi) Faculty degrees and research orientation

A PhD degree is an essential condition for teaching in higher education institutions in India. A simple measure of faculty quality is the proportion of faculty with PhDs. But a large number of teachers in higher education in India do not have a research degree. Assuming that a research degree increases the quality of teaching and research in an institution, we examine how many teachers in engineering institutions possess PhD degrees. Except in the three IITs we surveyed, in the engineering colleges and universities, the proportion of PhDs among the teaching faculty varied between four and 26 per cent (Table 11).

Table 11. Faculty with PhD degrees in selected engineering institutions in three states in India

Engineering Institutions	Total Faculty	Total Students	Number of PhDs	Student/Faculty	% PhDs in the Total Faculty
Karnataka (private)	348	4473	48	12.9	13.8
Karnataka (private)	381	5465	94	14.3	24.7
Karnataka (private)	107	1584		14.8	0.0
Karnataka (private)	91	1440	7	15.8	7.7
Karnataka (private)	106	1600	10	15.1	9.4
Maharashtra (public)	520	6000	470	11.5	90.4
Maharashtra (public)	165	3700	38	22.4	23.0
Maharashtra (public)	55	860		15.6	0.0
Maharashtra (private)	113	1671	9	14.8	8.0
Maharashtra (public)	141	1902	14	13.5	9.9
Maharashtra (public)	46	458	33	10.0	71.7
Maharashtra (public)	222	3082	38	13.9	17.1
Maharashtra (private)	222	3112		14.0	0.0
	28	1384	14	49.4	50.0
Delhi (public)					
Delhi (private)	64	960	5	15.0	7.8
Delhi (private)	97	1440	5	14.8	5.2
Delhi (private)	137	1880		13.7	0.0
Delhi (public)	251	3500	129	13.9	51.4
Delhi (public)	136	2050	18	15.1	13.2
Delhi (private)	86	1386	11	16.1	12.8
Delhi (public)	357	4382	351	12.3	98.3

Source: based on authors' survey of institutions.

However, these figures represent the percentages in the entire institution. Some departments might have higher proportions. It is likely that the departments like electrical engineering and computer sciences have much lower proportions of teachers with PhD degree compared to more traditional fields such as civil and mechanical engineering. For example, in one private college, of the 70 professors with PhDs, only five (seven per cent) were in electrical engineering, even though 17 per cent of total students

were in that field of study. In a government college, of the 68 faculty members, 15 (22 per cent) were in electrical engineering and computer science, whereas 40 per cent of total students were in those two fields.

Table 12. Faculty in public versus private institutions

	Public	Government-aided private	Private
<i>Proportion of</i>			
PhDs in faculty	High	High	Low
Part-time faculty	Low	Low	High
Undergraduates	Low	Medium	High
Ratio of students/faculty	Low	Medium	High

Source: based on authors' interviews with Deans/Heads/faculty.

In general, the share of faculty with PhD degrees was lower in private institutions, averaging 13 per cent in our sample, versus 49 per cent for state and state-aided institutions. We note clear differences in the quality of faculty between public and private institutions. Public institutions are also able to attract better-qualified faculty, because of higher job stability and salary parity. The quality of an institution can be further assessed by observing the share of part-timers in the faculty. As summarised in Table 12, the part-timers were fewer in public and government-aided private institutions than in private self-financing institutions.

The quality of instruction is also likely to be influenced by the student-faculty ratio. According to the AICTE guidelines, it is expected to be 15 students per faculty member. In our interviews, this ratio was seen to have been largely met by all institutions, and the median was 14.62. However, the ratio was higher in private institutions than in state-aided colleges, which in turn was higher than in public institutions. A major reason for having relatively few teachers with PhDs in engineering institutions is the more general shortage of PhDs in general and in engineering education in particular. PhD programmes are available in public universities, and in case of engineering, almost exclusively in IITs and NITs and some universities, but annual production of these institutions is extremely small in number. They hardly cater to the other needs of even government engineering colleges in the entire country. Private institutions, both aided and self-financing, tend to focus more on undergraduate education, while public institutions which are also relatively older have a mandate to develop postgraduate education and research programmes. The average proportion of undergraduate students in the total enrolment was 76 per cent in state institutions and 94 per cent in private institutions in the country as a whole.

Although having a PhD does not necessarily imply that a teacher will be a more competent teacher, some positive relation between completion of a research degree and being able to teach a subject more competently can be expected, even at the undergraduate level. If this is the case, it seems to be difficult in the future to increase the quality of undergraduate engineering education significantly, unless some major initiatives are taken to promote research programmes and teacher recruitment.

4. Summary and concluding observations

Based on a survey of about 7,000 students and heads/deans in 48 engineering institutions in India, this paper presented students' perspectives on the quality of undergraduate engineering education in India. Perceptions are subjective; but have their own special significance. The analysis presented here covered nearly a dozen aspects of quality of education, and the findings are described in detail. Quality is multi-dimensional, but the coverage of aspects here is not exhaustive, as the analysis is constrained by the data available in the survey. Certain important pedagogical and curricular aspects were kept outside the framework of the given study, given the limitations of the researchers' interests and specialisations. Also any triangulation of the evidence analysed here, contrasting the available general perceptions or with available macro level quantitative data, has not been attempted. Yet the survey yielded some valuable information and the analysis presented here highlights a few new aspects, some of which are otherwise assumed. That the survey findings are different from market/general perceptions itself is an important point that is being made here.

Of all, most strikingly, in contrast to predominant views of the experts and others, engineering students who were interviewed in a wide range of institutions, including many private ones, appeared quite satisfied with their education and with their choice of engineering discipline and the institution. This is largely the case whether they are in prestigious institutions like the IITs or in less notable private institutions. As far as these students are concerned, the higher engineering education system has done "right" for them. How do we reconcile these somewhat highly positive views of the students with the general gloomy perceptions and perceptive views based on rigorous analytical studies of the experts and committees on engineering education in India, all of which condemn engineering education in India as deplorable in quality.

The 'overall' assessment of quality of education/institution by the students presented here is not really a 'summative' assessment, as on several individual parameters, students admitted otherwise. For example, a majority of students reported not to have participated in internship programmes, or got any exposure to industry, or got any opportunities to participate in research projects, or in leadership programmes, and so on. Students have also reported that they did not develop technical designs, or participate in projects with firms, etc. They have also mentioned that classroom lecture is the most relied method of teaching and semester/course end examination the main tool of evaluation. The question remains whether at all the students know that these are indeed not positive aspects of their education. It is likely that students are aware of some of these problems, but have reconciled to the situation to the extent of viewing the systems as satisfactory or good or even very good. After all, there was no choice for the students. Clearly no strong evidence could be found from the survey to say that a majority of students have acquired essential attributes of engineers for the twenty-first century that include strong analytical skills, practical ingenuity, creativity, mastery of business and management – awareness

of interdependence between technology and the social and economic foundations of the society (Sheppard et al., 2009). At least some students are aware of these aspects and their expectations and aspirations, accordingly, are conditioned⁸. Further, students might also feel hesitant to admit that they did not learn much during their studies. So many reported that their current levels of knowledge and skills are 'stronger'/'much stronger' than what they were earlier and that they were satisfied with the overall quality of education they received.

While there is no basis to doubt the integrity and honesty of the students, though some feel that many private institutions do not encourage, in fact, prohibit, their students or faculty to speak honestly about their institutions⁹, one has to note that given the asymmetry of information, students' knowledge of 'good quality' engineering education, what a high quality institution like, say an IIT in India looks like, let alone world class universities abroad, and even the labour market conditions in the country and at global level, including the professional knowledge, skills, abilities, competencies, attitudes and other values that the modern employers value, may not necessarily be of a reasonable level¹⁰. Immediately after their senior secondary level examination, students join a particular engineering college/university, having no opportunity to interact with students and faculty of other (good and bad) institutions, as there are no formal horizontal or vertical linkages between the institutions. Students might not get many opportunities to interact with outsiders. Second, they have not yet entered the labour market, and with little participation in engineering internships and similar programmes that might provide some exposure to the world of work, they are yet to understand what the profession requires. Hence their expectations and aspirations may not be high. For the same reason, the students' perceptions on some of the issues may have to be discounted. So one extreme interpretation is: many students are like frogs in the well, and are very happy with what they have, without necessarily knowing what is good, and what is going on outside.

An alternative explanation can be as follows: the expert's conclusions are based on an examination of input indicators like the quality of teachers and infrastructure, process indicators such as methods of teaching and learning, and evaluation, and outcomes such as employability and graduate attributes. In contrast, it is likely that the students' views are essentially based on certain other outcomes: they are assured of a degree, which has an immediate value in the market – the labour market as well as the marriage market, besides enhancing the social status. The experts might be concerned, for example, with PhD degree holders among faculty, and the research output of the faculty. Students may be least bothered about these aspects; they would

be content if a teacher takes the class and finally helps them in going through semester/year-end examinations successfully, which an un-/under-qualified instructor in a coaching institution might as well do¹¹. The experts might be interested in adoption of sustainable knowledge development practices, but the students may be worried about their immediate success in examinations and in securing employment. The experts' long term considerations might not figure in students' short term perspectives. Thus the expectations and considerations of the experts and the students while making their respective assessment of quality of education can be different.

Even though the study does not finally resolve the differences between the two perspectives, it raises the question for further research. While it cannot be concluded that one is right and the other group is wrong, for which further investigation is needed, we feel that both perspectives are important for a proper understanding of the quality of engineering education in India.

The students' perspectives that we reported here may compel the researchers to widen their approach to study quality-related problems, and administrators and policy makers to rethink on their perspectives and policy initiatives. Further, the students' responses to the queries on teaching learning practices – teaching methods (e.g., the predominant use of the classroom lecture method), and methods of evaluation (e.g., extensive reliance on semester/year-end examinations), absence of internship programmes, lack of opportunities for participation in research projects, lack of sufficient faculty with doctoral degrees, high numbers relating to part-time teachers, etc., would call for effective interventions by the policy makers, planners, regulators, and the institutions to enhance the overall quality of the learning environment in engineering institutions in India. The public-private differences and also the differences between modern and traditional branches highlighted here also help in identifying the areas of special focus. Some of these details are generally lost in macro averages. The findings and insights provided here may form timely, relevant and important inputs in implementation of the National Education Policy 2020, which focuses extensively on improvement of quality in higher education in general and professional and technical education in particular.

8 For the same reasons, students from 'tier 2' and 'tier 3' colleges have lower expectations on future employment conditions and salaries (Aspiring Minds 2019). See Tilak & Choudhury (2021).

9 Quite a few private institutions – universities and colleges in the National Capital Region of Delhi and other states, have flatly refused permission to conduct our survey in their institutions, despite our having an official letter seeking their cooperation in the conduct of the survey.

10 In a study on Karnataka, based on student survey of students, it was concluded that students could not connect to the industry expectations (Kulkarni 2017).

11 Many of the students undergo coaching from such institutions while preparing for common entrance examinations for admission in engineering institutions.

References

- AICTE: All India Council of Technical Education (1994). *Report of the High-Power Committee for mobilisation of additional resources for technical education*. [Chairperson: D. Swaminadhan]
- AICTE. (1999). *Technical education in India in independent India: 1947-1997. A compendium to commemorate the 50th anniversary of Independence*.
- AICTE. (2003). *Revitalising technical education: Report of the Review Committee on AICTE* [Chairperson: U. R. Rao].
- AICTE. (2015). *Technical education in India: A futuristic scenario (Report of the AICTE Review Committee, 2015)*. [Chairperson: M. K. Kaw].
- AICTE. (2018). *Engineering education in India: Short- and medium-term perspectives*. [Report of the Committee chaired by B. V. Mohan Reddy]. All India Council for Technical Education.
- Anandkrishnan, M. (2014). *Technical education: Trends, policies and prospects*. Bloomsbury India.
- Aspiring Minds. (2019). *National employability report: Engineers 2019*. Gurugram, India.
- Banerjee, R., & Muley, V. P. (2009). *Engineering education in India*. Observer Research Foundation.
- Biswas, G., Chopra, K. L., Jha, C. S., & Singh, D. V. (2010). *Profile of engineering education in India: Status, concerns and recommendations*. Norosa Publishing House.
- Bose, P.K., Sanyal, B. C., & Mukherjee, S. P. (1983). *Graduate employment and higher education in West Bengal*. UNESCO-IIEP and Kolkata: University of Kolkata.
- Carnoy, M., Dossani, R., & Tilak, J. B. G. (2010). *Understanding the expansion and quality of engineering education in India*. Working Paper 23174 (date 05-2010). Walter H. Shorenstein Asia-Pacific Research Center, Columbia International Affairs (CIAO) Online. <http://ciaonet.org/record/23174?search=1CII>:
- Carnoy, M., Loyalka, P., Dobryakova, M., Dossani, R., Froumin, I., Kuhns, K.; Tilak, J. B. G., & Wang, R. (2013). *University expansion in a changing global economy: Triumph of the BRICs?* Stanford University Press.
- Choudhury, P. K. (2012). *An economic analysis of demand for higher education in India*. National University of Educational Planning and Administration. Unpublished PhD Thesis
- Choudhury, P. K. (2019). Student assessment of quality of engineering education in India: Evidence from a field survey, *Quality Assurance in Education*, 27(1), 103-26.
- Government of India. (2019). *Draft national policy on education 2019*. [Report of the Committee chaired by K. Kasturirangan]. New Delhi: Ministry of Human Resource Development.
- Government of India. (2020). *National policy on education 2020*. New Delhi: Ministry of Education.
- Kulkarni, N. G. (2017). *Improving employability of engineering graduates: A study of colleges based in North Karnataka*. Unpublished PhD Thesis. Dharwad: Karnatak University.
- Loyalka, P., Carnoy, M., Froumin, I., Dossani, R., Tilak, J. B. G., & Yang, P. (2016). Factors affecting the quality of engineering education in the four largest emerging economies. *Higher Education*, 68(6), 977-1004.
- MHRD. (2011). *Taking IITs to excellence and greater relevance*. Report of Anil Kakodkar Committee. Mumbai: Indian Institute of Technology.
- Madheswari, S. P., & Mageswari, S. D. U. (2020). Changing paradigms of engineering education - An Indian perspective. *Procedia Computer Science*, 172, 215-24.
- Mani, Sunil & Arun, M. (2012). Liberalisation of technical education in Kerala: Has higher enrollment led to a larger supply of engineers. *Economic and Political Weekly*, 47(21), 63-73.
- Mathew, A. (2016). *Reforms in higher education in India: A review of recommendations of commissions and committees on education*. CPHRE Research Paper no. 2. New Delhi: National University of Educational Planning and Administration.
- National Science Board (NSF). (2018). *Science and Engineering indicators 2018*. Alexandria VA, USA .
- Prabhu, B. V. & Kudva, A. S. (2016). Success of student internship in engineering industry: A faculty perspective. *Higher Education for the Future*, 3(2), 1-19.
- Radhakrishnan Commission. (1949). *The report of the University Education Commission (December 1948 – August 1949)*. New Delhi: Government of India.
- Rao, V. K. R. V. (1961). *University education and employment: A case study of Delhi graduates*. Delhi: Institute of Economic Growth.
- Senthilkumar, N., & Arulraj, A. (2011). SQM-HEI – determination of service quality measurement of higher education in India. *Journal of Modelling in Management*, 6(1), 60-78.
- Sharan, R. (2004). Engineering education in India: A critical look. *IASSI Quarterly*, 23(1), 63-79.
- Sheppard, S. D., Macatangay, K., Colby, A., & Sullivan, W. M. (2009). *Educating engineers: Designing for the future of the field*. Stanford, CA: Jossey-Bass.
- Singh, G. (1993). Fees and economic background of students: A study of university of Delhi. *Journal of Educational Planning and Administration*, 7(4), 427-451.
- Tilak, J. B. G. (2020a). Determinants of students' choice of engineering disciplines in India. *Yükseköğretim Dergisi/*

Tilak, J. B. G. (2020b). Who goes to private colleges in India and why? Determinants of students' choice of engineering institutions in India. *Global Comparative Education: Journal of the World Council of Comparative Education Societies*, 4(1&2), 78-110.

Tilak, J. B. G., & Choudhury, P. K. (2021). *Paradoxes and contradictions in the growth of engineering education in India*. Working Paper 1/2021. New Delhi: Council for Social Development.

UGC: University Grants Commission. (1973). *Examination reform: A plan of action*. New Delhi: University Grants Commission.

Uplaonkar, A. T. (1983). Occupational Aspirations of College Students. *Social Change*, 13(2), 16-26.

VIF: Vivekananda International Foundation. (2019). *Towards more effective education: Emergence of stem education in India*. VIF Taskforce Report. Vivekananda International Foundation.

Vijay, A. (2013). Appraisal of student rating as a measure to manage the quality of higher education in India: An institutional study using six sigma model approach, *International Journal for Quality Research*, 7(3), 3-14.

Appendix

Table A1. Current knowledge, abilities and skills, compared to the time of entry into this institution

	Much weaker	Weaker	Same	Stronger	Much stronger	No Response/ do not know	Total
<i>Public Institutions</i>							
Knowledge of Technology	2.5	4.3	11.2	55.0	21.7	5.4	100
Knowledge of Engineering practices	1.5	4.0	13.6	59.1	15.7	6.2	100
Foreign language ability	7.0	11.2	48.9	19.8	6.1	7.0	100
Leadership ability	1.9	3.6	22.6	43.0	22.5	6.4	100
Writing skills	1.8	4.5	22.6	47.8	17.1	6.1	100
Academic ability	3.1	6.4	21.7	38.3	20.9	9.7	100
Knowledge of new technology	2.3	5.1	18.4	45.9	14.2	14.1	100
Knowledge about global markets/economies	2.9	6.6	29.2	40.8	12.5	8.0	100
Oral communication skills	1.8	4.9	21.6	45.9	18.3	7.6	100
Problem solving ability	1.5	4.4	16.3	41.7	24.6	11.4	100
Collaborative ability	1.9	3.0	14.5	41.2	30.9	8.5	100
Interest in lifelong learning	3.2	5.5	18.6	42.3	22.9	7.5	100
Intercultural skills	2.3	5.0	26.0	41.8	17.2	7.8	100
Entrepreneurial skills	3.0	4.9	26.4	39.9	15.8	10.0	100
<i>Private Institutions</i>							
Knowledge of Technology	2.3	3.9	12.8	57.6	15.2	8.2	100
Knowledge of Engineering practices	1.7	4.2	14.7	56.4	13.9	9.1	100
Foreign language ability	8.7	12.7	46.0	16.6	5.9	10.2	100
Leadership ability	1.8	4.8	22.9	42.5	18.8	9.2	100
Writing skills	1.7	4.5	21.9	44.2	18.9	9.0	100
Academic ability	3.2	9.0	21.5	35.1	21.6	9.6	100
Knowledge of new technology	2.2	6.2	24.3	36.2	18.5	12.6	100
Knowledge about global markets/economies	3.5	7.7	29.8	34.4	13.7	11.0	100
Oral communication skills	2.1	5.3	22.9	35.6	20.9	13.2	100
Problem solving ability	1.6	3.5	16.0	42.3	20.2	16.5	100
Collaborative ability	1.5	3.2	14.4	42.9	26.4	11.6	100
Interest in lifelong learning	3.1	5.4	19.5	38.3	23.2	10.6	100
Intercultural skills	2.2	5.1	25.2	36.1	19.7	11.7	100
Entrepreneurial skills	2.8	5.4	26.0	35.2	16.3	14.3	100
<i>Traditional Departments</i>							
Technology knowledge	2.9	3.8	12.7	57.5	13.4	9.6	100
Engineering practice knowledge	1.7	3.7	15.4	54.3	13.9	11.1	100
Foreign language ability	9.0	13.6	40.7	18.8	5.7	12.2	100
Leadership ability	2.0	4.5	24.0	39.6	18.8	11.3	100
Writing skill	1.6	4.2	21.4	44.2	18.1	10.6	100
Academic ability	3.1	8.0	19.1	35.5	20.8	13.6	100
Knowledge new technology	2.6	5.8	22.1	36.3	16.1	17.1	100
Knowledge about global market/economies	3.8	7.4	27.3	35.2	12.1	14.3	100
Oral communication skill	1.9	5.5	22.2	37.5	17.5	15.4	100
Problem solving ability	2.1	3.8	15.8	42.1	17.9	18.3	100
Collaborative ability	1.6	3.4	14.2	42.3	23.9	14.6	100
Interest in lifelong learning	2.6	5.1	18.6	38.8	21.2	13.7	100
Intercultural skill	2.2	4.8	24.1	36.5	17.7	14.8	100
Entrepreneurial skill	3.1	5.0	24.9	33.3	16.0	17.8	100
<i>Modern Departments</i>							
Technology knowledge	2.1	4.1	12.1	56.3	19.2	6.2	100
Engineering practice knowledge	1.6	4.3	13.9	58.6	14.8	6.8	100
Foreign language ability	7.7	11.6	49.8	17.2	6.0	7.7	100
Leadership ability	1.8	4.4	22.3	44.1	20.6	6.9	100
Writing skill	1.8	4.6	22.5	45.9	18.4	6.8	100
Academic ability	3.2	8.3	22.7	36.5	21.6	7.9	100
Knowledge new technology	2.1	5.8	22.4	40.9	17.5	11.3	100
Knowledge about global market/economies	3.1	7.3	30.7	37.1	13.8	8.0	100
Oral communication skill	2.0	5.0	22.6	39.8	21.2	9.5	100
Problem solving ability	1.3	3.8	16.2	42.1	23.4	13.2	100
Collaborative ability	1.7	3.0	14.5	42.4	29.7	8.7	100
Interest in lifelong learning	3.3	5.6	19.5	40.0	23.9	7.7	100
Intercultural skill	2.3	5.2	26.1	38.7	19.4	8.4	100
Entrepreneurial skill	2.8	5.3	26.6	38.4	16.2	10.7	100
<i>All</i>							
Technology knowledge	2.3	4.0	12.3	56.7	17.4	7.3	100
Engineering practice knowledge	1.6	4.1	14.3	57.3	14.5	8.1	100
Foreign language ability	8.1	12.2	47.0	17.7	6.0	9.1	100
Leadership ability	1.8	4.4	22.8	42.7	20.1	8.2	100
Writing skill	1.7	4.5	22.1	45.4	18.3	8.0	100
Academic ability	3.1	8.2	21.6	36.1	21.3	9.7	100
Knowledge new technology	2.3	5.8	22.3	39.4	17.1	13.1	100
Knowledge about global market/economies	3.3	7.3	29.6	36.5	13.3	10.0	100
Oral communication skill	2.0	5.2	22.5	39.1	20.0	11.3	100
Problem solving ability	1.6	3.8	16.1	42.1	21.7	14.8	100
Collaborative ability	1.7	3.2	14.4	42.3	27.9	10.5	100
Interest in lifelong learning	3.1	5.4	19.2	39.6	23.1	9.5	100
Intercultural skill	2.2	5.1	25.4	38.0	18.9	10.4	100
Entrepreneurial skill	2.9	5.2	26.1	36.8	16.1	12.9	100

Source: based on author's survey of students.

Table A2. Participation of students in academic activities

	Frequently	Occasionally	Never	No response/ do not know	Total
<i>Public Institutions</i>					
Write laboratory report	56.7	28.2	8.3	6.8	100
Develop technical design	16.3	49.1	26.3	8.4	100
Worked in group projects	41.1	40.4	11.2	7.4	100
Orally present technical reports	17.0	54.3	20.3	8.4	100
Discuss the global economy	12.3	35.7	43.4	8.6	100
Discuss nature of profession	26.5	41.9	23.4	8.2	100
Worked on projects with firms	11.0	34.1	46.7	8.2	100
<i>Private Institutions</i>					
Write laboratory report	47.9	29.1	13.2	9.8	100
Develop technical design	13.6	38.0	35.9	12.6	100
Worked in group projects	30.9	48.0	10.6	10.5	100
Orally present technical reports	19.1	48.1	21.4	11.4	100
Discuss the global economy	12.2	36.2	39.8	11.9	100
Discuss nature of profession	26.9	40.8	20.3	12.0	100
Worked on projects with firms	11.9	31.2	45.3	11.7	100
<i>Traditional Departments</i>					
Write laboratory report	45.6	30.7	11.9	11.8	100
Develop technical design	13.9	37.5	32.8	15.8	100
Worked in group projects	28.6	46.4	12.7	12.3	100
Orally present technical reports	16.8	47.2	20.8	15.2	100
Discuss the global economy	13.4	35.5	36.6	14.6	100
Discuss nature of profession	27.1	38.9	19.1	14.9	100
Worked on projects with firms	12.1	33.9	40.5	14.0	100
<i>Modern Departments</i>					
Write laboratory report	53.2	28.0	11.4	7.4	100
Develop technical design	14.8	43.7	32.5	9.1	100
Worked in group projects	36.9	45.0	9.9	8.2	100
Orally present technical reports	19.2	51.5	21.2	8.2	100
Discuss the global economy	11.7	36.2	43.0	9.1	100
Discuss nature of profession	26.6	42.3	22.3	8.8	100
Worked on projects with firms	11.4	31.6	48.0	9.0	100
<i>All</i>					
Write laboratory report	50.9	28.8	11.6	8.8	100
Develop technical design	14.5	41.8	32.6	11.1	100
Worked in group projects	34.3	45.4	10.8	9.5	100
Orally present technical reports	18.4	50.2	21.1	10.4	100
Discuss the global economy	12.2	36.0	41.0	10.8	100
Discuss nature of profession	26.8	41.2	21.3	10.7	100
Worked on projects with firms	11.6	32.2	45.7	10.5	100

Source: based on author's survey of students.

Table A3. Teaching methods used in public versus private engineering institutions

	Frequently	Occasionally	Never	No response	Total
<i>Public Institutions</i>					
Lecture classes	83.3	9.1	2.0	5.7	100
Technical demonstration	18.9	56.8	16.6	7.7	100
Small group discussion	12.9	51.0	28.2	8.0	100
Small group work	24.7	51.7	15.7	7.8	100
Student presentation	30.0	53.7	9.3	7.1	100
Laboratory work	74.2	16.7	2.2	6.9	100
Field Work	11.4	44.3	33.9	10.4	100
<i>Private Institutions</i>					
Lecture classes	82.0	9.1	1.2	7.7	100
Technical demonstration	22.6	52.5	15.8	9.2	100
Small group discussion	14.1	50.7	24.9	10.4	100
Small group work	17.0	52.0	21.0	10.0	100
Student presentation	23.0	60.2	7.9	8.8	100
Laboratory work	76.7	13.0	1.7	8.7	100
Field Work	10.6	42.6	37.7	9.2	100
<i>Traditional Streams</i>					
Lecture classes	79.1	10.4	1.8	8.8	100
Technical demonstration	23.2	49.4	15.4	12.0	100
Discussion in small groups	16.0	47.8	23.8	12.4	100
Work in small groups	20.4	48.8	17.8	13.0	100
Student presentations	25.4	55.7	8.3	10.6	100
Laboratory work	73.4	14.6	1.9	10.0	100
Field Visit/Work (in industries)	14.7	50.5	23.5	11.4	100
<i>Modern Streams</i>					
Lecture classes	83.9	8.5	1.3	6.3	100
Technical demonstration	20.5	55.9	16.4	7.2	100
Discussion in small groups	12.7	52.1	27.0	8.3	100
Work in small groups	19.3	53.3	19.8	7.6	100
Student presentations	25.4	59.1	8.4	7.2	100
Laboratory work	76.9	14.1	1.8	7.2	100
Field Visit/Work (in industries)	9.0	39.7	42.7	8.6	100
<i>All</i>					
Lecture classes	82.4	9.1	1.4	7.0	100
Technical demonstration	21.3	53.9	16.1	8.7	100
Discussion in small groups	13.7	50.8	26.0	9.6	100
Work in small groups	19.6	51.9	19.2	9.2	100
Student presentations	25.4	58.0	8.4	8.2	100
Laboratory work	75.8	14.2	1.9	8.1	100
Field Visit/Work (in industries)	10.8	43.1	36.6	9.5	100

Source: based on author's survey of students.

Table A4. Frequency in the use of methods of evaluation

	Frequently	Occasionally	Never	No response	Total
<i>Public Institutions</i>					
Multiple Choice Tests	14.8	43.9	34.4	6.9	100
Test with Problem Solving	46.1	36.9	10.4	6.6	100
Course/Semester-end Examination	70.0	17.5	5.4	7.1	100
Oral Presentation	24.6	52.5	15.8	7.1	100
<i>Private Institutions</i>					
Multiple Choice Tests	12.8	34.7	43.2	9.3	100
Test with Problem Solving	38.6	39.8	12.9	8.8	100
Course/Semester-end Examination	59.2	22.9	7.1	10.8	100
Oral Presentation	23.8	48.7	17.9	9.6	100
<i>Traditional Branches</i>					
Multiple Choice Tests	15.5	38.8	34.2	11.5	100
Test with Problem Solving	40.6	36.8	10.8	11.8	100
Course/Semester-end Examination	56.6	22.0	7.4	14.0	100
Oral Presentation	26.9	44.9	15.5	12.7	100
<i>Modern Branches</i>					
Multiple Choice Tests	12.6	37.4	42.9	7.1	100
Test with Problem Solving	41.3	39.7	12.6	6.4	100
Course/Semester-end Examination	65.7	20.7	6.2	7.5	100
Oral Presentation	22.8	52.3	18.0	7.0	100
<i>All</i>					
Multiple Choice Tests	13.5	37.8	40.2	8.5	100
Test with Problem Solving	41.1	38.8	12.1	8.1	100
Course/Semester-end Examination	62.9	21.1	6.5	9.5	100
Oral Presentation	24.1	50.0	17.2	8.8	100

Source: author's survey of students.



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Why student engagement in the accounting classroom matters

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A

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Keywords

Accounting education;
cognitive skills;
student engagement;
student learning.

Abstract

This study aims to investigate the theory of student engagement and its impact on student learning. A student-centric pedagogy (inter-teaching) was introduced to create better engagement for students studying an accounting course at an offshore campus of an Australian University, in Vietnam. Surveys were conducted to collect data. The quantitative approach was implemented to test the theory of engagement for improving student learning of the respondents, by comparing two treatments, a teacher-centred class (lecture model) and student-centred class (inter-teaching model). The findings of this study propose that student engagement is an encouraging development for student learning in accounting courses. The findings contribute towards the current body of knowledge of accounting education, effectiveness of student learning, and overall greater student engagement in accounting courses.

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I. Introduction

This study analyses the impact of student engagement in the classroom on students' learning at an offshore campus of an Australian University in Vietnam. What is evident from the literature of student engagement is that there is not a clearly defined theoretical model; rather it is a multi-definitional meta-construct that depends upon the context to which it is applied (Wang & Fredricks, 2013). Eccles (2016) explained that "engagement is an elusive, emergent, and multifaceted concept one that would be difficult to measure and complex to theorize" (p. 2). Boekaerts (2016) stated that researchers used theories from the psychological disciplines to study classroom engagement. However, these theories use different constructs to explain and predict behaviour which may not be relevant to the study of classroom engagement. There is no solid theoretical foundation for understanding how student engagement in the classroom is created, and how it benefits students' learning. Thus, this study intends to unravel the complexity of student engagement and how student learning is enhanced when students work together in small groups in the classroom.

This study adopts and builds on the seminal work of Deutsch (1949a, 1949b). Deutsch (1949b) provided evidence explaining why students in small groups, working together, outperform students working alone or competitively against each other. His model together with the research of Astin (1977, 1984) and Finn (1989) demonstrated how learners engaged through interaction with other learners in a setting involving preparation, discussion and reflection. Peer learning is known to accentuate the capacity for understanding where students assist one another to build their own understanding (Johnson, Johnson & Smith, 2014).

This study is significant for the following reasons. First, it responds to the call from Weiss and Garcia (2015) that most student engagement studies have examined their effects on student learning either in America, or other English-speaking countries. Relatively little research has examined how student engagement contributes to student learning in emerging economies and to our knowledge, none has applied the framework of student engagement in the classroom in Vietnam where the students' first language is not English. Secondly, student engagement in the undergraduate classroom in Vietnam is rare with the emphasis on teacher-centred instruction. Therefore, Vietnam provides an interesting cultural environment to study students' attitude to learning especially where accounting courses are designed and delivered with a student-centred focus. Third, it builds on this gap in the literature by providing evidence sourced directly from two surveys into the factors driving and impeding student engagement in the classroom.

This article is structured as follows. The next section of this article provides a summary of the research on student engagement with emphasis and justification of the theoretical framework. Then, it discusses the research method employed. Findings are next presented that evaluate student engagement including participants' perceptions of both the benefits and issues from the two surveys. The article concludes with a discussion of key findings together with study limitations and avenues for future research.

II. Literature review

Student engagement

Appleton, Christenson and Furlong (2008) observed that student engagement has multiple meanings, depending on its application and setting. The short history of student engagement over the past 30 years may explain why there are multiple definitions of student engagement as researchers apply it to different settings, observe different phenomena and reach different conclusions about students being engaged. Interest in student engagement has grown as school administrators and academics try to unravel why "some students are engaged, and some students are not engaged in the educational context" (Finn 1989, p. 123). Notwithstanding, the complexity of the various research studies, common themes have developed from Fredricks et al. (2004) who described "student engagement theory as a multi-component model with behavioural, emotional and cognitive elements" (p. 60). Behavioural engagement is defined as participation and task involvement in academic activities (Fredricks, Filsecker & Lawson 2016). Emotional engagement is conceptualised as identification with school, which includes belonging, enjoyment of school learning, and valuing/appreciation of success in school-related outcomes (Finn, 1989). Cognitive engagement is defined as strategic or self-regulated learning (Wang & Fredricks, 2013). Of interest in this study is the behavioural engagement model where students in the classroom are participating in learning tasks which demonstrate behaviours such as effort, questioning, and contributing to class discussion resulting in improved student learning (Fredricks et al., 2016). Howard (2016) and Apostolou et al. (2016) suggested that to be a great teacher, they should continually work towards implementing student engagement and student feedback. Wong, Cooper and Dellaportas (2015) also asserted that student engagement has been one of "the most highly valued aspects of student learning" (p. 321), and student engagement can improve "any accounting class" (Kaciuba, 2012, p. 248).

Although not considered by the student engagement literature it is argued that Deutsch's (1949a) theory of cooperation and competition contributes significantly to the foundational understanding of student engagement and why students inter-relate in the classroom. Deutsch (1949b) describes how student groups in classroom settings connect to achieve greater outcomes than if they work alone.

Cooperation and competition theory

The theoretical roots of cooperation and competition (Deutsch, 1949a) lie in the theory of social interdependence by Koffka and Lewin (1935). Lewin found that for interdependence within groups, individuals "must impact each other in that a change in the state of one causes a change in the state of the others" (cited in Johnson, Johnson & Smith, 2014, p. 88).

Deutsch (1949a) expanded Lewin's analysis of group behaviour with the theory of cooperation and competition. Deutsch (1949a) described a cooperative relationship where the "individuals who are exposed to the cooperative

social situation will perceive themselves to be promotively¹ interdependent (in relation to other individuals composing their group) with respect to goals" (p. 138). In contrast, Deutsch (2003) viewed competitive behaviour by individuals as not contributing to successful inter-group relationships. In general, cooperation produces effective communication, forthcoming discussions which are productive, and a willingness to strengthen the collaboration of other members (Deutsch, 2003). In contrast, competition impairs group communication, creating a lack of trust or disagreement which can lead to negative or divisive intentions from other individuals (Deutsch, 2003).

The work of Deutsch's influential and highly validated cooperation and competition theory explains successfully how students working together in groups, engaged with each other, achieved better academic outcomes because they have similar interests in achieving their common objectives. This theory is supported by a clear theoretical foundation and, through rigorous research studies, it has been validated and confirmed in the educational setting (Johnson et al., 2014). Johnson, Johnson and Holubec (1988) findings indicated that cooperation learning strategies in the classroom were more successful in academic achievement, as compared to competitive and individual learning strategies.

Astin (1984) was one of the first researchers to recognise involvement as the heart of the classroom. He asserted that student interactions influenced, more than anything else, cognitive development and enhancement through involvement with each other. The next section explores the theory of involvement.

Involvement theory

Astin's theory of student involvement is strongly associated with engagement and frequently cited in the higher education sphere (Harper & Quaye, 2009). 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 individuals investing their knowledge and emotional energy in other students. Astin (1984) described this aspect of involvement as students who can "cathect" or invest emotional energy on other students (p. 518).

Involvement theory encompasses two fundamental hypotheses which form the key to a more effective program designed for students (Astin, 1985). Firstly, "the amount of student learning is directly proportional to the quality and quantity of student involvement in that program" (Astin, 1985, p. 36). Secondly, the "effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement" (Astin, 1985, p. 36). Astin (1993) identified three forms of student engagement which impacted on student academic

achievement, namely time on task, peer collaboration, and the student's involvement with the faculty. Astin (1993) found when students are actively engaged their cognitive development is improved in comparison to other methods of teaching. Bentley, Brewer and Eaton (2009) also proposed that interactive learning activities increased student engagement which, in turn, improved students' academic performance.

Astin's involvement theory is dependent upon institutional processes that provide opportunities to facilitate student involvement in their learning. A key difference between Astin's theory and Finn's participation-identification theory is that one can be involved without participation (Harper & Quaye, 2009). Finn's theory, which is discussed next, is considered to be a core element of the engagement framework (Appleton et al., 2008).

Participation-identification theory

Finn developed the participation-identification theory from his influential research into student dropout prevention. This heavily influenced recent student engagement research and fostered the idea that active student participation in learning was linked to improved academic performance (Fredricks et al., 2004). Figure 1 described how students initiating classroom activities, participating in the classroom decisions and belonging as valued members are key ingredients to successful academic performance (Finn, 1989). Moreover, Finn's theories are essential for understanding the difference between students not engaged and being engaged through participation, identifying and being valued in the classroom.

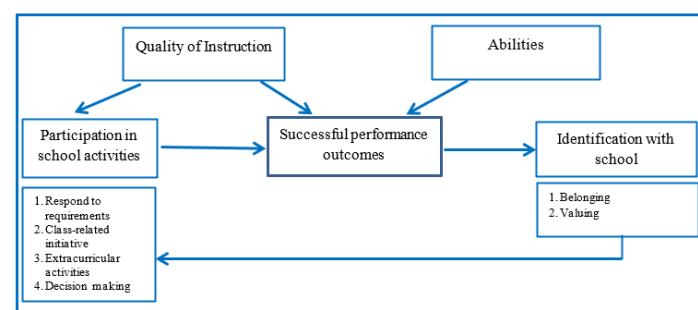


Figure 1: Participation-identification model. Source: Adopted from Finn (1989, p. 130)

Finn's model has four levels of participation which range from student responses to instruction, through to students using initiative to resolve problems on their own or in peer discussions. Finn (1989) focused 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.

¹ A situation in which all members of a team can achieve their goals (Oxford Dictionary of Psychology, 2015).

III. Research questions and hypotheses

The need for research into student engagement in the accounting classroom warrants the investigation of “what is the impact of student engagement on student learning in accounting courses?” which is the research question of this study.

The hypothesis was developed to test the theories of engagement to find out whether student learning improved through student engagement in the classroom. To examine the hypothesis, H1: student engagement in the classroom improves the student learning experience, compared to the teacher-centred learning experience for undergraduate accounting students studying the Management Accounting and Business course, 16 questions adopted from the National Survey of Student Engagement (NSSE) and included in a survey were completed by students studying the MAB course. Each question is considered a sub-indicator of describing student engagement in the classroom. Thus, the 16 hypotheses associated with H1 were tested for statistical significance (Appendix 2). The one-tailed hypothesis test, where L is the teacher-centred lecture model and IT is student-centred inter-teaching model (Characteristics of each teaching model can be viewed in Appendix 1), were tested as follows: H0: $L \geq IT$ against the alternative hypothesis: H1: $L < IT$.

IV. Theoretical framework

Fredricks et al. (2016) explain that by adopting behavioural strategies that include preparation, discussion and regular feedback, students are more engaged in classroom and their learning is improved. The research of Deutsch, Astin, Finn and Johnson and Johnson provide the theoretical foundation to justify why students work more productively and learn smarter by being simply being engaged with each other.

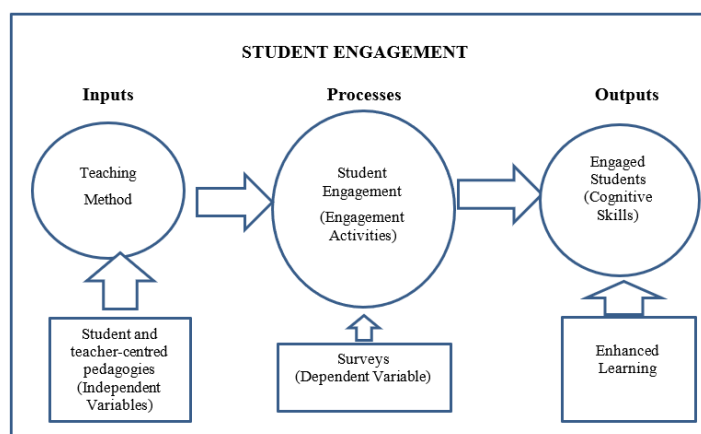


Figure 2: Conceptual model of student engagement learning
Source: By the author

To conceptualise and demonstrate student engagement, the student engagement learning model, Figure 2, was developed by the author. This model may well be considered to consist of three phases, in-puts, processes and outputs

(Biggs, 2012). In the current order of ideas, apply the student or teacher-centred teaching pedagogy (inputs) should impact the way students learn (processes; engaged or not engaged) and academic learning (outputs; same, more or less cognitive improvement) will follow.

V. Research method

Research design

The quantitative approach was employed to test the theory of engagement for improving learning performance of students taking the Management Accounting and Business (MAB) accounting course through the comparison of the teacher (lecture model) and student-centred (inter-teaching) teaching models. The data was collected from two surveys during week 6 and week 12 of semester 2, 2015 of this course. Table 1 summarises the research procedure.

Table1: Research procedures

	Weeks 1 - 6	Weeks 7 - 12
Teaching mode	Lecture model	Inter-teaching model
Survey	Student complete survey in Week 6	Student complete survey in Week 12
	Semester 2, 2015	Semester 2, 2015

Survey instrument

The questionnaire in this study was replicated from the NSSE, adopting two of the six student engagement measures which were designed to understand how well students were engaged, and gather student perceptions of their engagement activities related to the two different teaching models. The NSSE is annually released to students studying at higher education institutions in America (NSSE, 2001). Concerns that the NSSE survey was being taken by non-Western students in a non-Western context were somewhat truncated by the evidence from the Australian Council for Educational Research. They confirmed that the NSSE had been extensively validated for use in Australasian higher education through focus groups, expert reviews and psychometric analysis. Further, while participants of the survey were Vietnamese they were studying an Australian degree in English at an off-shore Australian University.

Variables

The independent variables are the student and teacher-centric teaching models. The characteristics of both models can be found in Appendix 1. The dependent variable is the student engagement survey. Student engagement in this study was captured by variables corresponding to two measures: (i) engagement activities, (ii) and cognitive skills. The survey intention was to capture student perceptions of being engaged or not engaged (Pike, Kuh & McCormick, 2011).

The first 11 questions in the questionnaire include active and collaborative learning questions designed to illicit responses on class participation, involvement, group work and feedback. All of which are aligned to the theories

developed by Astin (1984) (Involvement theory), Finn (1989) (Participation theory), Deutsch (1949a, 1949b) (Cooperation and Competition theory) and Johnson et al. (1988) (Cooperative learning theories).

The second measurement of student engagement includes 5 questions relating to cognitive skills engagement and is aimed at capturing student responses regarding their integrated and higher-order thinking skills. They are aligned with the theories of small group interrelationships developed by Deutsch, Astin and Johnson and Johnson.

Validity and reliability

Instrument Validity and Reliability

Validation of the central measurement (the survey) is about establishing its authenticity and robustness (Kane, 2006). A self-report survey, such as the NSSE, is one of the meaningful ways of collecting data on a large scale (Kuh, 2002). Student self-reports are thought valid where the questions are clearly and unambiguously designed (Pike et al., 2011). The NSSE has been intentionally designed to meet all the criteria with the design team placing emphasis on clear expression and well-structured questions, and thus it "appears to be reliably measuring the constructs it was designed to measure" (Kuh, 2002, p. 17) and "the face and construct validity of the survey are strong" (p. 23). This is consistent with the findings of Kuh et al. (1991, 2006) who examined the validity and reliability of the NSSE survey for students from different racial and ethnic groups and institutions. They observed that the "NSSE can be confidently used across all institutional settings with different types of students" with no significant variation (Kuh et al., 2006, p. 64). As the survey questions in this study were replicated from NSSE it is also expected that (i) they had high face and construct validity, and (ii) they could measure what was intended.

Reliability statistics

Cronbach's alpha, a measure of reliability, was used to verify inter-item consistency and reliability of the survey instrument. A reliable score will add strength to the statistical analysis used to test the hypotheses. In this study, the Cronbach's alpha (0.832) indicated a strong level of internal consistency for the scale in the Likert survey, and it is marginally higher than the Cronbach's alpha value for the NSSE survey in 2014 (0.820) (NSSE, 2015).

Data collection

All 154 students enrolled in MBA in semester 2, 2015 were invited to participate in the surveys. They were taught by the same instructors who taught the course during semester 1, 2015. The survey was conducted at the end of the first half of Semester 2 (Week 6; Teacher-centric teaching), and 78 of the 154 students (51% response rate) completed the survey. The survey was distributed again to the same students at the end of the second half of semester 2, 2015 (Week 12; Student-centric teaching), 73 of the 154 students (47%

response rate) completed the survey with all the responses being valid.

Data analysis

SPSS version 22 was used to analyse the survey data. The required precision for the study was a statistically significant level of < 0.05 . Following a review of non-parametric statistical tests, in consultation with a critical content expert and statistician, Wilcoxon Mann Whitney U test was used (Merola, 2015). The following test assumptions were met: the measurement scale was ordinal, the independent variable has only two levels, and the data was suitable for an unpaired test for differences of medians; the independence of the two groups was partially satisfied (Black et al., 2007; Sekaran, 2013). A one-tailed test was used to verify whether student-centred (inter-teaching sessions) survey responses would have a higher median score than the corresponding values for the teacher-centred (lecture model sessions).

VI. Data analysis and findings

Respondents' profiles

A total of 78 and 73 valid responses were collected in Weeks 6 and 12, respectively (Table 2). The majority of students in both surveys were 18 years or older (94%). The proportion of female (58%) and male (42%) was nearly the same for both surveys.

Table 2: Respondents' profiles

Semester 2, 2015	Frequency		Percentage (%)	
	First half	Second half	First half	Second half
No. of participants	78	73		
Response rate			52%	48%
Gender				
Male	33	31	42%	42%
Female	45	42	58%	58%
Age Profile				
18-25	73	69	94%	95%
>25	5	4	6%	5%

Result of hypothesis tests

The results for the Wilcoxon Mann Whitney U test found 14 of the 16 questions were statistically significant (Table 3). The 14 questions' p-values ranged from 0.000 to 0.040 $< 0.05 = \alpha$; therefore, the null hypothesis H_0 was rejected for these questions. The statistically significant difference between the two medians of student-centred and the teacher-centred classes implies that student engagement improved in the student-centred classes (inter-teaching) compared to the teacher-centred classes (lecture model) in relation to 14 of the 16 questions associated with student engagement. However, questions 7 and 11 were not statistically significant (p-value = 0.101 and 0.213 $> 0.05 = \alpha$); therefore, the null hypothesis H_0 was not rejected for these two questions.

Table 3: Wilcoxon Mann Whitney U test scores for the student engagement survey

Survey Questions	Wilcoxon Mann Whitney U test	Significance Level 0.05 Sig. (1-tailed)
Engagement activities		
1. Asked questions during your course	.001	Reject H0
2. Contributed to a class discussion that occurred during your course	.003	Reject H0
3. Came to your course without having completed readings	.011	Reject H0
4. Worked with other students on projects during your course	.026	Reject H0
5. Worked with classmates outside of your course to prepare assignments	.034	Reject H0
6. Put together ideas or concepts from different courses when completing assignments	.010	Reject H0
7. Tutored or taught other students in your course	.101	Do not Reject H0
8. Discussed ideas from your course with others outside of class (students, family members, co-workers, etc.)	.040	Reject H0
9. Made a class presentation in your course	.000	Reject H0
10. Received prompt feedback on your academic performance from your course instructor	.000	Reject H0
11. Please rate how prepared you were before coming to your tutorial	.213	Do not Reject H0
Cognitive skills engagement		
12. Memorizing facts, ideas, or methods from your courses and readings so you can repeat them in pretty much the same form	.009	Reject H0
13. Analysing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components	.001	Reject H0
14. Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships	.011	Reject H0
15. Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	.001	Reject H0
16. Applying theories or concepts to practical problems or in new situations (Source directly from NSSE survey Appendix 1)	.001	Reject H0

VII. Discussion and implications

Student engagement activities

The interest in this study was to correlate the survey outcomes with the findings espoused by Deutsch (1949b), Johnson et al. (1988), Astin (1984) and Finn (1989). The direction was positive and encouraging. The findings are promising for equipping MAB accounting students with engagement when student-centred pedagogies are adopted.

The results of questions 1 and 2 related to asking questions and being involved in class discussion showed that student-centred classes improved the engagement of students. This was consistent with the findings of Astin (1984) and Finn (1989), that student involvement, participation and discussion groups engaged students in the classroom more than the teacher-centred teaching model. Working with other students on projects during their course (Q.4) or with classmates outside of their course (Q.5) improved their student engagement experience. Similarly, Kienhuis' (2013) study of student-centred teaching reported that students were more engaged when working with other students. The respondents gathered different ideas or concepts when completing assignments (Q.6), and students discussed ideas from their MAB course outside class with other students, family and friends more often in student-centred teaching sessions compared to the teacher-centred lecture model (Q.8) which is similar to the findings by Chmielewski-Raimondo, McKeown and Brooks (2016) regarding student-centred approach. This corresponds with the findings of Astin (1984) in which student peer interaction in and outside the classroom enabled student reasoning and behavioural development. Class presentations by students in inter-teaching classes are a common occurrence (Q.9). Question

10 asks students whether they received prompt feedback on their academic performance and was found to be statistically significant. This resonates with the research by Watty et al. (2013) that reported students in Australian accounting courses, predominately taught by the lecture model did not receive adequate feedback. They found damning evidence from a national survey of Australian university graduates with the quality and quantity of feedback received. They stated that "approximately one-third of accounting students in Australia are not satisfied with the feedback they receive" (Watty et al., 2013, p. 474). As previously argued this may be because the lecture model is not structured to allow feedback. It is a one-way teaching model, communicating information from the lecturer to the student, i.e., teacher-centred.

Question 7 about tutoring or teaching other students was not statistically significant. Even though both peer class discussion and tutoring between students (reciprocal peer tutoring) in a student-centred class are one and the same role. The result indicated that students in both lecture and inter-teaching classes were not prepared for their courses during the semester (Q.11). In contrast, Slagter and Scribner (2014) reported that students in their political economy course "were more likely to complete the pre-reading for class, with students reading more carefully" when they had an inter-teaching class (p. 88).

Cognitive skills

Memorising facts was found not to improve with either method of teaching. However, the student-centred classes did improve a student's ability to analyse theories in depth and reach new conclusions, compared to the teacher-centred classes. The findings for questions 15 and 16 support the theories of Deutsch and Astin. They both argued that discussion groups improved student's ability to observe and listen to another student's dialogue. This comprehensively improved a student's ability to interpret data in reaching their conclusions. The results imply that students engaged in the classroom analyse, synthesise and apply theories to practical problems better than a lecture styled class (Pike et al., 2011; Gallagher, 2015). Further, students who are engaged apply a deeper approach to learning which enables them to have a stronger and lasting understanding, according to Biggs (2012).

Overall, the on-going intention has been to find better and more comprehensive methods of engaging first year accounting students. Accounting graduates are entering a profession that is increasingly challenging, and employers are demanding that their prospective employees are equipped with a multi-faceted range of skills and critical thinking attributes. The primary reason for the effectiveness of student-centred learning is that students are engaged in the learning process. Students are involved, participating, discussing, presenting, listening and thinking about accounting problems on a much deeper level than in the lecture model scenario. The underlying strength of classroom engagement is the cognitive improvement of each student. This is produced in highly interactive classes undertaken throughout the semester rather than one final

exam which have encouraged students to cram facts that are quickly forgotten after the event.

Contributions to the current literature

De Lange and Watty (2011) reported that the chronic concerns with accounting education several years ago were still relevant now. Yet, there appears little impetus on the part of academia to adopt and implement research findings concerning pedagogical improvements. Wygal, Watty and Stout (2014) noted that the Australian accounting fraternity has actively promoted teaching and curriculum reform; however, they found little evidence of implementing teaching effectiveness in the student learning space. They recommended further research of student-centred pedagogies to inform teaching approaches in the classroom.

This study challenges the status quo, advocating student learning practises in accounting education that engage students in their own learning, through student-centred pedagogies. The application of the appropriate teaching method is a critical condition of student engagement. The student engagement learning model (Figure. 2) explains that student engagement and subsequent enhanced cognitive skills will not occur where the teaching model does not employ interactive and collaborating behaviours. This study found that engaged students are those that are prepared, involved in class discussion groups and receiving 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 student-centred pedagogies.

A further substantial finding of this study was that student engagement in the classroom may have its roots in the group theories espoused by Deutsch (1949a). This study also revealed that students might be more productive in student-centred classes than working alone. The major contribution of this study to the literature found that it was probable that student-centred classes improved student engagement for MAB accounting students in Vietnam.

Managerial implications

Implementing student-centred settings in accounting education is not without significant challenges. Accounting schools are faced with growing student/staff ratios and an increased use of sessional staff (Evans et al., 2010). The issue is further exacerbated by rising international student enrolments to supplement accounting schools' revenue base due to changes in public funding (Freeman & Hancock, 2011). Class sizes have reached unyielding proportions, and the need to generate revenues is leading to a reduction in the quality of the student experience in accounting programs (Evans et al., 2010). Further, Parker states "can accounting survive such a high-volume, low-cost, lean, casualised higher education delivery model?" (cited in Evans et al., 2010, p. 20). Although beyond this study it is believed that student-centred pedagogies can be efficiently delivered to large cohorts of students through the implementation of the Large Student model developed

by Jarvis et al. (2014) or variations thereof. Importantly, accounting school academics need to actively promote the advantages of better cognitive performance that comes from the implementation of student-centred classes.

Practical implications

Introducing more effective educational practices requires time and preparation which can inhibit already time-limited academic research output (Watty et al., 2013). Introducing student aligned practices involves increased workload for students, incorporating, for example, pre-class preparation. This makes it all the more difficult for lecturers to take on a more demanding teaching practice and, therefore, the teacher-centred lecture model becomes the easiest option (Sturmey, Dalfen & Fienup, 2015). Considerably more preparation is required of the academic for the student-centred sessions, for example, constructing preparation guides, involves time in the conversion of lecture materials into preparation guides. Kienhus (2013) reported that lecturers found it a challenge to adapt new learning materials and provide clarification, based on student feedback, in such a short-time frame.

VIII. Conclusion

This article is the only known study testing student engagement on a non-western cohort in a course of study with a history of poor performance. This study challenges the status quo, advocating student learning practises in accounting education that engage students in their own self-directed learning. A major contribution to the literature is that it is probable that improved student engagement comes from student-centred classes and is a formidable alternative to the teacher-centred lecture model for teaching accounting courses. This study also revealed that (i) students might be more productive in small group work than working alone, and (ii) student-centred learning through the inter-teaching pedagogy likely improved student engagement and cognitive performance for MAB accounting students in Vietnam.

Limitations of this study found 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 dispersed between independent groups to allow more meaningful conclusions for the wider population of accounting students.

Student-centred models like inter-teaching, which led to better student engagement, may be applicable to large classes (Kienhuis, 2013). Thus, future research is anticipated to investigate the large class approach for improved student learning. Further research should be conducted in the same study using statistical techniques that are more immune to sample size effects while considering additional variables, such as demographic factors and teaching skills. Research at the student cognitive level involved in group work is warranted since Deutsch, Astin and Biggs, in their investigations of student learning, all cite better retention

and faster conception of problem solving when students work together in groups.

References

- Apostolou, B, Dorminey, J. W., Hassell, J. M., & Rebele, J. E. (2016). Accounting education literature review. *Journal of Accounting Education*, 35, 20-55.
- Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools*, 45(5), 369-386.
- Astin, A. W. (1977). *Four critical years*. San Francisco: Jossey-Bass.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25(4), 297-308.
- Astin, A. W. (1985). Involvement: The Cornerstone of Excellence Source. *Change*, 17(4), 34-39.
- Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco: Jossey-Bass.
- Australian Council for Educational Research. (2021). *Australasian survey of student engagement*. Victoria, Australia.
- Bentley, K. A., Brewer, P. C., & Eaton, T. V. (2009). Motivating students to prepare for class and engage in discussion using the hot seat. *Journal of Accounting Education*, 27(3), 155-167.
- Biggs, J. B. (2012). What the student does: Teaching for enhanced learning. *Higher Education Research and Development*, 31(1), 39-55.
- Black, K., Asafu-Adjaye, J., Khan, N., Perera, N., Edwards, P., & Harris, M. (2007). *Business statistics*. Australian, John Wiley and Sons, Australia.
- Boekaerts, M. (2016). Engagement as an inherent aspect of the learning process. *Learning and Instruction*, 43(June), 76-83. <http://dx.doi.org/10.1016/j.learninstruc.2016.02.001>.
- Chmielewski-Raimondo, D. A., McKeown, W., & Brooks, A. (2016). The field as our classroom: Applications in a business-related setting. *Journal of Accounting Education*, 34, 41-58.
- De Lange, P. & Watty, K. (2011). Accounting Education at a Crossroad in 2010 and Challenges Facing Accounting Education in Australia. *Accounting Education: An international journal*, 20(6), 625-630.
- Deutsch, M. (1949a). A theory of co-operation and competition. *Human Relations*, 2(2), 129-152.
- Deutsch, M. (1949b). An experimental study of the effects of co-operation and competition upon group processes. *Human Relations*, 2(3), 199-231.
- Deutsch, M. (2003). Cooperation and conflict: A personal perspective on the history of the social psychological study of conflict resolution. In M. A. West, D. J. Tjosvold, & K. G. Smith (Eds.), *International handbook of organizational teamwork and cooperative working*. San Francisco: Wiley.
- Eccles, J. S. (2016). Why engagement matters. *Learning and Instruction*, 43, 1-5.
- Evans, E., Burritt, R., & Guthrie, J. (Eds.). (2010). *Accounting education at a crossroad in 2010*. Institute of Chartered Accountants in Australia.
- Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research*, 59, 117-142. <http://search.proquest.com/docview/214117047?accountid=10499>
- Finn, J. D. (1993). *School engagement and students at risk*. Washington, DC: National Centre for Education Statistics.
- Fredricks, J. A., Wang, M., Schall, J., Hokfkens, T., Parr, A., & Snug, H. (2016). Using qualitative methods to develop a measure of math and science engagement. *Learning and Instruction*, 43(43), 5-15.
- Fredricks, J. A., Filsecker, M., & Lawson, M. A. (2016). Student engagement, context, and adjustment: Addressing definitional, measurement, and methodological issues. *Learning and Instruction*, 43, 1-4.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74(1), 59-109. <http://search.proquest.com/docview/214138084?accountid=10499>
- Freeman, M., & Hancock, P. (2011). A Brave New World: Australian Learning Outcomes in Accounting Education. *Accounting Education*, 20(3), 265-273.
- Gallagher, S. M. (2015). Improving Student Engagement through Consultation. *Accounting Education*, 24(6), 564-568.
- Harper, S. R. & Quaye, S. J. (2009). *Beyond sameness, with engagement and outcomes for all*. In: *Student engagement in higher education*. New York and London: Routledge, pp. 1-15.
- Howard, C. (2016). Engaging Minds in the Common Core: Integrating Standards for Student Engagement. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 89(2), 47-53.
- Jarvis, W., Halvorson, W., Sadeque, S., & Johnston, S. (2014). A large class engagement (LCE) model based on service-dominant logic (SDL) and flipped classrooms. *Education Research and Perspectives (Online)*, 41, 1-24.
- Johnson, D. W. (2003). Social interdependence: Interrelationships among theory, research, and practice. *American Psychologist*, 58(11), 934.
- Johnson, D. W., Johnson, R. T., & Holubec, E. J. (1988). *Cooperation in the classroom*. Edina, MN: Interaction Book.

- Johnson, D. W., Johnson, R. T., & Smith, K. A. (2014). Cooperative Learning: Improving University Instruction by Basing Practice on Validated Theory. *Journal on Excellence in College Teaching*, 25(3/4), 85-118.
- Kaciuba, G (2012). An instructional assignment for student engagement in auditing class: Student movies and the AICPA Core Competency Framework. *Journal of Accounting Education*, 30, 248-266.
- Kane, M. T. (2006). *Validation*. In R. Brennan (Ed.), *Educational measurement* (4th ed., pp.17-64). New York: American Council on Education and Praeger.
- Kienhuis, M. (2013). *Interteaching: Dissemination and Evaluation across three RMIT Colleges*. Health Sciences, SHE, Final Report.
- Kuh G. D. (2002). *The national survey of student engagement: Conceptual framework and overview of psychometric properties*. Center for Postsecondary Research, Indiana University, Bloomington. http://nsse.iub.edu/pdf/psychometric_framework_2002.pdf
- Kuh, G. D., Kinzie, J. Cruce, T. Shoup, R. & Gonyea, R.M. (2006). *Connecting the dots: Multi-faceted analyses of the relationships between student engagement results from the nsse, and the institutional practices and conditions that foster student success*. Centre for Postsecondary Research Indiana University Bloomington sourced from http://www.inpathways.net/connecting_the_dots_report.pdf
- Kuh, G. D., Schuh, J. S., Whitt, E. J., & Associates. (1991). *Involving colleges: Successful approaches to fostering student learning and personal development outside the classroom*. San Francisco: Jossey-Bass.
- Merola, G. (2015). *Critical content expert and statistician*. RMIT University Vietnam.
- NSSE (2015). *National benchmarks of effective educational practice*. Bloomington, IN: Indiana University Centre for Postsecondary Research and Planning.
- NSSE (2001). *National benchmarks of effective educational practice*. Bloomington, IN: Indiana University Centre for Postsecondary Research and Planning.
- Oxford Dictionary of Psychology (2015). *Promotively independent goal*. California: Stanford University.
- Pike, G. R., Kuh, G. D., & McCormick, A. C. (2011). An investigation of the contingent relationships between learning community participation and student engagement. *Research in Higher Education*, 52(3), 300-322.
- Sekaran, U., & Bougie, R. (2013) *Research methods for business: A skill building approach*, (6th ed), John Wiley and Sons, West Sussex.
- Slagter, Tracy H., & Scribner, Druscilla L. (2014). Interteach and Student Engagement in Political Science. *Journal of Political Science Education*, 10(1), 81-92.
- Sturmey, P., Dalfen, S., & Fienup, D.M. (2015). Inter-teaching: a systematic review. *European Journal of Behaviour Analysis*, 16(1), 121-130.
- Wang, M., & Fredricks, J. A. (2013). The reciprocal links between school engagement, youth problem behaviours, and school dropout during adolescence. *Child Development*, 85(2), 722-737.
- Watty, K. de Lange, P. Carr, R. O'Connell, B. Howieson, B & Jacobsen, B. (2013). Accounting students' feedback on feedback in Australian universities: They're less than impressed. *Accounting Education*, 22(5), 467-488.
- Weiss, C., & García, E. (2015). Student engagement and academic performance in México: Evidence and puzzles from Pisa. *The Comparative Education Review*, 59(2), 305-331.
- Wong, G., Cooper, B. J., & Dellaportas, S. (2015). Chinese students' perceptions of the teaching in an Australian accounting programme – an exploratory Study. *Accounting Education*, 24(4), 318-340.
- Wygall, D. E., Watty, K., & Stout, D. E. (2014). Drivers of teaching effectiveness: Views from accounting educator exemplars in Australia. *Accounting Education*, 23(4), 322-342.

Appendix

Appendix 1

Inter-teaching
<ul style="list-style-type: none">• guided independent learning• student-paced small group tutorial discussion• lectures are developed in response to student feedback• a distinctive feature of the model is that tutorials precede lectures• before attending each tutorial class, students are provided with a preparation guide• the preparation guide directs students through the week's learning outcomes, with questions that test comprehension and ability to apply and synthesise the material• students are expected to have completed the preparation guide before their tutorials• students come to class and immediately form small groups to discuss the topic material• students start off their discussion by working through the questions that they answered during their self-directed learning from the preparation guide• students are expected to know the answers before they come to tutorials and be able to explain their answers to their peers• peer discussions should make up 80% of the class period• peer discussion is facilitated by the teacher, who also provide reinforcement (including marks towards class discussion grades) for engaging in effective discussion• following each peer discussion session, students are requested to report on the most challenging aspects of the course content• Feedback is used by the teacher to develop content for subsequent clarification which occurs immediately after the discussion (Adapted from Kienhuis, 2013, pp. 1-31).
Lecture Model
<ul style="list-style-type: none">• 1.5-hour lecture which precedes the tutorial• the lecture is once per week where all students receive power point slides• the lecture is posted into Blackboard each week• the lecture begins with a summary of the learning outcomes for the week which are taken from the published course guide• the next session of the week is a 1.5 hour tutorial where students solve questions prepared by the same lecturer• the students usually work alone solving the questions and seeking assistance from the lecturer when required (Adapted from RMIT Vietnam, Accounting Organisations and Society, 2015).

Appendix 2

Hypothesis 1A: Asking questions in class improved the student engagement experience compared to the lecture model for undergraduate accounting students.

Hypothesis 1B: Contributing to a class discussion that occurred during the course which improved the student engagement experience compared to the lecture model for undergraduate accounting students.

Hypothesis 1C: Coming to class without having completed readings did not improve the student engagement experience compared to the lecture model for undergraduate accounting students.

Hypothesis 1D: Working with other students on projects during the course improved the student engagement experience compared to the lecture model for undergraduate accounting students.

Hypothesis 1E: Working with classmates outside of the course to prepare class assignments improved the student engagement experience compared to the lecture model for undergraduate accounting students.

Hypothesis 1F: Putting together ideas or concepts from different courses, when completing assignments or during class discussions in the course, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1G: Tutoring or taught other students in the course, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1H: Discussing ideas from the course with others students, family members and co-workers, outside of class, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1I: Making a class presentation in the course, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1J: Receiving prompt written or oral feedback on academic performance from the course, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1K: Being prepared before coming to the tutorial, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1L: Memorising facts, ideas, or methods from the courses and readings so that they can be repeated in pretty much the same form, does not improve the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1M: Analysing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1N: Synthesising and organising ideas, information, or experiences into new, more complex interpretations and relationships, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1O: Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions, improved the student engagement experience, compared to the lecture model for undergraduate accounting students.

Hypothesis 1P: Applying theories or concepts to practical problems or in new situations, improved the student engagement experience, compared to the lecture model for undergraduate accounting students." (All hypotheses sub-questions are replicated from the NSSE survey questions [NSSE, 2001]).

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Non-formal leadership in higher education: a case study of the transformational leadership of a young female academic in a Nigerian university

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Keywords

Academic success;
learning experience;
transformational leadership;
university students.

Abstract

The purpose of this study was to examine the transformational leadership qualities of a young female academic in a Nigerian university through a qualitative descriptive technique. The study was grounded in the transformational leadership model of Bass (1990, 1997, 1999) and Bass and Avolio (1994) as the theoretical framework. Data were generated from the comments posted on the Facebook timeline of the young academic by her ex-students on her birthday. Obtaining data from Facebook users provide opportunities for qualitative research (Franz et al., 2019). The data were analysed using four themes based on the four components of transformational leadership proposed by Bass and Avolio which are *idealized influence*, *inspirational motivation*, *intellectual stimulation* and *individualized consideration*. The findings showed that the young academic demonstrates these four attributes or components in teaching and learning and in engagements with her students. The findings of the study underscore the need for academics to demonstrate transformational leadership, especially in Nigerian universities. The study also makes a contribution to the current debate on transformational-instructor leadership.

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1. Introduction

The aim of this paper is to examine the transformational leadership qualities of a young female academic in non-formal leadership position in a Nigerian university. This has become important given that researchers (e.g. Hofmeyer et al., 2015; Samman, 2018) have emphasized the need for higher education instructors to develop leadership skills in improving teaching and learning in the classrooms. It is reported that learning is enhanced when lecturers are portrayed as leaders by their students (Richards, 2011) because the leadership of lecturers creates a supportive learning environment where students get positively engaged in academic activities (Andy-Wali & Wali, 2018). Yet, the literature has focused largely on formal leadership with scanty studies on how the non-formal leadership practices of academics are developed in teaching and learning to enhance students' experiences (Hofmeyer et al., 2015). While formal leaders occupy formally assigned positions such as heads of department, subject coordinator, which move away from the classroom, non-formal leaders on the other hand perform classroom related leadership roles (Harris, 2003).

The traditional and long-held view of leadership as hierarchical and vertical (Goncalve, 2018) has been challenged by the emergence of distributed leadership which sees the development of multiple leaders as sources of influence (Ameijde et al., 2009) rather than only those occupying formally assigned positions. Schools are becoming complex and are experiencing expansion in size in recent times which necessitates that leadership should be distributed and based on a collective effort in the school systems (Angelle, 2010). By this, everybody becomes part of the leadership process rather than restricting it to only formal leaders (Northouse, 2016).

Leadership is perceived as influence (Vroom & Jago, 2007; Surji, 2015; Northouse, 2016) which occurs in any group – whether small task group or big organizations (Northouse, 2016). The classroom has therefore been conceived as a small social organization where the teacher leads while the students follow (Pounder, 2008) and in such a setting, the lecturer exercises influence on students' motivation in their engagement with the class activities. While research (e.g. Reeve et al., 1999) has established a connection between teaching styles and students' motivation, it should be noted that leadership is not just about classroom teaching. Lecturers' conducts, their out-of-classroom activities with students and overall engagements with their students describe their leadership practices. Students can only maximise their academic potentials and enjoy the best of their studies in the university when there exists a cordial relationship between them and their lecturers where their lecturers are very supportive to the students, present themselves as role models, mentors and scholars that they truly are. As reported by Sokola et al. (2015, p. 1981), students appreciate lecturers who provide emotional support, give timely feedback, monitor their work efficiently and support them in dealing with the challenges they encounter in their work. Such lecturers shape the students' personality as they leave the university to become part of the pool of efficient human capital (Sokola et al., 2015).

However, it is regrettable that in most public universities in Nigeria, students continue to report dissatisfaction in their university experiences because of the ineffective classroom leadership practices of some academics. Reports keep emerging about unethical conducts of some academics who ought to be an inspiration and role models to their students. The poor relationships between students and their lecturers are well-reported (e.g. Okoedion et al., 2019; Apeh & Dagwa, 2019) as a good number of lecturers have made themselves unapproachable and unsupportive to their students. Where students are concerned about their relationships with lecturers, it could lead to the development of a negative attitude towards the campus environment (Apeh & Dagwa, 2019). Concerns are being raised regarding the poor quality of graduates turned out of Nigerian universities which is partly due to the poor quality of teaching (Idaka & Joshua, 2009) and poor leadership qualities of some instructors or lecturers. The growing confrontations between lecturers and students (Elegbe, 2018) have impacted significantly on lecturer-student engagements. Some lecturers are less concerned about the welfare of the students which in turn impact on students' ability to relate issues with their lecturers (Apeh & Dagwa, 2019). It is no surprise to see students nick-naming lecturers by calling them negative names such as sadist, smiling devil, walking disaster, psycho, tormentor, angel lucifer (as reported in the study of Mensah & Ndimele, 2020) and other derogatory names that do not portray them in a good light. Universities in the country are now marred by corrupt and unethical practices as lecturers engage in extortion, bribery, absenteeism and sexual harassment (Uche, 2014). These practices of lecturers impact directly on the moral conducts of the students even after they have left the university in that when they realize that success does not depend on personal efforts, but on corrupt and unethical conducts, they also would develop such unethical behaviour which can be passed on to the next generation (Abanobi, 2017).

Students always desire lecturers that can meet their learning needs and possess attributes that make them effective (Aregbeyen, 2010). Effective lecturers are those who establish good rapport with their students which builds positive connection both within and outside of the classroom. They show commitment and support to the success of their students and exude leadership qualities which students do not only admire, but also influences their own moral values. Lecturers should be role models to their students (Sharra, 2013) by demonstrating leadership qualities that motivate and inspire their students in enhancing their learning outcomes in the university and their engagements with the wider society. However, in a situation where lecturers are perceived by their students as poor leaders, it impacts negatively on their motivation and improvement (Hendry, 2013). Idaka and Joshua (2009) assert that ways should be sought on how to improve the educational activities of Nigerian lecturers and their impact on students. Therefore, one way this study seeks to contribute is to bring to light the transformational leadership qualities of a young academic in a Nigerian university as attested to by her ex-students. By so doing, academics in Nigerian universities can learn from the testimonials with a view to improving the leadership of lecturers, especially those in non-formal positions so as to improve the quality of teaching and learning and strengthen

lecturer-student engagements. The term ‘young academic’ will be used all through this study to refer to the academic who is in her middle thirties.

2. Theoretical framework

This study is based on the transformational leadership model of Bass (1990, 1997, 1999) and Bass and Avolio (1994) as the theoretical framework. Transformational leadership has become one of the most widely studied leadership models in the last few decades (Liu & Li, 2018) and has been shown by overwhelming findings to positively correlate with individual and organizational outcomes (Chen et al., 2018). Although originally introduced by Burns (1978) (Eisenbeiß & Boerner, 2011), Bass (1985) and his colleague, Avolio, made significant contributions in further developing the model (Towler, 2019). Transformational leadership is an approach to leadership that persuades, inspires and motivate followers through the building of a collective vision for followers to pursue (Lee, 2014). Transformational leaders elevate the level of maturity of followers and their ideals and show concern for the “achievement, self-actualization and the wellbeing of others, the organization and society” (Bass, 1999, p. 11). Transformational leaders “take personal responsibility for the development of their followers” (Bass & Avolio, 1993, p. 113) and thus, encourage followers to maximize their full potentials in transcending beyond their perceived expectations. They set challenging expectations and support others to achieve higher level of performance (Lievens et al., 1997). Followers are moved beyond their immediate self-interests (Bass, 1999) to the collective interests of the organization. By taking personal responsibility of developing their followers, transformational leaders create an environment where followers believe that every member of the organization should have their full potentials developed (Bass & Avolio, 1993).

Pounder (2008) asserts that the effect which transformational leadership has on followers is measured based on three outcomes: extra efforts generated by the leader from followers, perception of the effectiveness of the leader by followers and satisfaction followers derive from their leaders. According to Bass (1999), transformation leaders influence their followers through inspirational motivation, idealized influence, individualized consideration and intellectual stimulation. Inspirational motivation is when the leader inspires followers towards a collective vision ((Molenberghs et al., 2017); idealized influence deals with role modelling (Bass, 1999); Individualized consideration occurs when the leader meets the needs of followers and supports them to overcome challenges (Bass, 1999); and intellectual stimulation is when the leader encourages followers to become innovative and creative (Bass, 1999). The components are presented in the diagram below.

Transformational leadership model demonstrates many positive leadership attributes (Allen et al., 2016) and thus, research has begun to apply this theory or model in higher education classroom (e.g. Pounder, 2008; Daniels & Goodboy, 2014; Andy-Wali & Wali, 2018) and findings have shown that it positively impacts on students’ learning outcomes and academic experience.

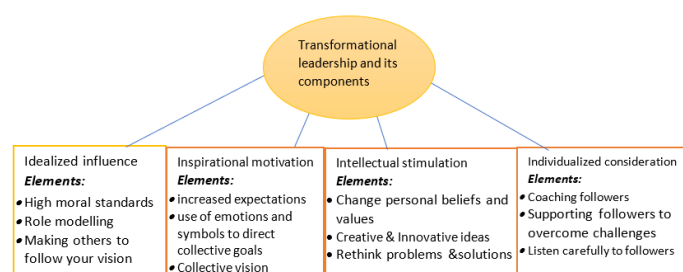


Figure 1: Components or qualities of transformational leadership. Sources: Bass (1990, 1997, 1999); Bass and Avolio (1994)

3. Review of literature on transformational leadership qualities in HE classrooms

Samman (2018, p. 85) asserts that “developing leaders and leadership are key factors to improve learning and teaching in higher education”. For this reason, Andy-Wali and Wali (2018, p. 42) assert that “every lecturer in the higher institution is a leader”. However, they note that the leadership of lecturers can have either a positive or negative effect on students’ academic engagements. While lecturers have the responsibilities of teaching and research (Su & Wood, 2012), they are experiencing expanding roles (Briggs, 2005) as they are now taking up other roles such as pastoral support (Hilliam & Williams, 2019), administrative duties (Billot, 2010), mentorship (Samman, 2018), among others. With the emergence of multiple academics’ roles which are reshaping their work (Billot, 2010), more leadership skills are required (Shahmandi et al., 2011).

Certain factors shape the leadership skills and qualities of lecturers. Manwa et al. (2020) note that the qualities possessed by a lecturer covers their qualifications, competencies and attitudes in catering for the needs of the students. However, the focus of this study is on how lecturers demonstrate transformational leadership in leading teaching and learning and in their engagements with their students, both within and outside of the classroom.

Hendry (2013, p. 254) posits that lecturers as leaders influence the motivation, performance and satisfaction of students and also provide “a supportive, participatory environment consistent with achievement”. By this, lecturers demonstrate that they value their students as they see them as critical stakeholders in the classroom and the university. This is why Su and Wood (2012) proposed that more should be done to engage students in higher education as “co-producers of knowledge about pedagogy and practice” in order to deepen and produce deeper knowledge and understanding. Therefore, lecturers have a crucial role to play as facilitators of this process of co-constructing knowledge with students and shaping a positive learning experience.

Andy-Wali and Wali’s (2018) qualitative study in a UK university revealed that the transformational leadership qualities of lecturers influenced the learning experiences of the students in that they (the lecturers) created a participatory learning environment, made themselves accessible to the students both inside and outside the classroom, provided

timely feedback, were willing to provide academic and moral support to the students and passionately taught them. Bogler et al's (2013) study centred on the transformational and passive leadership qualities of lecturers and their findings revealed that the more transformational lecturers were, the more satisfied students were. Transformational teachers are those who create "dynamic relationships between teachers, students, and a shared body of knowledge to promote student learning and personal growth" (Slavich & Zimbardo, 2012, p. 1). Slavich and Zimbardo (2012, p. 1) further state that such "instructors are intellectual coaches who create teams of students who collaborate with each other and with their teacher to master bodies of information". By working closely with their students and monitoring their progress through their transformational leadership practices, lecturers coach and inspire students to maximise their full academic potentials and become high achievers.

Transformational lecturers demonstrate qualities such as respect for students and show concern for their needs, demonstrate appropriate professional conduct, set high academic expectations, display good sense of humour, reward appropriate behaviours, challenge the thinking ability of students, exude confidence, knowledge and always prepared (Hendry, 2013). Pounder (2008) adapted the four components of transformational leadership of Bass (1990, 1999) and Bass and Avolio (1994) and his findings showed the transformational characteristics demonstrated in the classroom (that is, idealized influence – behaviours, idealized influence – attribute, intellectual stimulation, individualized consideration and inspirational motivation) led to positive students outcomes which are satisfaction, extra effort and effectiveness. Similarly, Bolkan and Goodboy (2011, p. 10) adapted the operationalized qualities or components of transformational leadership of Bass (1985) and reported that:

(a) charisma was communicated through teacher confirmation, nonverbal immediacy, humor, caring, availability, content relevance, verbal immediacy, attitude homophily, equality, and self-disclosure; (b) individualized consideration was communicated through teacher availability, individualized feedback, verbal immediacy, personalized content, conveying interest, special considerations, student history, and encouraging participation; and (c) intellectual stimulation was communicated through teaching style, challenging students, independent thought, classroom participation, humor, and content relevance.

Harrison's (2011, p. 91) study revealed that the transformational leadership behaviours of instructors significantly predicted the "cognitive learning, affective learning, perceptions of instructor credibility and communication satisfaction" of the students. This implies that students will have positive learning experiences when instructors or lecturers are transformational in their teaching and engagements with their students. As reported from the study of Noland and Richards (2014, p. 5) transformational leadership "significantly predicted student state motivation,

learning indicators and affective learning" and thus, concluded that transformational leadership serves as "an appropriate and effective model for classroom instruction".

4. The current study

The current study is in the form of a qualitative descriptive research (Hofmeyer et al., 2015) aimed at describing the transformational leadership qualities of a young academic in the Faculty of Education of a Nigerian university. The study was influenced by the overwhelming encomiums posted on the Facebook timeline of the academic by her ex-students on her birthday. Thus, the need to bring to light some of the qualities that are said to be demonstrated by this young academic which have made her outstanding in the eyes of her students. It is hoped that through this, other academics can be inspired to improve on their leadership qualities in Nigerian universities so that the quality of teaching and learning can be enhanced and students can have the best of university experience. To guide the study, the following question was raised:

In what ways does the young academic display transformational leadership?

To answer the research question, comments of eight of her ex-students were reported. Reporting the comments of these number of participants is sufficient as the literature suggests 5 to 50 participants for a qualitative study (Shari, 2012). Their names were pseudonymised to ensure privacy. As noted by Franz et al. (2019), although Facebook provides opportunity for obtaining qualitative data for research, it is important to ensure the anonymity and safety of individual's Facebook information regardless of whether or not they are research participants. Their comments are reported using ex-student A, ex-student B, etc.

5. Analysis

Findings show that the young academic demonstrates transformational leadership through the display of the four components or qualities inherent in the transformational leadership model of Bass (1990, 1997, 1999) and Bass and Avolio (1994). The components and how they are demonstrated are reported below.

Idealized influence

According to Bass (1997), idealized influence (or charisma) involves leaders leading with a conviction, emphasizing trust, taking a stand on difficulties, presenting important values and emphasizing the importance of commitment, purpose and ethical implications of decisions. By demonstrating idealized influence, "leaders are admired as role models generating pride, loyalty, confidence, and alignment around a shared purpose" (Bass, 1997, p. 133). A measure of this quality or component involves ascertaining the extent to which the leader is respected and admired by followers (Pounder, 2005).

From the comments of her ex-students, the young academic demonstrates idealized influence in engaging with her students. She commands so much admiration and serves as a role model to her students.

Ex-student A states:

I will never forget those days when I would refer to you as a STAR (that you really are) you would say sincerely and meaningfully to me that I could become one too if I studied hard. There are so much to admire in you. . .

Ex-student C wrote:

This is to a gracious Woman who I watch from afar and so much want to be like [. . .] Thank you for making a career in education an admirable career [. . .] especially to me. I never loved my course until I met you [. . .]

Student C's comment show that her interest in the programme of study was kindled by the young academic. It should be noted that most students in Nigeria do not choose to study Education to become teachers and many of them who are admitted into the Faculty of Education are those who could not obtain the cut-off points in the Post-University Matriculation Examination (Post-UME) for their preferred course of study. Post-UME is an entrance examination, or a method of admission conducted by universities in Nigeria to select suitable candidates for admission into various programmes of study after they had written the University Matriculation Examination (UME).

Ex-student D commented thus:

I feel super elated celebrating this momentous day with my AMIABLE COURSE ADVISER. A mother, a role model, undaunted personality and one who's diligent and assiduous in her engagements.

Ex-student F:

It is an awesome privilege to be raised by you [. . .] I learned more from you than the University of [. . .] had to teach me in four years.

You are one of the most valuable persons in my life and I do not take for granted your simplicity and humility [. . .]

Inspirational motivation

According to Bass (1997), inspirational motivation involves leaders articulating a future that is appealing to both the leaders and the followers, setting high standards to challenge their followers, being optimistic and enthusiastic by the way they talk, and providing encouragement and meaning for what needs to be done. The measure of this dimension or component is "the leader's ability to engender confidence

in the leader's vision and values" (Pounder, 2005, p. 5). This attribute is seen in the young academic by the comments of her ex-students.

Ex-student B notes:

I remembered that very day I stepped into Auditorium to be cleared as a direct entry student to the department of [. . .], you happened to be my clearance officer. You told me something that I will never forget in my life, which later become [became] my inspiration till the end; you asked: " Can you cope in [. . .] department since you did Primary Edu. in NCE"? And I answered yes, then you told me that since am determined that I can do it but it takes hard work and focus. This particular word to me on that first day inspired me and made me to graduate with good result. Seeing you again in the lecture hall as my lecturer and been introduced by Prof [. . .] as a first class student made me to admire you more.

Ex-student G wrote:

Words fail me to explain how much love and respect have got for you, my beautiful, intelligent lecturer. You just so amazing, humble, sweet, down to earth and encouraging [. . .] Remembered rushing down to your office that beautiful morning to lay a report on my missing scripts years back.

Your words of encouragement having had 5 missing scripts [. . .]. Your exact words "having missing scripts doesn't mean you won't graduate when its your time" Stay Focused! Go & register the courses and I believe you won't have any issues again.

Intellectual stimulation

Bass (1997) notes that transformational leaders demonstrate intellectual stimulation by questioning old assumptions, beliefs and traditions; stimulating others to embrace new ways and perspectives of doing things; and encouraging the expression of reasons and ideas. This component or dimension deals with the extent to which followers are provided with challenging and interesting tasks and encouraged to adopt their own ways of solving problems (Pounder, 2005). Regarding the young academic, this transformational quality is seen to be demonstrated based on what is written about her by her ex-students.

Ex-student A wrote:

Your method of teaching is equal to none in the whole Faculty of Education because there's a different [difference] between 'teaching' and 'lecturing', when you teach the whole 1000Lt become [becomes] as cold as ice block because of your charisma, intelligence, and method of teaching.

Ex-student B states:

Being a teacher to many of us then was really beautiful but I watched in amazed [amazement] how you did this with so much humility and desiring that we understood. This effort we hardly got from our lecturers you know [. .]

Ex-student D:

A good teacher teaches but great teachers demonstrates [demonstrate] and live by what they teach.

Ex-student E:

She is a teacher: If she teach you and you no understand. Then forget it. Schooling no be your calling [expressed in pidgin. It means that if she teaches you and you do not understand, then schooling is not for you].

Ex-student G:

I felt so pained on hearing you've gone for your PhD back then, got to the point whenever I tried reading my Edu. materials I would complain all through lamenting "if only you had being the one who took the course" understanding wouldn't be of great difficulty [. .]

Individualized consideration

By individualized consideration, transformational leaders "deal with others as individuals, consider their needs, abilities, and aspirations; listen attentively; further their development; advise; teach; and coach" (Bass, 1997, p. 133). This component demonstrates the extent to which the leader cares about the needs and concerns of individual follower (Pounder, 2005). The young academic demonstrates this quality by listening to her students and seeing to their needs and concerns as identified from the comments of her ex-students.

Ex-student F states:

You taught me to be diligent yet prayerful; outspoken yet humble... Your passion to see others grow and become the best version of themselves is indeed contagious.

From you, I learned to be studious yet sociable; jovial yet respectful. Thank you for consistently guiding me in the right direction, offering practical solutions to my unending puzzles [. .] I am forever indebted to you for the lasting impact you've had on my life. Thank you for always creating time out of your very busy schedule to attend to my challenges.

Ex-student E wrote:

She is a mentor: She is always ready to listen and to give the best advice you can ever get.

She doesn't discriminate and there's this sense of comfort you get when you are around her [. .]

Ex-student C stated:

My undergraduate final year days were blessed because I had you in it. [. .] Thank you for readily answering my many questions till date

According to ex-student B,

All the students of Faculty of Education loves [love] you for who you are and what you carry because you love them so much that you always reach out to them when they are confused with love as a mother would do for her children.

Ex-student A notes;

I fell in love with you the more the day I ran into your time table for studies; [. .] your schedule was quite tight and yet you had time to put us through. Just incase you have forgotten, there were times some people came after the class. You still went ahead to have classes with them. God! You are super human. [. .]

Student H wrote:

I have read so many epistles detailing your great services to humanity in your chosen field. To those who are not in the know, they may not understand. But for us who have had a first hand feeling of your angel-like nature, we cannot but say THANK GOD for an UNCOMMON BREED in the midst of the ordinary.....will never in my lifetime forget the uncanny effort and sacrifices you made back in the days just to ensure my successful graduation from [name of the university]

Ma'am, the little seed you took extra pain and effort to 'nurture' is blossoming into a great oak tree. We the beneficiaries of your magnificent show of support and selflessness will continue to sing your praise for all to hear.

6. Discussion

Findings from the comments of the ex-student revealed that the young academic possesses all the attributes of transformational leadership according to the model of Bass (1990, 1997, 1999) and Bass and Avolio (1994) which are idealized influence, individualized consideration, inspirational motivation and intellectual stimulation. This is consistent with the attributes of transformational-instructor

leadership reported in the literature (e.g. Pounder, 2008; Bolkan & Goodboy, 2011). As Harrison (2011) and Noland and Richard (2014) reported, the transformational leadership qualities of instructors lead to students' motivation, satisfaction and learning experiences.

Through idealized influence, the young academic is admired by her students as she communicates the importance of being committed in the face of difficulties, being purpose-driven in achieving goals and placing values in decision-making. She is seen to "be diligent and assiduous in her engagements" (ex-student D) and thus, students admire and respect her and look up to her as a role model. As reported by Bolkan and Goodboy (2011), transformational tutors through their charisma (idealized influence) command "attitude homophily".

The young academic's inspirational motivation disposition makes her to set a clear vision and values for her students through optimism and enthusiasm. By this, she does not allow her students to concentrate on challenges, rather, they are trained and encouraged to set high expectations and as reported from the comments of the ex-students, she communicates clear expectations of success. Her values revolve around focus and determination. She upholds a clear vision of academic success and this she imbued in her students.

The quality of Intellectual stimulation is seen by the way she teaches. As reported from the study of Bolkan and Goodboy (2011), instructors communicate the attribute of intellectual stimulation through their "teaching style, challenging students, independent thought, classroom participation, humor and content relevance". From the comments of the ex-students, it is observed that the young academic has excellent pedagogical skills which she utilizes in ensuring that her students are passionately taught and supported both within and outside the classroom. Her dedication is highly appreciated by her students which one of the ex-students noted they hardly got from other lecturers. As ex-student G lamented, the young academic's absence in pursuit of a PhD abroad created a vacuum in that study materials became difficult to understand.

By demonstrating the quality of individualized consideration, the young academic shows commitment towards the needs of her students and helping them to resolve their challenges. Bolkan and Goodboy (2011) report that instructors who demonstrate this quality made themselves available to their students, provided individualized feedback, verbal immediacy, encouraged participation in the teaching and learning process, among others. The young academic is ready to listen to her students, answer their unending questions, reach out to them when they are confused and willing to repeat lessons for those that came late for classes. All this she does even in her tight schedules. From student H's comments, it is seen that the young academic's supportive and empathetic disposition continues to resonate in the minds of her students even after they have left the university.

7. Conclusion

This study examined the transformational leadership qualities of a young female academic in a Nigerian university. Findings revealed that the young academic demonstrates all the four components or qualities of transformational leadership. She is seen as a mentor and role model to the students (idealized influence), commands a clear vision of academic success to her students through determination and enthusiasm (inspirational motivation); demonstrates excellent pedagogical skills (intellectual stimulation); and is always available and ready to meet the needs of her students and resolve their challenges (individualized consideration). These qualities have endeared her to her students and made her to be an outstanding university teacher. By being transformational in her engagements with the students, she positively influences their university experiences which keep lingering even after they leave the university to become highly productive university graduates as they strive to live up to the standard set by the young academic in their various leadership positions and other endeavours.

The study has contributed to the current debate on transformational leadership in the classroom as it is considered to be the best approach to leading teaching and learning. The more transformational instructors are, the more students get positively engaged in the teaching and learning process and in the entire university environment.

8. Implications for practice

Findings from the current study have implications for leadership practices in Nigerian university classrooms. The display of transformational leadership qualities by the young academic have shown to positively impact on the academic experiences of her ex-students and their achievement outcomes. The high level of satisfaction derived by followers (in this case students) (Pounder, 2005) from such leadership is a testament to the integral role leadership plays in enhancing students' learning experiences.

It is therefore important for university instructors in Nigeria to avail themselves of all the opportunities of developing leadership skills and demonstrating them in and out of the classroom. The young academic's exemplary leadership challenges the current status quo and presents a huge challenge on academics to change the narrative. This can only be achieved by demonstrating the four components of transformational leadership. Academics can demonstrate Idealized influence by emphasizing on diligence, commitment and communicating important values to the students. They should discourage all forms of laziness in the students and those in the habit of encouraging 'blocking' should stop. 'Blocking' is a pidgin slang used by Nigerian students to mean offering bribes to lecturers to pass a module or course. From the comments of the ex-students, the young academic's emphasis on hard work and commitment to studies has made her to be admired as a role model.

Academics can demonstrate intellectual stimulation by creating a classroom learning environment that encourages creativity, participatory learning and independent thinking.

By encouraging students to embrace challenging and interesting tasks (Pounder, 2005), students will love learning and they will develop higher-order thinking skills rather than learning by rote. The young academic puts so much effort in facilitating high quality teaching and learning which one of the ex-students noted they did not get from other lecturers.

Through inspirational motivation, university tutors can communicate a clear vision of academic success to their students. They should be enthusiastic about their students, believe in them and encourage them to maximize their full potentials. Academics can demonstrate individualized consideration by making themselves more accessible/approachable to their students, provide prompt feedback on students' academic tasks, show commitment towards their needs and support them in overcoming their challenges.

9. Recommendations for policy

The findings of this study have demonstrated the importance of transformational leadership in the classroom. Therefore, universities in Nigeria should encourage leadership development programmes for academics both in formal and non-formal leadership positions. This is particularly important for academics in non-formal leadership position as they will be trained on how to be transformational in the classroom. This could be in the form of seminars, workshops, online training sessions and mentoring. It is also important that universities put in place policies aimed at obtaining feedbacks from students on a regular basis regarding the leadership practices of lecturers. Information from these feedbacks could be used to shape leadership development programmes.

10. Limitation of the study

The study relied on the posts made by the ex-students to report the transformational leadership practices of the young academic. Some of the comments or posts did not shed more light on the qualities of the young academic. A combination with an interview would have provided an opportunity for a deeper insight where the students would have offered more clarifications on some of their comments or posts. For instance, regarding teaching, the students would have been asked to highlight various approaches utilized by the young academic in facilitating teaching and learning in the classroom.

References

- Abanobi, C. C. (2017). Undergraduate's perception of unethical practices among lecturers in higher institution in Delta state. *IJRDO-Journal of Educational Research*, 2(11), 123 -133.
- Allen, G. P., More, W. M., Moser, L. R., Neil, K. K., Sambamoorthi, U., & Bell, H. S. (2016). The role of servant leadership and transformational leadership in academic pharmacy. *American Journal of Pharmaceutical Education*, 80(7). <https://doi.org/10.5688/ajpe807113>
- Ameijde, J. D. J., Nelson, P. C., Billsberry, J., & Meurs, N. (2009). Improving leadership in higher education institutions: A distributed perspective. *The International Journal of Higher Education*, 58(6), 763–779. <https://doi.org/10.1007/s10734-009-9224-y>
- Andy-Wali, H. A., & Wali, F. (2018). Lecturers' leadership practices and their impact on students' experiences of participation with implications for marketing higher education services. *Higher Education for the Future*, 5(1), 40-60. <https://doi.org/10.1177/2347631117738640>
- Angelle, P. S. (2010). An organizational perspective of distributed leadership: A portrait of a middle school. *RMLE Online*, 33(5), 1-16. <https://doi.org/10.1080/19404476.2010.11462068>
- Apeh, H. A., & Dagwa, A. I. (2019). Influence of lecturer-students' relationship on academic and social integration of students in university of Abuja, Nigeria. *UNIZIK Journal of Educational Management*, 3(1), 100-107.
- Aregbeyen, O. (2010). Students perceptions of effective teaching and effective lecturer characteristics at the university of Ibadan, Nigeria. *Pakistan Journal of Social Sciences*, 7(2), 62-69.
- Bass, B. M., & Avolio, B. J. (1994). Transformational leadership and organizational culture. *The International Journal of Public Administration*, 17(3), 541-554. <https://doi.org/10.1080/01900699408524907>
- Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, 18(3), 19-31. [https://doi.org/10.1016/0090-2616\(90\)90061-S](https://doi.org/10.1016/0090-2616(90)90061-S)
- Bass, B. M. (1997). Does the transactional-transformational leadership paradigm transcend organizational and national boundaries?. *American Psychologist*, 52(2), 130 – 139.
- Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organizational Psychology*, 8(1), 9-32. <https://doi.org/10.1080/135943299398410>
- Bass, B. M., & Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public Administration Quarterly*, 17(1), 112-121.

- Billot, J., West, D., Khong, L., Skorobohacz, C., Roxå, T., Murray, S., & Gayle, B. (2013). Followership in higher education: academic teachers and their formal leaders. *Teaching & Learning Inquiry*, 1(2), 91 – 103.
- Bogler, R., Caspi, A., & Roccas, S. (2013). Transformational and passive leadership: An initial investigation of university instructors as leaders in a virtual learning environment. *Educational Management Administration & Leadership*, 41(3), 372-392. <https://doi.org/10.1177/1741143212474805>
- Bolkan, S., & Goodboy, A. K. (2011). Behavioral indicators of transformational leadership in the college classroom. *Qualitative Research Reports in Communication*, 12(1), 10-18. <http://dx.doi.org/10.1080/17459435.2011.601520>
- Briggs, S. (2005). Changing roles and competencies of academics. *Active Learning in Higher Education*, 6(3), 256-268. <https://doi.org/10.1177/1469787405057753>
- Chen, Y., Ning, R., Yang, T., Feng, S., & Yang, C. (2018). Is transformational leadership always good for employee task performance? Examining curvilinear and moderated relationships. *Frontiers of Business Research in China*, 12(4), 1-28. <https://doi.org/10.1186/s11782-018-0044-8>
- Daniels, R., & Goodboy, A. K. (2014). Transformational Leadership in the Ghanaian University Classroom. *Intercultural Communication Studies*, 23(2), 90-109.
- Eisenbeiß, S. A., & Boerner, S. (2011). A double-edged sword: transformational leadership and individual creativity. *British Journal of Management*, 24(1), 54-68. <https://doi.org/10.1111/j.1467-8551.2011.00786.x>
- Elegbe, O. (2018). Lecturers-students' interpersonal communication: Implication for students' academic learning. *Huria: Journal of the Open University of Tanzania*, 25(1), 28-54.
- Franz, D., Marsh, H. E., Chen, J. I., & Teo, A. R. (2019). Using Facebook for qualitative research: A brief primer. *Journal of Medical Internet Research*, 21(8), 1-12. <https://doi.org/10.2196/13544>
- Goncalves, R. B. (2018, May). *Why should we care about informal leadership?* <https://teljournal.educ.ubc.ca/2018/05/why-should-we-care-about-informal-leadership/>
- Harris, A. (2003) Teacher leadership as distributed leadership: heresy, fantasy or possibility? *School Leadership & Management*, 23(3), 313 - 324.
- Harrison, J. L. (2011) Instructor transformational leadership and student outcomes. *Emerging Leadership Journeys*, 4(1), 82 - 136.
- Hendry, J. A. (2013) Are radiography lecturers leaders? *Radiography*, 19, 251- 258.
- Hilliam, R., & Williams, G. (2019) Academic and pastoral teams working in partnership to support distance learning students according to curriculum area. *Higher Education*
- Pedagogies*, 4(1), 32-40. <https://doi.org/10.1080/23752696.2019.1606674>
- Hofmeyer, A., Sheingold, B. H., Klopfer, H. C., & Warland, J. (2015) Learning and teaching in higher education: perspectives of academics in non-formal leadership roles. *Contemporary Issues in Education Research*, 8(3), 181- 192.
- Idaka, I. I., & Joshua, M. T. (2009). Attitude of academic staff in Nigerian tertiary educational institutions to student evaluation of instruction (sei): A case study of Cross River State university. *Educational Research and Review*, 4(10), 470 - 474.
- Lee, M. (2014), Transformational leadership: Is it time for a recall?. *International Journal of Management and Applied Research*, 1(1), 17-29. <https://doi.org/10.18646/2056.11.14-002>
- Lievens, F., Geit, P. V., & Coetsier, P. (1997) Identification of transformational leadership qualities: An examination of potential biases. *European Journal of Work and Organizational Psychology*, 6(4), 415-430. <https://doi.org/10.1080/135943297399015>
- Liu, H., & Li, G. (2018). Linking transformational leadership and knowledge sharring: The mediating roles of perceived team goal commitment and perceived team identification. *Frontiers in Psychology*, 9, 1-10. <https://doi.org/10.3389/fpsyg.2018.01331>
- Manwa, L., Chireshe, R., & Chireshe, E. (2020). Perceived impact of attitudes and competencies of lecturers on academic performance of female students at a university in Zimbabwe. *Journal of International Women's Studies*, 21(1), 328 – 342.
- Mensah, E. O., & Ndimele, R. I. (2020) King shumba, smiling devil and baby doctor: A sociolinguistic study of lecturers' nicknames in two Nigerian universities. *African Identities*, 1-18. <https://doi.org/10.1080/14725843.2020.1813544>
- Molenberghs, P., Prochilo, G., Steffens, N. K., Zacher, N., & Alexander, S. (2017). The neuroscience of inspirational leadership: The importance of collective-oriented language and shared group membership. *Journal of Management*, 43(7), 2168 –2194. <https://doi.org/10.1177/0149206314565242>
- Noland, A., & Richards, K. (2014) The relationship among transformational teaching and student motivation and learning. *The Journal of Effective Teaching*, 14(3), 5 – 20.
- Northouse, N. G. (2016). *Leadership theory and practice*. London: Sag Publications. <https://fliphtml5.com/lnym/ezlr/basic>
- Okoedion, G., Okolie, U. C. , & Udom, I . D. (2019). Perceived factors affecting students' academic performance in Nigerian universities. *Studi Sulla Formazione*, 22, 409-422. <https://doi.org/10.13128/ssf-10814>
- Pounder, J. S. (2005). *Transformational classroom leadership: Developing the teacher leadership notion*. Hong Kong

Institute of Business Studies Working Paper Series. Paper 42.
<http://commons.ln.edu.hk/hkibswp/42>

Pounder, J. S. (2008). Transformational classroom leadership: A novel approach to evaluating classroom performance. *Assessment & Evaluation in Higher Education*, 33(3), 233 – 243. <https://doi.org/10.1080/02602930701292621>

Reeve, J., Bolt, E., & Cai, Y. (1999) Autonomy-supportive teachers: how they teach and motivate students. *Journal of Educational Psychology*, 91(3), 537 – 548.

Richards, D. (2011). Leadership for learning in higher education: The student perspective. *Education Management Administration & Leadership*, 40(1), 84 – 108. <https://doi.org/10.1177/1741143211420617>

Samman, A. M. (2018). Non-formal academic leadership roles and their impact on enhancing performance within higher education institutions: A case study of inspired from practical experience. *Social Science Learning Journal*, 3(6), 85-91. <https://doi.org/10.15520/sslej.v3i6.2193>

Shahmandi, E., Silong, A. D., Samah, B. B. A., & Othman, J. (2011). Competencies, roles and effective academic leadership in world class university. *International Journal of Business Administration*, 2(1), 45-53.

Shari, L. D. (2012) Sample size policy for qualitative studies using in-depth interviews. *Archives of Sexual Behavior*, 41, 1319–1320. DOI: 10.1007/s10508-012-0016-6

Sharra, S. (2013) *University education and the crisis of leadership in Malawi*. <https://blogs.lse.ac.uk/africaatlse/2013/06/17/university-education-and-the-crisis-of-leadership-in-malawi/>

Slavich, G. M., & Zimbardo, P. G. (2012) Transformational teaching: Theoretical underpinnings, basic principles, and core methods. *Educational psychology review*, 24(4), 569-608. <https://doi.org/10.1007/s10648-012-9199-6>

Sokola, A., Gozdeka, A., & Figurska, I. (2015). The importance of teacher leadership in shaping the creative attitudes of students. *Procedia - Social and Behavioral Sciences*, 197, 1976 – 1982. <https://doi.org/10.1016/j.sbspro.2015.07.569>

Su, F., & Wood, M. (2012). What makes a good university lecturer? Students' perceptions of teaching excellence. *Journal of Applied Research in Higher Education*, 4(2), 142 – 155.

Surji, K. M. (2015). Understanding leadership and factors that influence leaders' effectiveness. *European Journal of Business and Management*, 7(33), 154-167. <https://doi.org/10.7176/ejbm/7-33-2015-03>

Towler, A. (2019). *The qualities of transformational leaders and what distinguishes them from transactional leaders*. <https://www.ckju.net/en/dossier/qualities-transformational-leaders-and-what-distinguishes-them-transactional-leaders>

Uche, R. D. (2014). Students' perception of corrupt practices among Nigerian university lecturers. *American Journal of Humanities and Social Sciences*, 2(1), 66-69. <https://doi.org/10.11634/232907811402511>

Vroom, V. H., & Jago, A. G. (2007) The role of the situation in leadership. *American Psychologist*, 62(1), 17–24. <https://doi.org/10.1037/0003-066X.62.1.17>



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Assessing the campus climate on sexual misconduct: An opportunity for student-centered research

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Campus assessment;
qualitative research;
sexual misconduct.

Abstract

Campus climate surveys are effective ways to assess behaviors and attitudes regarding sexual misconduct. Undergraduate applied learning and research-centered projects are also integral to helping students apply textbook content to real-world dilemmas. In conjunction with the Collaboration for Assault Response & Education Office and the Office of Title IX and Clery Compliance, the researchers taught and mentored undergraduate students in co-facilitating a sexual misconduct assessment. The project proceeded in four phases: planning and training; focus group recruitment; focus group facilitation; and data analysis. This research highlights how university and college departments, as well as organizations, can collaborate to facilitate large-scale assessments. We also explain how these assessments can be integrated into applied learning and research projects for students. Opportunities for future research include more extensive training on qualitative data collection and analysis for undergraduate students; routine assessments of the campus climate related to sexual misconduct; and continued student-centered research opportunities that focus on current events.

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Introduction

According to the World Health Organization (2021), interpersonal violence is “violence between individuals ... and includes child maltreatment; intimate partner violence; and elder abuse ... acquaintance, stranger and youth violence; assault by strangers; violence related to property crimes; and violence in workplaces and other institutions.” Therefore, sexual misconduct is a category of interpersonal violence. And as defined by the University of North Carolina Wilmington’s Collaboration for Assault Response & Education (CARE) Office, sexual assault and sexual misconduct are overarching terms used to define a “completed or attempted” sexual act without consent (UNCW, 2020a).

College students are at a heightened risk for sexual assault even though the rate of reporting is low (McMahon & Stepleton, 2018). Rates of assault and misconduct vary widely by school and student population. Monitoring and assessing behaviors, as well as attitudes, regarding sexual misconduct became a shared initiative on college campuses across the country after implementation of the White House Task Force to Protect Students from Sexual Assault in 2014 (Krebs et al., 2016). Due to the variance of sexual assault incidents and the likelihood that the majority of these events are not reported to law enforcement, climate surveys remain the most effective and meaningful way to understand the magnitude and nature of sexual misconduct on college and university campuses (U.S. Department of Justice, 2018).

Assessing the campus climate routinely is necessary as perceptions and attitudes toward sexual and gender minorities are essential to assist students affected by interpersonal violence (Coulter & Rankin, 2017; Follingstad, & Busch-Armendariz, 2017; Wood et al., 2017). Effectively addressing sexual misconduct requires cross-campus collaboration, faculty, as well as administration, involvement, and the integration of student opinions and voices (Graham et al., 2018). Researchers who have led projects to review campus climate surveys emphasized a need to clearly define sexual assault by engaging a representative sample of students who completed surveys and oversampling vulnerable, as well as marginalized, populations (Beaver, 2017; Heer & Jones, 2017).

Another important emphasis on college campuses is the need for undergraduate and graduate students to engage in applied learning and research-based opportunities. Studies suggest a positive association between research understanding and interest when this exposure occurs early in a student’s matriculation (Hunter et al., 2007; Seymour et al., 2004). Providing applied learning opportunities for students is highly beneficial for engaging students with course material and helping them learn to conduct research. These experiences are often mutually beneficial for students and faculty in that students apply theory to real life situations, increase their level of engagement as citizens on campus, and observe viable change from their efforts. Simultaneously, faculty gain insights into important student perspectives (Holtzman, 2015; McCarthy, 2016).

In conjunction with the Collaboration for Assault Response & Education (CARE) Office and the Office of Title IX and Clery Compliance on a medium-sized university campus in southeastern United States, we conducted a biannual, campus climate assessment to gauge attitudes and behaviors related to sexual misconduct and to inform prevention initiatives. Existing literature describes the importance of using campus collaborations to engage students in creating meaningful, positive, and productive partnerships (McMahon et al., 2016). Therefore, we used these findings to leverage resources provided by several university program offices to assist with data assessment and analysis training for Public Health students. The project afforded students applied learning experience intertwined with aspects of health promotion, including data collection and analysis, professional presentations, and program development. The researchers believe this opportunity was also integral to helping the students become better equipped as future Public Health practitioners. While there is limited scholarly data about the role of Public Health practitioners in addressing sexual misconduct, research has highlighted the potential impact of peer to peer education in prevention efforts (McMahon et al., 2019).

The purpose of this paper is to present the process for the completion of a biennial, collaborative assessment used to gauge attitudes about sexual assault and misconduct. The researchers provide a framework for future cross-campus collaborations conducting campus-wide assessments and detail lessons learned, as well as opportunities for future research.

Methods

Our primary method for this project was focus groups as they are viable research tools for gaining insight on perspectives and experiences on an array of subjects, including those deemed as sensitive topics (Kruegar, 2014). A number of campus-wide groups assisted in the recruitment of focus group participants, data collection and analysis, and the presentation of results. The project required active engagement of the following groups and campus entities:

- the CARE Office, which offers comprehensive education, trainings, campaigns, services, and advocacy for students who have been victimized;
- the Office of Title IX and Clery Compliance;
- the Public Health program in the School of Health and Applied Human Sciences;
- and one graduate, along with several undergraduate students.

The research team comprised two faculty within the University’s Public Health program and one graduate research assistant (GRA). One faculty member served as the Principal Investigator (PI) for the project and spearheaded key tasks including, but not limited to: coordinating team

meetings; hiring the GRA; liaising with campus departments; ensuring focus group marketing, recruitment and facilitation; and co-leading data analysis, as well as presentation. The additional faculty member was the primary instructor for a Public Health Evaluation Methods course and served as the primary contact for students enrolled in this course (N = 23); scheduled all class visits by the remainder of the research team; coordinated student sign-ups for focus group co-facilitation; and assisted with data analysis. The PI selected the partnering faculty member because this colleague taught an undergraduate course covering program design and evaluation. The GRA assisted with all aspects of planning and recruitment. The team worked together to engage various campus departments in recruiting a representative sample of the student population. The project proceeded in four phases: planning and training, focus group recruitment, focus group facilitation, and data analysis (Figure 1).

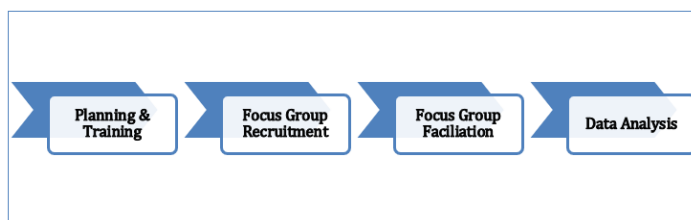


Figure 1. Four phases of the research project. Note. The research project was implemented in accordance with the steps outlined in this diagram.

Phase I: Planning and training

Initial planning for the project included several steps. Faculty members met to discuss the project's feasibility and identify potential funding options. This step also included identifying a specific class for which the research project would be integrated into the semester's content. An undergraduate Public Health Evaluation Methods course was chosen, as it gave students an opportunity to apply course material to a current event using methods taught in the course including, but not limited to, the importance of program evaluation, as well as quantitative and qualitative data collection.

The faculty members met with the CARE Office and Office of Title IX and Clery Compliance to gauge interest and gather information on how the assessment process was conducted in previous years. After roles and responsibilities were clearly defined, other campus units were engaged, including the Student Success Center, which is responsible for programming related to student recruitment, retention, academic success, and post-graduation placement.

Team members identified the Experiencing Transformative Education through Applied Learning (ETEAL) grant as the best fit for funding this study (UNCW, 2020b). ETEAL grants support student-centered, experiential initiatives. The proposed project met the criteria for this grant source, resulting in a \$3,500 award. The funds were used to hire a GRA, purchase focus group audio recording material and incentives, and pay for audio transcription services.

Experiential learning was a central aspect of this project. After securing grant funds, the research team introduced the project to undergraduate students enrolled in a Public Health Evaluation Methods course. The PI and GRA conducted multiple visits to the class to provide an overview of the project, discuss expectations for student engagement, answer questions, and detail next steps—including the focus group training and facilitation schedule. Training sessions with the students on how to facilitate focus groups were conducted during subsequent visits. Over a series of face-to-face classes, the team continued to prepare students for involvement in the project, such as facilitating mock focus group sessions and debriefings.

The research team drafted a focus group guide and shared it with students for feedback. Each student enrolled in the class reviewed the guide and provided handwritten feedback. Feedback included simplifying questions, defining terminology, giving more background on campus policies before asking questions, and eliminating redundant questions. The researchers viewed this feedback as valuable because some of the groups would be co-facilitated by students. Additionally, having guidance from students on the ease and simplicity of questions assisted in removing research jargon and making transitions between questions smoother. This feedback was also sent to the CARE and Title IX Offices for final approval. The researchers submitted an Institutional Review Board (IRB) application, but the Board provided an exemption because the research team would not be sharing the results from the focus groups.

Phase II: Focus group recruitment

One goal of the project was to have a representative sample of students participate in the focus groups. To achieve this sample size, the research team contacted campus units to seek permission to recruit participants from their respective programs. These departments included the College of Education, the English Department, the School of Health and Applied Human Sciences, the School of Nursing, the Student Success Center, and the Music Department. These collaborations helped the research team recruit participants and conduct groups via three primary methods.

- 1 First method: faculty members were asked for permission to conduct a focus group during a portion of a class or for the entire class.
- 2 Second method: faculty members were asked to offer extra credit as an incentive for students to participate in focus groups conducted on campus in the evenings.
- 3 Third method: recruitment was facilitated via campus-wide program offices such as Greek Life and the Lesbian, Gay, Bisexual, Transgender, Queer (or questioning), Intersex, and Asexual (LGBTQIA) Resource Center.

All recruitment methods worked efficiently as students were either participating in focus groups during a regularly scheduled course-related activity — such as a class or organizational meeting — or incentivized with extra credit to attend a group after hours. The research team also worked with campus-wide program offices to conduct groups before, during, or after regularly scheduled program meetings. For all focus groups, participants were offered an additional incentive with the opportunity to enter a raffle drawing to win one of several prizes.

The research team created a shared spreadsheet to list each focus group with the date, time, location, and anticipated number of participants. These spreadsheets were shared with the undergraduate students enrolled in the Evaluation class so that they could sign-up as registration assistants (n = 11), co-facilitators (n = 6), or note-takers (n = 6).

Phase III: Focus group facilitation

The research team conducted 19 focus groups with 200 participants. The number of participants in each group varied, ranging from four to fifteen. In most cases, the groups were facilitated by one graduate student facilitator. Four groups were conducted by the GRA with an undergraduate co-facilitator and one group was facilitated by two undergraduate students. The remaining undergraduate students helped with registration assistance (getting participants signed up for the raffle and helping them complete demographic forms) and note taking. All focus group sessions were attended by a CARE Office or Title IX representative.

Focus groups were facilitated in a similar manner to be consistent and encourage participation from all attendees. The seats in each room were arranged in a circle to allow participants, facilitators, and the CARE or Title IX representative to face one another and engage in dialogue (Barbour, 2007). Before beginning a group discussion, the facilitator read a welcome and project description to all attendees. The script (see Appendix A) informed participants of the goals of the study, reinforced that participation was voluntary, ensured participants their names would not be used in any publications. This opening was also used to obtain verbal consent to begin the audio recording. The CARE or Title IX representative was introduced to the group and informed participants they were there to offer support and to provide any clarifications.

Participants were then asked to complete a demographic survey, which was distributed and collected by the undergraduate students. Attendees did not add their names to the surveys to ensure anonymity. Participants provided responses related to their age, gender, year in school, major, involvement in various campus activities, relationship and sexual history, as well as if they were a victim of sexual misconduct or knew someone who had been a victim. Demographic data can be found in Table 1. Other participant responses include nearly 20 % (N = 39) of focus group participants reported being involved in non-academic Greek life. Participants were also asked to disclose if they either knew someone who experienced sexual misconduct

or had witnessed sexual misconduct; 68% (N = 131) knew someone who had been a victim of sexual misconduct or had witnessed sexual misconduct.

Table 1: Demographic characteristics of focus group participants.

N (%)		
Gender	Female	156 (78)
	Male	42 (21)
	Other	2 (1)
Age	18-21	145 (73)
	22-26	33 (17)
	27-30	6 (3)
	> 30	13 (7)
Sexual Orientation	Heterosexual	181 (91)
	Homosexual	5 (3)
	Bisexual	8 (4)
	Asexual	1 (<1)
Race & Ethnicity	African American/Black	19 (10)
	Asian American/Asian	6 (3)
	Native American	7 (4)
	European-American/White	168 (84)
	Hispanic/Latino	14 (7)
Classification	Freshman	66 (33)
	Sophomore	37 (19)
	Junior	38 (19)
	Senior or beyond	59 (30)

All focus groups were audio recorded. The facilitators used an interview guide and questions were divided into the following sections (see Appendix A): CARE (general knowledge); New Student Orientation; UNCW's Student Sexual Misconduct Policy; reporting sexual misconduct; and male involvement in prevention programs. Group sessions lasted an average of 60 minutes. At the end of each group, the CARE or Title IX representative provided clarification on any misconceptions that came up during the discussions. All demographic surveys were collected at the end of the discussion, and participants were reminded of the raffle drawing sign-up.

Phase IV: Data analysis

The researchers conducted quantitative and qualitative data analysis. Descriptive statistics were calculated using Survey Monkey. After labeling each survey with an identification number for verification, the GRA entered 200 surveys into the program. The data were then double-checked for accuracy.

Focus groups sessions were transcribed by an external vendor. Following transcription, the researchers used MAXQDA, a qualitative data analysis software, to code data. In alignment with inductive coding processes, an initial coding scheme was created based on the focus group guide (Saldana, 2013). The PI and GRA worked together to further develop the codebook and review assigned codes. As the data were coded, additional codes were added to capture student responses. The results of the demographic surveys

and focus groups were then used to create a report for the CARE Office and Office of Title IX and Clery Compliance.

Discussion

Assessing the campus climate related to sexual misconduct can be a cumbersome process. Recruiting students who have busy schedules is an additional challenge. However, engaging other campus units as described in this article may yield a greater return related to recruitment and quality of data. In this study, having the cooperation of faculty members across campus who agreed to allow the research team to visit their classes or who awarded extra credit for focus group participation proved to be advantageous. This strategy also helped to ensure sufficient participant attendance. Finally, the across-campus collaboration provided the opportunity to enhance awareness about sexual misconduct and existing initiatives designed to address misconduct on and around campus. The campus where this research was conducted has a student population that includes roughly 63% of students who identify as female and 16% who identify as ethnically diverse (UNCW, 2020c). By partnering with other faculty, the researchers were able to conduct focus groups with a representative sample of undergraduate and graduate students related to gender as 75% of our study participants identified as women. We achieved an oversampling in relation to racial and ethnic diversity, as 24% identified as a member of an ethnically diverse population.

Students were also integral in recruiting their friends and co-facilitating the focus groups, including managing set-up logistics. Research literature has shown that working with students to recruit for and conduct focus groups can be effective in fostering dialogue among college students (Murray, 2006; Parker & Tritter, 2006). Additionally, the inclusion of college students can be beneficial for data collection when participants perceive the facilitator to be of similar age (Doerr & Wantuch, 2000).

College students benefit from being exposed to research, but some disciplines—such as the social sciences—may limit the category of research to quantitative methods. Although the larger assessment project included the distribution of a campus-wide survey to a random sample of students (results not reported), the efforts described in this publication exhibit how qualitative data design and collection can be valuable complements to quantitative data. Students learned about the complicated logistics related to planning for, recruiting, and conducting focus groups. The GRA gained firsthand experience in the arduous process of analyzing qualitative data. All students were introduced to myths related to qualitative research, such as lack of rigor or ease in administration (Cope, 2014; Tracy, 2010). And while this article does not focus on the results of the focus groups, it does highlight how detailed the process can be, as well as how comparable initiatives can be conducted with the cooperation of several entities across a campus community.

Specific to dissemination, the researchers shared the process-oriented results of this project across a number of media, including poster and oral presentations at local and national conferences. The authors conducted a formal

question and answer session with the CARE Office and the Office of Title IX and Clery Compliance to present the results and address any areas of follow-up or concern. The focus groups results were used to help these entities evaluate the campus climate and discuss how the findings can be leveraged to guide future program planning.

Limitations

There are a number of limitations to our study. While the majority of the focus groups were conducted by the GRA, some groups were co-facilitated by undergraduate students. The undergraduate students were trained on conducting focus groups, and the aim of this study was to help them gain exposure to qualitative research methods. However, the quality of these groups may have been limited by their lack of experience and confidence in leading groups. Also, in an attempt to increase student comfort levels on providing feedback about the Title IX and CARE Offices, Public Health faculty and the GRA coordinated the focus groups. But to address any program misconceptions on the services available, staff from both offices attended every focus group and spent time at the end of the groups providing clarifications. Their presence may have hindered full transparency about the accessibility and adequacy of services provided by these offices.

All participants volunteered to take part in the focus groups, but some groups were conducted during regularly scheduled class times; therefore, volunteer bias is possible. Some focus groups questions yielded a simple “yes” or “no” response, thereby hindering discussion about those prompts. Additionally, students who attended groups with their peers may have been hesitant to speak openly about their experiences with sexual misconduct (Wutich et al., 2010).

The GRA entered all demographic data in Survey Monkey without assistance of another researcher, which could have yielded errors in the data. She was primarily responsible for coding all interviews and worked with a faculty member to review the code schemes and verify consistency of coding. However, the authors did not code the data simultaneously or test for inter-coder reliability.

Contributions to and opportunities for future research

This project highlights how institutional units and campus organizations can work together to assess the campus climate. The authors detailed the initial planning stages, recruitment efforts, focus group facilitation, and data analysis processes related to the project. This article highlights how large-scale assessments can be integrated into applied learning opportunities for students. Although the undergraduate students helped edit the focus group guide and conduct sessions, they did not assist with data analysis. Opportunities for future research can include more extensive training on qualitative data collection and analysis for undergraduate students.

To expose students to the full cycle of the research process, similar initiatives could require all students to create professional publications to present details of the project. This addition would enable them to develop, administer, analyze, and present findings of a campus-wide assessment. Including undergraduate students in all aspects of the research process in this manner can potentially provide increased engagement in coursework, facilitate ongoing learning, and foster productive relationships between faculty and students.

College campuses are parts of a broader community and this project was conducted as the global #MeToo movement was putting a renewed emphasis on speaking out about sexual misconduct (UNCW, 2021). In light of this ongoing movement, as well as several other initiatives occurring around the globe in regards to diversity and inclusion, students may be increasingly open to applied learning and research opportunities that include the integration of pivotal current events. Additionally research projects on college campuses can aim to integrate current events that are of interest of students.

In summary, our study echoes the findings that involving students, including undergraduate students, in research is valuable. We have demonstrated one way this is possible. Specific to the ongoing topic of sexual misconduct, college and university administrators may explore more frequent assessments of the campus climate. This process may provide valuable, up-to-date information, and well as give students real-time, real life research experience. With respect to the wide range of topics of interest on college and university campuses, as well as the larger communities in which they are positioned, this project serves as a model for other institutions conducting large-scale assessments. This research may also be a guide for those seeking to engage undergraduate and graduate students in research, as well as faculty and staff who want to foster cross-campus collaboration.

References

Barbour, R. (2008). *Doing focus groups*. Sage. <https://doi.org/10.4135/9781849208956>.

Beaver, W. (2017). Campus sexual assault: What we know and what we don't know. *The Independent Review*, 22(2), 257-268. <https://search-proquest-com.liblink.uncw.edu/docview/1938830275?accountid=14606>.

Cope, D. G. (2014, January). Methods and meanings: Credibility and trustworthiness of qualitative research. *In Oncology Nursing Forum* 41(1), 89-91. <https://doi.org/10.1188/14.ONF.89-91>

Coulter, R. W., & Rankin, S. R. (2017). College sexual assault and campus climate for sexual- and gender minority undergraduate students. *Journal of Interpersonal Violence*, 35(5-6), 1351-1366. <https://doi.org/10.1177%2F0886260517696870>

Doerr, B. T., & Wantuch, C. (2000). Cudahy High School

survey and focus groups: Assessment of the needs of a teen population. A community campus collaboration. *Public Health Nursing*, 17(1), 11-15. <https://doi.org/10.1046/j.1525-1446.2000.00011.x>.

Graham, L. M., Mennicke, A., Rizo, C. F., Wood, L., & Mengo, C. W. (2018). Interpersonal violence prevention and response on college and university campuses: Opportunities for faculty leadership. *Journal of Family Violence*, 34(3), 189-198. <https://doi.org/10.1007/s10896-018-9968-1>.

Heer, B. D., & Jones, L. (2017). Measuring sexual violence on campus: Climate surveys and vulnerable groups. *Journal of School Violence*, 16(2), 207-221. <https://doi.org/10.1080/15388220.2017.1284444>.

Holtzman, M. (2015). Integrating experiential learning and applied sociology to promote student learning and faculty research. *College Teaching*, 63(3), 112-117. <https://doi.org/10.1080/87567555.2015.1019825>.

Hunter, A. B., Laursen, S. L., & Seymour, E. (2007). Becoming a scientist: The role of undergraduate research in students' cognitive, personal, and professional development. *Science Education*, 91(1), 36-74. <https://doi.org/10.1002/sce.20173>.

Kitzinger, J. (1995). Qualitative research: Introducing focus groups. *British Medical Journal*, 311(7000), 299-302. <http://doi.org/10.1136/bmj.311.7000.299>.

Krebs, C., Lindquist, C., Berzofsky, M., Shook-Sa, B., & Peterson, K. (2016). Campus climate survey validation study final technical report. *Bureau of Justice Statistics*. <https://www.bjs.gov/content/pub/pdf/ccsvsfr.pdf>.

Krueger, R. A. (2014). *Focus groups: A practical guide for applied research*. Sage publications.

McCarthy, M. (2016). Experiential Learning Theory: From theory to practice. *Journal of Business & Economics Research*, 14(3), 91-100. <http://doi.org/10.19030/jber.v14i3.9749>.

McMahon, S., & Stepleton, K. (2018). Undergraduate exposure to messages about campus sexual assault: Awareness of campus services. *Journal of College Student Development*, 59(1), 110-115. <http://doi.org/10.1353/csd.2018.0008>.

McMahon, S., Stepleton, K., & Cusano, J. (2016). Chapter 2: Fostering collaborations. In R. S. *Work, understanding and responding to campus sexual assault: A guide to climate assessment for colleges and universities* (pp. 3-5). Rutgers University. <http://doi.org/10.1353/csd.2018.0008>.

McMahon, S., Wood, L., Cusano, J., & Macri, L. M. (2019). Campus sexual assault: Future directions for research. *Sexual Abuse*, 31(3), 270-295.

Murray, C. (2006). Peer led focus groups and young people. *Children & Society*, 20(4), 273-286. <https://doi.org/10.1002/CHI.892>.

Parker, A., & Tritter, J. (2006). Focus group method and methodology: Current practice and recent debate.

Saldaña, J. (2015). *The coding manual for qualitative researchers*. Sage.

Seymour, E., Hunter, A. B., Laursen, S. L., & DeAntoni, T. (2004). Establishing the benefits of research experiences for undergraduates in the sciences: First findings from a three-year study. *Science Education*, 88(4), 493-534. <http://doi.org/10.1002/sce.10131>.

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative inquiry*, 16(10), 837-851. <https://doi.org/10.1177/1077800410383121>.

UNCW. (2020a). *CARE: Sexual assault*. <https://uncw.edu/care/survivors/assault.html>

UNCW. (2020b). *Applied learning*. <https://uncw.edu/appliedlearning/index.html>

UNCW. (2020c). *About UNCW*. <https://uncw.edu/aboutuncw/facts.html>

UNCW. (2021). *History and inception*. <https://uncw.edu/aboutuncw/facts.html>

UNCW. (n.d.). *ETEAL: An overview*. <https://UNCW.edu/eteal/overview/index.html#About>

Walkington, H. (2015). *Students as researchers: Supporting undergraduate research in the disciplines in higher education*. The Higher Education Academy.

Wood, L., Sulley, C., Kammer-Kerwick, M., Follingstad, D., & Busch-Armendariz, N. (2017). Climate surveys: An inventory of understanding sexual assault and other crimes of interpersonal violence at institutions of higher education. *Violence against Women*, 23(10), 1249-1267. <https://doi-org.liblink.uncw.edu/10.1177/1077801216657897>.

World Health Organization. (2021). *Violence Prevention Alliance: Definition and typology*. <https://www.who.int/violenceprevention/approach/definition/en/>

Wutich, A., Lant, T., White, D. D., Larson, K. L., & Gartin, M. (2010). Comparing focus group and individual responses on sensitive topics: a study of water decision makers in a desert city. *Field Methods*, 22(1), 88-110.

Appendix A

Focus group script and guide

Introductions

Hi. My name is ...

We've invited you to this discussion to get your feedback on the services offered by the CARE Office and how these services or resources can be improved. Before we continue, I need to get your consent on a few things. The first is the demographic form. This form includes questions related to who you are and your experiences with sexual misconduct. Your name will not be on these forms so there is no way to connect your responses with who you are. If you agree with completing this form, they are available at the doorway/entryway. And finally, if you would like to be entered in the drawing for a [UNIVERSITY] swag prize – including t-shirts, water bottles, and pens – please enter your name in the drawing box, also located at the door. Once again, your name will not be connected to any of the focus group data.

Now that we are done with the demographic forms, I'd like to tell you a little more about our focus group. The conversation is completely voluntary. It is also about some difficult issues. You do not have to participate, and you can stop participating at any time with no penalty. If you need to take a break and return to the discussion, feel free to do so. We encourage you to practice good self-care. We also have a CARE representative here to provide support should we need it. S/he will also take a moment at the end of the group to clarify any misconceptions or answer any questions. (*CARE representative introduction*).

This discussion is confidential. Your name will not be used on the recording or in any transcript or write up for the discussion. Do you have any questions?

Before Recording:

Again, I want to thank you for agreeing to participate in our focus group today. This group should last approximately 60 minutes. Before we begin our discussion, let's go over a few ground rules.

1. Talk one at a time in a voice at least as loud as mine.
2. We would like to hear from all of you during the discussion, but not every person has to answer every question. You have the right to not answer any particular question.
3. Please avoid side conversations and try to talk one at a time.
4. There are no wrong answers, just different opinions. Please say what's on your mind
5. We have a lot to cover in a small amount of time, so we may have to move on from a question to get through the discussion.
6. Everything said here is confidential and will not be repeated by us, as we described earlier. To ensure everyone's safety and confidentiality, we ask you do the same. We ask you to respect the members of this group by not sharing who you saw here at the group or from speaking about specifics of the group with others, such as your friends or professors, after it is complete.
7. If at any time, you would like the tape recorder to be turned off, please let me know and I will do so.

Is it alright with you all if we now turn on the recorder and begin our discussion?

If everyone nods or says yes, turn on the tape recorder.

CARE.

CARE is the Collaboration for Assault Response and Education. What do you know about [the] CARE Office in general?

Our first set of questions is about New Student Orientation.

1. The term "interpersonal violence", as used for the purposes of this discussion includes acts of gender-based discrimination, harassment and sexual misconduct, including dating and domestic violence and stalking, as defined by [UNIVERSITY] Student Gender-Based/Sexual Misconduct Policy. Do you remember receiving information about sexual assault and other interpersonal violence in orientation?

**Definitions if needed:*

Dating Violence: Violence committed by a person who is or has been in a social relationship of a romantic or intimate nature with the victim. Includes sexual or physical abuse or threats of such abuse.

Domestic Violence: Abuse or violence committed by a current or former spouse or by a person with whom the victim shares a child in common or by a person who is cohabitating with or has cohabitated with the victim as a spouse.

Stalking: A course of conduct directed at a specific person that would cause a reasonable person to fear for their safety or the safety of someone else or suffer substantial emotional distress.

Sexual Misconduct: Any sexual acts attempted or committed without consent and/or by force, threat, coercion, or pressure, or through the use of the victim's mental or physical helplessness, of which the assailant was aware or should have been aware, including non-consensual sexual intercourse, non-consensual sexual contact, and sexual exploitation.

Consent: Mutually voluntary permission to engage in sexual activity demonstrated by clear actions and/or words.

2. What do you remember?
3. What other topics should have been covered?
4. Do you remember seeing posters about this issue when you moved into the residence hall your first year?

5. These are posters relating to a heightened risk for assaults during the first six weeks at a new university. We'd like to get your feedback on a few versions that we have used over the past five years...

The next section is about [UNIVERSITY] Student Sexual Misconduct Policy.

1. Have you been informed about [UNIVERSITY]'s policies around interpersonal violence, specifically the Student Sexual Misconduct Policy?
2. Have you looked at the [UNIVERSITY] policies around interpersonal violence? If no, move to question #3.
 - [If yes] Is it easy to understand?
 - [If no] What would make it easier to understand?
3. What do you know or remember about the university's policy?
4. Do you remember where to find it? [If yes] How?
5. [UNIVERSITY] Student Gender-Based/Sexual Misconduct Policy includes an amnesty policy stating that any individual, including a victim, a witness or third party who submits a notification, will not be subject to disciplinary action by the University for their own personal consumption of alcohol or other drugs at or near the time of the incident, providing that any such violations did not harm or place the health or safety of any other person at risk. Would knowing that the university has an amnesty policy to encourage you or your friends to report crimes of violence?
6. Would knowing that the university protects victims and witnesses from retaliation make you or your friends more likely to report crimes of violence?
7. Would you or your friends be likely to report something to the university? Why or why not? What about to the police?

We want to talk about the "climate" at [UNIVERSITY]. That's a vague term, but we mean the culture that is created by students, faculty, and staff, the campus itself, organizations, events, and so forth that impact your experience at the university.

1. What about [UNIVERSITY] is supportive to students who might experience sexual assault, relationship violence, or stalking?
2. What about [UNIVERSITY] creates an environment that is not supportive for students who might experience these crimes?
3. Do you think [UNIVERSITY] takes issues of interpersonal violence seriously?
 - Why or why not?
4. In what ways does [UNIVERSITY] encourage victims of crime to report it?
5. In what ways does [UNIVERSITY] sufficiently protect victims of crime?
6. Do you think the university puts the needs of students or community members who experience violence above its own reputation? How?
7. Based on what you know, how adequate are CARE's prevention programs?
 - Are our victim services adequate?

- What resources would you use if you needed to report sexual misconduct?
- What resources would you avoid?

We are almost done. This section includes a few questions about reporting sexual misconduct.

1. If a student wants to report crimes of violence, what options would he or she have?
2. What are the pros and cons of reporting on campus to the Office of Title IX & Clery Compliance?
 - Have you ever heard other students talk about reasons they may or may not use this system?
 - What are the barriers students may face?
 - What types of situations would make students more likely to report this?
3. If a student reported on campus:
 1. Do you think it would be confidential?
 2. Would those processes be fair to both parties?
4. What are the pros and cons of reporting to off-campus authorities, like the local police department?
5. What do you think the role of CARE would be for students who want to pursue other options related to sexual misconduct?

Our final section addresses male involvement in sexual misconduct prevention and education services.

1. What are some barriers to students participating in CARE's education and prevention programs?
 - What are some barriers for men participating?
2. What are some things that can be done increase participation among all students?

Finally, what can [UNIVERSITY] do to make the on-campus conduct system more user friendly and accessible?



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The Use of Learning Management System (LMS): Are we 'using' it right?

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A

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Abstract

Due to the rapid progress of the use of technologies in academic practices, higher education institutions around the world are investing heavily in various learning management systems (LMS). LMS, such as Blackboard, is considered among the most commonly used in the process of teaching and learning. This pilot study aimed to identify the academics' assumptions and expectations of Blackboard use that had influences on their practices at a New Zealand university. Data were gathered through class observation sessions with photograph and video capture as well as individual discussions for a trimester (13 weeks). Focus of the thematic analysis was on the viewpoints expressed by the academic participants on their Blackboard courses and in their discussions, as well as in their classes about their ideas, practices, and beliefs in relation to their Blackboard use. The major findings that emerged from the data were the diverse perspectives of the roles of Blackboard in the process of teaching and learning that led to the questionable use of Blackboard in terms of "efficiency" and "effectiveness". It is evident that explicit support needs to be provided to academics in order for them to understand the affordances of Blackboard and thus to use Blackboard pedagogically in the process of teaching and learning. The study advocates for a shift of Blackboard use in relation to a new understanding of teaching and learning schemas in higher education.

Background

Twenty-first century higher education is increasingly incorporating “e-elements” into teaching and learning contexts. Learning management systems (LMS), such as Blackboard, play a vital role in this process as institutions explore more complex methods in the quest to create digital institution and digital students. The basic role of an LMS is to plan, implement and assess a specific learning process (TechTarget, 2019) as it provides the backbone for the workflow of a teaching and learning process. Thus, LMS use leads to a paradigm shift in the process of teaching and learning from the conventional method, which in a way forms the basis of blended learning and even to ensure the student success in this mode (Buschetto et al., 2019). However, it is unclear to what extent the LMS has played a role within the process of teaching and learning, especially in the context of blended learning.

Rationales

The existing literature seems to only focus on “what” tools are on Blackboard that could be used to benefit the process of teaching and learning that includes distance education (e.g., Bradford et al., 2007; Liaw, 2008; Mahnegar, 2012; Walker et al., 2016). In addition, the literature on innovation and adoption of educational technologies (i.e., Technology Acceptance Model proposed by Davis 1986) suggests that many academics implement a constrained or limited view of the capabilities and potential of a digital tool including an LMS. Typically, academics tend to adopt a conservative or “sustaining” approach where the tool is used in ways that complement existing activities without stimulating any substantive changes.

A recent study reveals that the majority of faculty and the students were satisfied with the basic operational functions and features of an LMS (Dahlstrom, Brooks & Bichsel, 2014). While there is an expectation and/or assumption that the use of the LMS enhances the process of teaching and learning (e.g., Simanullang & Rajagukguk, 2020), the pedagogically efficient and effective use could have been overlooked. There are also issues that hinder the perceived use of the LMS in relation to engaging with students’ experiences in academic practices (Venugopal & Jain, 2015), particularly within the notion of blended learning. As this article will show, one way to make LMS use more efficient and effective would be to promote the development of new learning schemas that are incorporating a high level of production leading to broadcasting/open-sharing using LMS.

This study

This pilot study investigated the use of the tools on Blackboard in the process of teaching and learning among academics at a public university in New Zealand. The study examined academics’ beliefs and practices regarding Blackboard use in order to support more extensive and ambitious use of Blackboard in the teaching and learning process. This study was proposed in conjunction with the introduction of the minimum online presence policy at the institution, where

all the courses have to adopt the use of Blackboard to a “minimum” level (the scope is yet to be defined). At the same time, the author advocated to transform the current teaching approaches, such as blended learning and flipped classrooms, within Blackboard.

Data sources included class observation sessions with photograph and video capture, as well as individual discussions with each academic participant (a total of 6) over a trimester (13 weeks). The academic participants consist of volunteered academic participants representing different seniority as well as discipline backgrounds at the university. The focus of the data was to determine the alignment between specific features or affordances of Blackboard, the learning objectives of the courses, and the beliefs held by the academics responsible for the design and operation of the courses that affect the use of various tools. Through observing the participants in the classes as well as on their Blackboard courses, the study captured how these academic participants incorporated Blackboard in their process of teaching and learning. The follow-up individual discussion sessions revealed the understanding of Blackboard use among the participants, and therefore the findings provided insights into ideas about how institutions could develop a shared sense of the LMS use. An understanding of the ways academics involve their students with Blackboard or other technological platforms in the teaching and learning process was gained throughout the trimester.

It was envisioned that the data would link into course design at the end of the trimester in order to produce a Blackboard use guideline in teaching and learning process for academics at this particular institution and beyond. The study adopted an interpretive, naturalist enquiry and analysis approach proposed by Guba and Lincoln (1989), and was framed by the question “How do the assumptions and expectations of Blackboard use held by academics influence their practice and vice versa?”

Findings

Two themes emerged from the data:

- (a) The perspectives of the role of Blackboard lead to practices
- (b) The questionable use of Blackboard, in terms of “efficiency” and “effectiveness”

(a) The perspectives of the role of Blackboard lead to practices.

The discussion data indicated that some academic participants had a positive attitude about their use of Blackboard in the process of teaching and learning when they thought they were familiar with certain tools on Blackboard. For example, they talked about the commonly used discussion tool and Blackboard as a place to post their lecture slides.

"I use the discussion forum... [the class is] quite large; a lot of stuff is answered through groups."

"With the slides... [the students] don't need to copy off the whiteboard... so they pay more attention to the course... allows the opportunity to ask questions... interaction."

The majority felt positive about Blackboard use due to the daily convenience instead of utilising this platform to enhance students' learning experiences. The participants thought it was a good idea to have:

"one place for students that has all the links for the course materials, slides, links to videos, etc."

"pre-recorded lectures which are shorter and more to the point rather than the lecture where I stand up in front of the class."

"[the convenience]... students have easy access ... Video recording links."

"[the convenience] to use Blackboard now... good to publish slides & homework ... can reuse this next year... for same assignments"

"more time to prepare the class for the first time [on Blackboard], then it's easier for the second time."

"[Blackboard] for practical reasons ... don't have to go to the office to pick [the assignments] up ... can download and print them in my office – filter through Turnitin."

"some ways it does make my life easier ... I don't have to print work sheets for [the students] to take to the lectures... students grab them [via Blackboard] beforehand."

Similarly, another participant said the tracking ability on Blackboard allows him to know "what is going on in his class" even though the tracking function only gives a general overview instead of individual students' tracking per se, for instance:

"I can check the students are using Blackboard or not... in terms of the student engaging or not... if I saw them in a lecture or not, I can see if they've been on Blackboard or not... Or if they've had a look at a particular item on Blackboard... that's nice to know."

Simultaneously, there are negative perspectives of Blackboard use among the academic participants, derived from their personal assumptions and expectations of technological use (Blackboard in this circumstance) in

teaching and learning. For example, some said:

"Blackboard is clunky."

"Announcements are not very helpful – students don't read them."

"Online [Blackboard] feedback is ineffective."

A few participants were discouraged by the 'dehumanising' aspect of Blackboard use that was believed to have an impact on their teaching and learning process. The examples were:

"Communication via email or in person ... not through Blackboard."

"Challenging to make [Blackboard activities] interactive."

"Online discussions are great but forums can be a bit of a cumbersome way... whereas a two minute conversation can be [more useful]"

Some participants were concerned about Blackboard being a safe space for both teachers and students, especially when it comes to discussion activity. Such views included:

"especially exposing yourself with your opinion and answers on a semi public discussion forum like Blackboard is scary and students don't like that."

"The online feedback forms on teaching... [I] won't go online & do what's not seen as necessary... some [of us] are afraid... [there is] fear [that] there will be consequences if [we] make a negative comment."

There were also negative perspectives that showed the lack of understanding of what Blackboard could offer:

"how students use Blackboard is only for Slides."

"There's lots of features we never use in [our discipline] – blogs, or discussion forums, they are never ever used."

Lastly, several participants used Blackboard as a method of compliance. They believed that:

"If we didn't have Blackboard and online access to learning materials, the students would very quickly get upset with us"

"[I use Blackboard] to appease the students."

This theme signals the concern that LMS use is not weaved into pedagogical planning when LMS is believed to be able to enhance a teaching and learning process. Furthermore, the discussions, as well as the classroom observations, over a trimester period revealed the lack of linkages between the

activities in the classroom and on the Blackboard course. For example, the students were busy taking notes during the class (Figure 1) as there was nothing on the Blackboard course before, during, or after the session that was relevant to what was taught in the class. Being on the participants' Blackboard course as well as from the students' viewpoints, what was shared on Blackboard was purely a "repetition" (e.g., a set of identical slides or a recording of the session) instead of a "link" between in-class teaching and pre- or post-class activity.

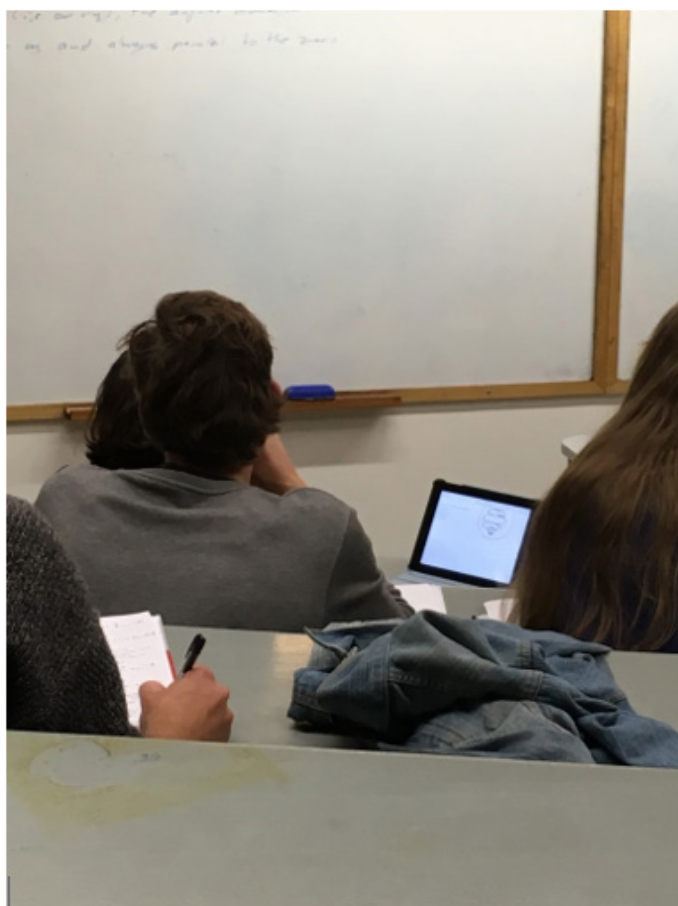


Figure 1: An example of the scenes when the students were busy taking notes in the class.

Additionally, this theme showed academics' limited understanding of how Blackboard can actually be beneficial in the process of teaching and learning. One can never know what they do not know, so while academics are expected to and could learn through their experiences and via peer sharing, the limited understanding in this regard could have an effect on the LMS use in a bigger picture as discovered in this study.

(b) The questionable use of Blackboard, in terms of "efficiency" and "effectiveness".

The academic participants' Blackboard courses in this study led to the question on the notion of efficiency and effectiveness of the LMS use. Overall, the courses of this cohort of participants illustrated their use of Blackboard as a repository as demonstrated in Figure 2 and Figure 3 below.

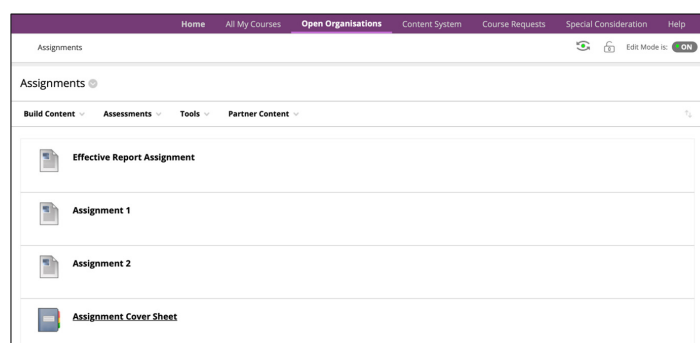


Figure 2: Repository for assignments. (The site is renamed in order to protect the anonymity of the participant.)

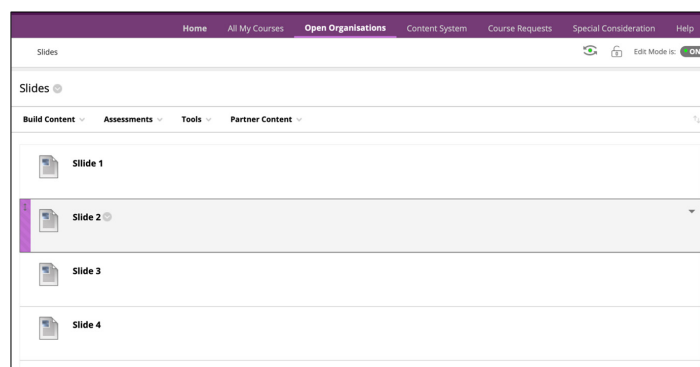


Figure 3: Repository for slides. (The site is renamed in order to protect the anonymity of the participant.)

It is legitimate to use Blackboard as a repository but this only restricts the interactivity between the teacher and the students as well as among students due to the one-way communication structure. Interaction is significant in the teaching and learning process, either in the class or outside the class, in order to enhance the learning experiences and the learning outcomes. On the other hand, Blackboard provides various built-in tools for interactivity, such as Discussion Board, Journal, and Blog that appear to be under-used, as seen in this study. The participants' Blackboard courses show that and there is no difference of use across different disciplines. The commonly adopted tools are the announcement (a one-way communication channel), the folders with an abundance of information about the course (an overwhelming resource platform), and the grade centre (a strategy to keep the students' interest to log into Blackboard). Not only is the tools selection narrow, but some of the Blackboard courses also seem to be less user friendly in terms of being less systematic and organised, lack a sense of intuitive navigation, and inadequate visual effect (e.g., the choices of colours and fonts). For instance, Figure 4 below presents an example of a rather confusing reading list that has no instruction to support the students' learning in this regard.

Besides, it is worth noting that through class observation sessions, with photograph and video captures as well as individual discussions with individual academic participants for a trimester, also identified the academics' perspectives of digital technologies in general that influenced their Blackboard practices, specifically in terms of efficiency and effectiveness. Examples of the academics' reflections in this aspect are:

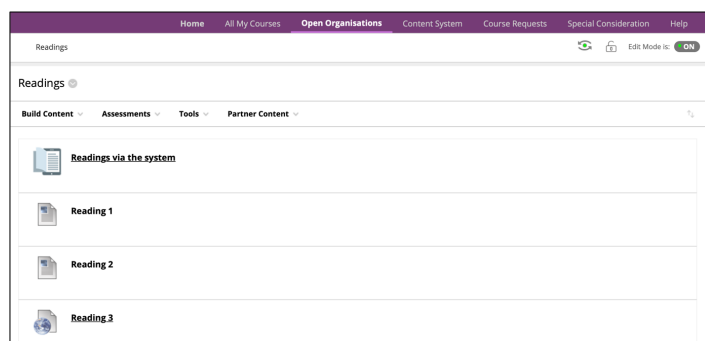


Figure 4: An example of substandard Blackboard course design. (The site is renamed in order to protect the anonymity of the participant.)

"[Blackboard is] not as intuitive as a YouTube clip – that's probably what you get used to – students are used to Facebook – one click and then you see things."

"I usually google my assignment questions to make sure someone else doesn't have the perfect model answer and I quite often find something that is very similar on Yahoo."

"Yes – [Wikipedia] demonstrates you can always find an answer – the importance of material."

As noted in these quotes, the academics distorted the differences between an LMS (i.e., Blackboard) with a social media platform (e.g., Facebook), a search engine (e.g., Yahoo) and/or an online reference source (e.g., Wikipedia). While it is possible to integrate these digital tools/platforms onto Blackboard in a pedagogical manner, the academics need to be aware of each of their key functions, especially in the teaching and learning process. Ignorance or uncertainty of these digital environments has an impact on the efficient and effective way of using LMS as proven in this study.

In summary, the findings from this study exemplified that the assorted perspectives on the use of LMS in higher education appear to be the barriers for the effective and efficient use of the LMS in the process of teaching and learning. This is particularly the case when academics seem to be satisfied with their existing use. It would be ideal if academics could develop more confidence and be more positive about the use of LMS in a more creative and innovative manner (e.g., think outside the box). For instance, academics could be more proactive in discovering the advanced use of the tools on LMS instead of being restricted in their understanding of the roles of LMS, especially in today's higher education.

In addition, the diverse perspectives of the roles of Blackboard in the process of teaching and learning exposed the limited pedagogical aspect that is underpinned in its use. It appears that the academics used Blackboard based on their assumptions of what it is used for, and their use of Blackboard in teaching and learning only uses a certain degree of embedded pedagogical reasoning. Academics may not be aware that LMS does not just have the ability to deliver the curriculum but also to advance the learning practices of students. These assertions align with Macharia

& Nyakwende's (2010) study on academics' intentions to use LMS for teaching and learning where they stated,

Universities world over are increasingly deploying learning management systems to enhance the quality of teaching and learning as well as to increase access to higher education. However, since technology rejection is common, the future of universities depends on their instructor's capacity to adopt and diffuse such technologies to meet the intricate needs of the academic masses. (p. 220)

This could be exemplified when an LMS is implemented in an institution but there are limited guidelines to show academics on how to use it could be pedagogically sound in actual practice, at least in this institution where the study took place. It would be worthwhile for academics to be informed about what the LMS tools are so they can use them effectively and efficiently to enhance their teaching and learning processes.

Discussions

As mentioned earlier, the institution where this study took place introduced the minimum online presence policy in 2015 with Blackboard as the preferred LMS. This has echoed the results of the most recent survey on LMS use in higher education where Blackboard is recorded as the most popular LMS (Edutechnica, 2016). Nevertheless, the high use of an LMS is not in parallel with the academics' understanding of how an LMS could fit into the higher education study context.

In the higher education setting, especially for undergraduate study, student workloads are split between contact time (class teaching time) and non-contact time (independent learning time). Much of our understanding of teaching & learning has traditionally been focused on contact time (e.g., lectures, labs, and tutorials). As a result, the role of LMS systems, such as Blackboard, have been focused on supporting contact-time activities (e.g., a duplication of class teaching activities on Blackboard such as the same set of slides). From this study, it is clear that the real benefit of digital teaching and learning environments is their ability to promote and enhance learning activities within the non-contact spaces. Some previous studies have shown that many students struggle to structure their independent learning time and struggle with the act of studying (Sim, 2012, 2015). It appears that students have a desperate need to access relevant, useful, and challenging learning opportunities via digital devices 24/7 (LMS in this context). Learning opportunities include a variety of sophisticated, structured, and modulated activities that incorporate various levels of shared interactions from the teaching activities. In other words, it would be constructive to make use of LMSs that promotes the fusion of both contact and non-contact time in order to produce meaningful and authentic teaching and learning experiences.

A further ideal possibility is that we develop a shared understanding of LMS use in the process of teaching

and learning with an approach that embraces a fusion of both consumption and production activities. Such fusion incorporates new learning schemas that are self-organising, activity-based, network-centric, and incorporating a level of production leading to broadcasting/open-sharing. This approach has the potential to cultivate a hub of teaching and learning that promotes the development of new knowledge. However, the complexity is that the idea of teaching and learning has to be in parallel with the knowledge of the affordances of LMS in order to create a new teaching and learning approach. Therefore, the in-line possibility is to structure a support system within an institution, where the academic developers support academics to enhance the pedagogical use of educational technologies (e.g., LMS) and the presence of learning and teaching technology specialists/learning designers based in each faculty/school will provide hands-on technological practices to the academics, as presented in Figure 5 below.

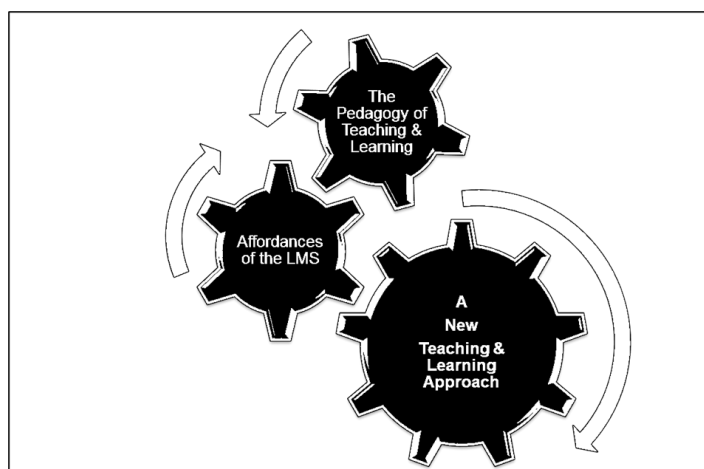


Figure 5: A Prospect to Develop Shared Understanding of LMS Use.

The support could be significant as highlighted by Missula (2008), “staff training has had impact on the usage of Blackboard as more than half participants have taken training and expressed their improvement of Blackboard usage for their courses. Ongoing training therefore increases usage [and innovative use]” (p. 79). Missula further concluded that “[LMS] is a beneficial tool that enhances student learning and mostly used as a management tool. Ways of improving usage and effectiveness with increased use of staff training have been highlighted ...” (p. 79). Furthermore:

staff and students must feel comfortable with the Blackboard LMS so that they can focus more on teaching and learning and less on acquiring the technical skills to use the system... Issues like designing course interfaces, navigation, and content delivery options and features in Bb surfaced as potential satisfaction risks that have to be addressed immediately (Al-Malki et al., 2015, p. 39)

In summary, it is time for a shift from the use of educational technologies, such as LMS, as an option to support learning to develop a hub of teaching and learning that is augmented

by physical teaching practices. LMS is not “a given”; it is flexible and can be what it is not yet. We should claim ownership on the LMS use to make it what we want it to be in favour of effective and efficient teaching and learning process.

Conclusion

This paper contributes to the emerging area of exploring and repositioning current teaching approaches, such as blended learning and flipped classrooms, from the perspective of the students. Nevertheless, the findings of this pilot study could be specific to the particular cohort involved, as well as being particularly targeted at the use of Blackboard only, and therefore not generalisable to all academics or the use of other ICT tools. The results, however, offer new understandings and insights into the use of LMS (Blackboard in this case) to support the teaching and learning process for tertiary students.

- (a) The perspectives of the role of Blackboard lead to practices and
- (b) The questionable use of Blackboard, in terms of “efficiency” and “effectiveness”

The themes signal further research into academics’ digital capabilities and/or indicate the implications for the acceptance of adopting LMS in teaching and learning (e.g., Garone et al., 2019). These possibilities are significant when LMS use in teaching and learning processes is now mandatory at some universities, such as the institution where this study took place, and it would be desirable to have recommended Blackboard practices that would promote effective and efficient teaching and learning processes for the benefit of both academics and students.

In conclusion, this study helped to engender awareness about academics’ LMS practices and behaviours with LMS, which will prompt thoughts about the extent of the role that LMS plays in the teaching and learning process.

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Sim, K. N. (2018). Learning Management System (LMS): A Hub for teaching and learning. EdMedia, Amsterdam, The Netherlands.

Sim, K. N. (2017). Use of Learning Management System: Pedagogical or technological? 2017 TERNZ Conference, Massey University, Palmerston North, New Zealand.

Sim, K.N. & Butson, R. (2016). Blackboard: Its future as an agent of change. Paper presented at the Teaching and Learning Conference by Blackboard 2016, Sydney, Australia.

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References

Al-Malki, N., AbdulKarim, A. H., & Alallah, F. S. (2015). Teaching staff's and students' initial perceptions and satisfaction with teaching and learning via the Blackboard LMS. *International Journal of Advanced Corporate Learning*, 8(2), 37-41.

Bradford, P., Porciello, M., Balkon, N., & Backus, D. (2007). The Blackboard learning system: The be all and end all in educational instruction? *Journal of Educational Technology Systems*, 35(3), 301-314.

Buschetto, M. L. A., Cechinel, C., Batista, M. M. F., Faria, C. R. V., & Munoz, R. (2019). Predicting students success in blended learning— evaluating different interactions inside learning management systems. *Applied Sciences*, 9(24), 5523. <https://doi.org/10.3390/app9245523>

Dahlstrom, E., Brooks, D. C., & Bichsel, J. (2014). *The current ecosystem of learning management systems in higher education: Student, faculty, and IT perspectives*. Research report. Louisville, CO: ECAR. <https://library.educause.edu/-/media/files/library/2014/9/ers1414-pdf.pdf>

Edutechnica. (2016). LMS data – Spring 2016 updates. *Edutechnica: ED Talk and analysis*. <http://edutechnica.com/2016/03/20/lms-data-spring-2016-updates/>

Garone, A., Pynoo, B., Tondeur, J., Cocquyt, C., Vanslambrouck, S., Bruggeman, B., & Struyven, K. (2019). Clustering university teaching staff through UTAUT: Implications for the acceptance of a new learning management system. *British Journal of Educational Technology*, 50(5), 2466-2483. doi:10.1111/bjet.12867

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage.

Liaw, S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers & Education*, 51(2), 864-873.

Macharia, J., & Nyakwende, E. (2010). Vice-Chancellors influence on academic staff intentions to use learning management systems (LMS) for teaching and learning.

Journal of Language, Technology & Entrepreneurship in Africa, 2(1), 220-230.

Mahnegar, F. (2012). Learning Management System. *International Journal of Business and Social Sciences*, 3(12), 144-150.

Missula, S. (2008). *Staff perceptions of Blackboard as an online teaching tool in tertiary education*. Master of Computing thesis, Unitec New Zealand, New Zealand.

Simanullang, N. H. S., & Rajagukguk, J. (2020). Learning management system (LMS) based on Moodle to improve students learning activity. *Journal of Physics: Conference Series*. <https://doi.org/10.1088/1742-6596/1462/1/012067>

Sim, K. N. (2012). *The role/importance of personal computers to support learning in higher education*. Master of Arts thesis, University of Otago, Dunedin, New Zealand.

Sim, K. N. (2015). *An investigation into the way PhD students utilise ICT to support their doctoral research process*. PhD thesis, University of Otago, Dunedin, New Zealand.

TechTarget. (2019). *Learning management system (LMS)*. <https://searchcio.techtarget.com/definition/learning-management-system>.

Trist, E. L., Higgin, G. W., Murray, H., & Pollock, A. B. (1963). *Organisational choice: Capabilities of groups at the coal face under changing technologies, the loss, re-discovery and transformation of a work tradition*. London: Tavistock.

Venugopal, G. & Jain, R. (2015). Influence of learning management system on student engagement. Innovation and Technology in Education (MITE). In *Proceedings of the 2015 IEEE 3rd International Conference in MOOC, Innovation and Technology in Education (MITE)*. Amritsar College of Engineering and Technology Amritsar, Punjab.

Walker, D., Lindner, J., Murphrey, T. P., & Dooley, K. (2016). Learning management system usage: Perspectives from university instructors. *The Quarterly Review of Distance Education*, 17(2), 41-50.



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Investigating the use of LEGO® Bricks in education and training: A systematic literature review

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Abstract

Despite the increasing attention paid to LEGO® as a learning tool rather than a child's toy, teaching practices and methodologies for using LEGO® vary according to educational contexts. The purpose of this paper was to investigate the various educational contexts of LEGO® usage in higher education and to identify trends in teaching practices. A systematic literature review was conducted on the use of LEGO® bricks in education and training using an exploratory sampling approach. A total of 298 articles were explored in internationally recognized journal databases using keyword search, and 26 articles were selected for a detailed review. We found a clear distinction in LEGO® usage between learning facilitation and thinking facilitation, as well as between individual application and group application. A simple typology with four quadrants is proposed based on our findings to help novice educators introduce LEGO® into their pedagogical designs.

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1. Introduction

The use of LEGO® as a teaching and learning tool is not new (Giddings, 2017). When using LEGO® in learning, the aim is usually to engage learners through play and kinesthetic (hands-on) experiences to help deepen their learning (Lauwaert, 2008). This is grounded in constructionist learning theory, which suggests that people learn best by building or constructing things (Papert, 1999). In other words, adults learn by “thinking through our fingers” as opposed to the popular assumption that the brain thinks first and tells the hands to act (O’Brien, 2019; Papert, 1999; Papert & Harel, 1991; Peabody & Noyes, 2017). Papert (1999) explains that when adults build or construct objects, abstract ideas become more concrete and visual, and therefore more understandable. Applying this to the use of LEGO® in teaching and learning, the nature of LEGO® pieces provides learners with opportunities to construct and feel the models/sculptures, thus activating a richer kind of learning (Peabody & Noyes, 2017).

Other approaches associated with constructionist learning include the use of programming (Csizmadia et al., 2019) and creative experimentation (Psenka et al., 2017) in teaching and learning. In contrast to other approaches, the unique characteristic of LEGO® as a learning tool is the “play and fun experience,” which is associated with toy model building using LEGO® pieces (James, 2013; Peabody & Noyes, 2017). When used in teaching and learning, it opens up the curiosity of the learners, as some participants may rekindle their childhood playtime hobby, while other first-timers may get their inaugural experience of playing with LEGO®. As the lesson proceeds, “playing and building” with the LEGO® bricks injects a fun atmosphere into the learning setting, which draws learners into the lesson.

Research on the use of LEGO® in education and training has been increasing in recent years (James, 2013; Peabody & Noyes, 2017). This increase appears across the spectrum of disciplines, including science, engineering, arts, and business studies, and encompasses a very wide range of student experiences from higher education to professional training (Kristiansan & Rasmussen, 2014). LEGO® is also applied in many different methodologies, including LEGO® SERIOUS PLAY® and LEGO® Mindstorms (Ranscombe et al., 2019). Despite the long history of the study of LEGO® in education, systematic literature reviews summarizing the effects of LEGO® in learning and training are limited. As such, the effectiveness of LEGO® as a learning tool is still unclear because this method is used across a large range of disciplines, with the majority of studies being descriptive in nature, based on reports of facilitators’ observations (McCusker, 2019; Peabody, 2015; Pike 2002). While there are indications that LEGO® could be a useful tool for improving students’ learning, it is unclear whether this assertion is supported by empirical evidence. The central question that this study attempted to answer is how LEGO® as a learning tool is applied across all disciplines and methodologies and whether the results are based on empirical evidence. Therefore, the purpose of this paper was to investigate various educational contexts of LEGO® usage in higher education and to identify trends in teaching practices. We also aimed to define future research perspectives regarding

the use of LEGO® as a learning tool based on the literature reviewed. Conducting a literature review allowed us to better understand how LEGO® as a teaching and learning tool has evolved over the years, thereby identifying the current research trends and exploring future research opportunities. Regarding the educational application of LEGO® bricks, Xia and Zhong (2018) reviewed 22 journal papers on robotics education in K-12 students. They found that there was a dominant position of LEGO® as a learning tool at the level of elementary education, but the situation has not yet been examined at the level of higher education. Souza et al. (2018) conducted a systematic review of LEGO® bricks’ application in robotics at the level of higher education, reviewing 36 out of 1,363 papers drawn from multiple databases. They found that LEGO® was used for teaching programming, interdisciplinary content, participation in tournaments, robotics, and computational thinking and showed successful results at different educational levels, such as K12, undergraduate, and graduate levels (Souza et al., 2018). However, Calderón and Ruiz (2015) indicated, based on a systematic review of serious games in software project management, that only 2% of 102 journal papers used LEGO® as a learning tool. This implies that LEGO® is not a popular learning tool in certain subject areas. Furthermore, most of the systematic review papers point out that more rigorous research is required to find a substantial impact of LEGO® on education (Lindsay et al., 2017; Xia & Zhong, 2018; Souza et al., 2018). There is no standardization of teaching practices or methodologies in the use of LEGO® in education; therefore, it is important to investigate various educational contexts to examine the impact of LEGO® usage and to determine the best teaching practices (O’Brien, 2019; Souza et al., 2018).

The remainder of this paper is organized as follows. Section 2 describes the review process adopted in this study. Section 3 provides the search results and analysis highlighting the study focus (subject), method (classroom exercises, experiments, workshops, lectures, etc.), and application target (individuals or groups). It also contains a discussion on the typology of LEGO® bricks’ application in education. Finally, section 4 concludes the research and refers to further research.

2. Methodology

For our preliminary search, we used electronic resources from NUS Libraries and Google Scholar via keyword searches using the terms LEGO®, Education, and Training. The purpose was to obtain an overview of resources in the broader fields of education and training. Upon discovering a huge number of results, we decided to focus specifically on four databases: Web of Science, Education Resources Information Center (ERIC), ScienceDirect, and ResearchGate. Both Web of Science and ERIC were the principal search systems. We chose Web of Science as it indexes high-impact journals in the field of education. Furthermore, its numerous filters and search functions facilitate efficient searching. ERIC was chosen as it is “an authoritative database of indexed and full-text education literature and resources” (EBSCO, 2021). We retrieved a total of 497 publications (314 proceedings, 180 articles, five early accesses, four meeting abstracts, and

three reviews) from Web of Science, whereas we retrieved 113,760 scholarly articles from ERIC. We used ScienceDirect and ResearchGate as supplementary search resources. Based on this preliminary set of publications, we further narrowed the search based on the following criteria:

- Studies exploring the use of LEGO® in higher education
- Studies that used LEGO® as a learning tool in education programs or curricula
- Studies in the English language
- Studies published between 2000 and 2020 (the last 20 years)
- Published journal articles and conference papers only

Regarding research types, both quantitative and qualitative studies were included in this review. We found 105 papers from the Web of Science, 112 from ERIC, 62 from Science Direct, and 19 from ResearchGate. We further narrowed down our search to papers that contained “LEGO®” in the title only to be more focused and intentional in our exploratory review.

Finally, we closely reviewed these articles to ensure that there was no duplication in multiple sources produced by the same author (e.g., a journal article and a book chapter, or a dissertation and a journal article). Finally, we had 84 relevant sources consisting of a mixture of conference papers and journal articles. Please note that we did not include any dissertation research papers in the literature review.

We began to review the 84 sources through data extraction involving selecting and entering information from each source for storage (Title, Author(s), Year, Journal, Research Focus, and Research Method). Next, the reviewers made additional judgments regarding the source content. In the third round, the introduction, methodology, and conclusion sections of the 84 sources were read. We also analyzed the titles and abstracts of these papers with reference to the above search criteria. Studies that involved the use of LEGO® in teaching and learning were included. In this final phase, 26 papers were selected as samples for a subsequent literature review capable of answering the research questions. A summary of the 26 papers is presented in Table 2.

3. Results and discussions

3.1 Classification of articles

Based on the literature review, we identified two major trends in LEGO® brick applications in higher education: applying LEGO® as a learning facilitation tool and applying it as a thinking facilitation tool. When LEGO® is introduced as a learning facilitation tool, the outcome is more or less predictable for educators because there is a certain subject to teach and the educational goal is defined (Hussain, 2006;

Table 1: Summary of the search

<i>Selection Strategy</i>	<i>Results from the Search</i>
Round 1: Keyword search – LEGO® & Education & Training	298
Round 2: Keyword search – LEGO® & Higher Education	84
Round 3: Introduction, Methodology, & Conclusion	26

Table 2: List of the reviewed papers and summary

<i>Authors (y)</i>	<i>Study focus</i>	<i>LEGO® Type</i>	<i>Methods applied</i>	<i>Target (Number of participants in a group)</i>
Steghöfer et al. (2017)	Project management (teaching scrum)	LEGO® City	Action research through workshops	Group (5 to 8)
Müllera et al. (2015)	Production engineering	Mindstorms	Factory management game	Group (N/A)
McFall & Scholz (2011)	Engineering design	Mindstorms	Classroom-based comparative study between teams with and without LEGO® Mindstorms	Group (4)
Zenk et al. (2018)	Innovation and entrepreneurship	LSP	Classroom-based activity	Group (3 to 4)
Anthony et al. (2017)	Resilience concept	LSP	LEGO® SERIOUS PLAY® and concept map	Individual and Group (4)
Peabody & Turesky (2018)	Shared leadership	LSP	Classroom-based activity	Group (3 to 5)
Ringwood et al. (2005)	Engineering design	Mindstorms	Lectures and workshop using LEGO® Mindstorms	Group (3)
Graham & Alison (2017)	Threshold concepts and liminality	LSP	Classroom-based activity using LEGO® SERIOUS PLAY®	Individual and Group (N/A)
Tseng (2017)	Fostering narrative identity	LSP	Classroom-based activity using LEGO® SERIOUS PLAY®	Group (6 to 8)
Kim & Jeon (2009)	Embedded system	Mindstorms	Classroom-based activity	Lecture size of 80 undergraduates
Papanagnou et al. (2018)	Effective communication	Normal bricks	Interactive workshop	Individual and Group (N/A)
Danahy et al. (2014)	Learning experience	Mindstorms	Use LEGO® Robotics in lessons	Individual
Buckle (2015)	Metaphorical learning	Normal bricks	Interactive workshop	Individual and Group (N/A)
Bonneau & Bourdeau (2019)	Collaborative work	Normal bricks	Video recording and feedback discussions	Group (4)
Lindh & Holgersson (2005)	Problem solving	Normal bricks	Combination of observations, interviews, and experiments using LEGO® bricks	Group (3 to 4)
Wan & Chiu (2002)	Creativity	Normal bricks	Experimental design using LEGO® bricks	Individual
McCusker (2019)	Effective communication in teams	LSP	Case study of a classroom-based activity using LEGO® SERIOUS PLAY®	Individual and Group (N/A)

Dann (2018)	Marketing education	LSP	Observational study, LEGO® SERIOUS PLAY®	Group (3 to 6)
Stephan & Sonnenburg (2018)	Design thinking	LSP	Experimental design using LEGO® SERIOUS PLAY®	Individual and Group (N/A)
James (2013)	Creative arts	LSP	Observational study, LEGO® SERIOUS PLAY®	Individual
Peabody & Noyes (2017)	Reflective practice	LSP	Interviews, LEGO® SERIOUS PLAY®	Individual and Group (N/A)
Moreau and Engeset (2016)	Problem solving/ Creativity	Normal bricks	Experimental design using LEGO® bricks	Individual
Šablis, Gonzalez-Huerta, Zabardast, & Šmite (2019)	Lesson on global work	Normal bricks	Observational study, using LEGO® bricks	Group (4 to 5)
Rainford (2020)	Creative confidence	Normal bricks	Interviews, using LEGO® bricks	Individual
Beisser & Gillespie (2003)	Teaching and learning course	Microworlds	Case study, using LEGO® bricks LEGO® Microworlds	Group (5)

Source: Papers selected from Web of Science, Science Direct, ResearchGate, and ERIC. LSP refers to LEGO® SERIOUS PLAY®.

Baratè, 2017). On the other hand, when LEGO® is introduced as a thinking tool, the outcome is highly likely to vary according to who is participating in the work. Furthermore, students are assigned to an individual LEGO® activity in some educational cases (Lindsay et al., 2017), while in other cases, they are assigned to collaborative work using LEGO® bricks (Dumitraşcu et al., 2014; Jensen et al., 2018). This suggests that LEGO® applications can be further classified according to the number of students engaged in LEGO® activities.

Therefore, we developed a typology of LEGO® brick applications in education, as shown in Figure 1. The purpose of this typology is for educators to find an appropriate way to introduce LEGO® bricks into their education. It consists of four quadrants that are classified by two axes: the aim of the application and participants in action. The aim of the application is educators' intention to introduce LEGO® bricks into their teaching activity, either for letting students learn or think. These aims sometimes overlap, but we think that it is possible to highlight the distinction in the initial teaching intention. Participants in action is the number of students engaged in an activity with LEGO® bricks. When a student is assigned a LEGO® activity alone, their learning or thinking processes and their outcome are more likely to be personal. On the other hand, when a group of students is assigned to a group collaborative work with LEGO®, their learning or thinking processes are rather interpersonal. In other words, the process and outcome are shared among group members. Each of the quadrants represents different types of LEGO® brick application in education: type 1 is theory, type 2 is practice, type 3 is reflection, and type 4 is communication.

3.1.1 Type 1: Theory

This is when students learn theory or basic knowledge in a certain subject using LEGO® bricks. For example, Fillippov et al. (2010) introduced LEGO® for teaching control theory in robotics, and Zaldivar et al. (2019) for teaching optimization fundamentals. In these cases, LEGO® bricks were used to provide experiential learning opportunities for novice learners. In another study, Buckle (2015) used LEGO® in a language game to create metaphors and engage learners through all their senses so that they could construct their own understanding. When there is a lack of fundamental knowledge in students, the introduction of LEGO® bricks functions as a shortcut to intuitively understand the basic principles behind a theory. Furthermore, LEGO® bricks are used to learn non-technical skills, such as leadership (Peabody & Turesky, 2018) and team building (Dann, 2018). The fundamental theories of these non-technical domains are difficult to describe in words. Thus, it is more effective to provide active learning experiences by doing something with LEGO® bricks.

3.1.2 Type 2: Practice

This is when students put their knowledge into practice through engagement in hands-on activities with LEGO® bricks. Robotics is a field in which LEGO® is widely applied as a group learning tool. LEGO® Mindstorms are a popular learning product that many universities have introduced to teach introductory robotics and programming courses for first-year engineering students (McFall & Scholz, 2011; Zaldivar et al., 2019). Freshmen from Sungkyunkwan University in Suwon, Korea said that LEGO® Mindstorms helped them understand the components and characteristics of embedded systems, such as dedicated software, dedicated input and output devices, the relationship between software and hardware, and the corresponding constraints (Kim & Jeon, 2009). It is also used in high school and junior high school education (Atmatzidou et al., 2008; Kazakoff et al., 2013). The hands-on, participative learning experiences have intuitive, self-learning effects on students, who do not need to fully understand the theoretical background of robotics and programming in advance (Ringwood et al., 2005).

3.1.3 Type 3: Reflection

This is when students think about a certain subject with the help of LEGO® brick modeling and visualization. In other words, LEGO® bricks are used as a thinking facilitation tool when an issue is conceptually unclear for students. For example, Anthoney et al. (2017) used LEGO® bricks to facilitate students' understanding of the concept of resilience, and Graham and Alison (2017) introduced the LEGO® Serious Play® (LSP) method to explore threshold concepts. When an issue is personally unclear, LEGO® bricks can help one elaborate on one's own ideas through visualization. LSP is a systematic methodology that facilitates a series of personal and group-thinking processes. It is effective for visualizing the unconscious perception of unclear issues using a three-dimensional model-building process. Many researchers have used LSP combined with other thinking

methods, such as design thinking (Primus & Sonnenburg, 2018) and systems thinking (Graham & Alison, 2017). In another study, Tseng (2017) used LSP as an intervention to strengthen economically disadvantaged college students' capacity to purposely integrate their life experiences; that is, to enhance their narrative identities.

3.1.4 Type 4: Communication

This involves students exchanging ideas through model-building activities with LEGO® bricks. In other words, the LEGO® bricks function as a communication catalyst. For example, students are initially assigned to an individual LEGO® activity and are required to explain the outcome of collaborative group work using LEGO® bricks at the end (Dumitraşcu et al., 2014; Lindsay et al., 2017; Jensen et al., 2018). This is often combined with group-oriented activities, such as innovation design projects (Zenk et al., 2018) and creative problem-solving (Wengel et al., 2016). Such group projects often become more difficult to manage owing to the diversified viewpoints within groups. Model building with LEGO® bricks is effective for facilitating interpersonal communication by visualizing and identifying gaps among the group members. A group of medical students underwent an interactive workshop using LEGO® to help them practice communication skills (Papanagnou et al., 2018). The workshop was well received. Students made requests to have similar sessions throughout their training to better support the development of effective communication skills.

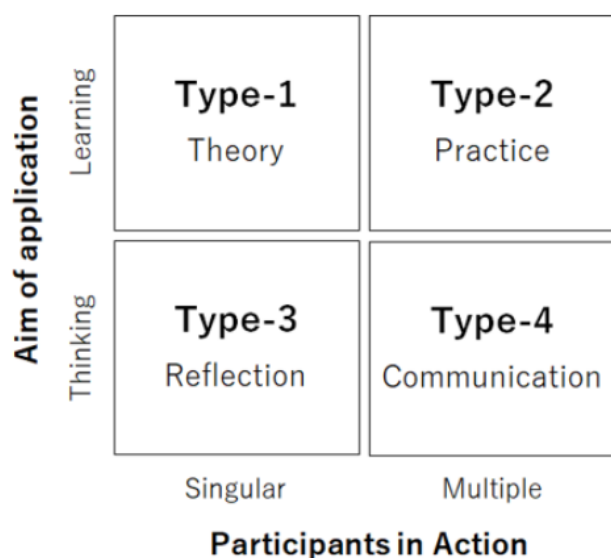


Figure 1: Classification of LEGO® brick applications in education

4. Conclusions

This study demonstrated that the use of LEGO® in teaching and learning is diverse, encompassing learning facilitation, thinking facilitation, individual applications, and group applications. A simple typology was proposed based on our findings, classifying 26 research articles into 4 quadrants, with each quadrant representing different types of LEGO®

bricks application in education: type 1, theory; type 2, practice; type 3, reflection; and type 4, communication. This classification is represented using two axes: the aim of the application and participants in action. The purpose of this simple typology is to provide a clearer picture of the various educational contexts of LEGO® usage in higher education and to identify trends in teaching practices.

A limitation of this study is the focus of the review on the use of LEGO® bricks in teaching and learning in the higher education context. As this study focused only on higher education contexts, future studies could include the use of LEGO® bricks at other educational levels, such as professional development courses or pre-university levels. Future studies could also investigate the effectiveness of LEGO® bricks in fulfilling different educational goals. Another limitation of this study relates to the use of qualitative methods (e.g., observational and case study methods) in the majority of the selected research articles. Future studies could strive to equally represent both quantitative and qualitative studies so that the exploratory analysis could generate an understanding of the differences in the findings and learning processes. Another limitation of this study is the discussion section of this report based on the research articles selected, which mainly focused on reporting and classifying what was done in the past. Future extensions of this paper could consider expanding the discussion to compare different types of research article based on the typology presented in this paper or the impacts of LEGO® on teaching and learning.

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References

- Atmatzidou, S., Markelis, I., & Demetriadis, S. (2008). The use of LEGO Mindstorms in elementary and secondary education: Game as a way of triggering learning. *Workshop Proceedings of SIMPAR 2008, International Conference of Simulation, Modelling and Programing for Autonomous Robots*, 22-30.
- Baratè, A., Ludovico, L., & Malchiodi, D. (2017). Fostering computational thinking in primary school through a LEGO®-based music notation. *Procedia Computer Science*, 112, 1334-1344.
- Beisser, S., & Gillespie, C. (2003). Kindergarteners can do it — so can you: A case study of a constructionist technology-rich first year seminar for undergraduate college students. *Information Technology in Childhood Education Annual*, 2003(1), 243-260.
- Bonneau, C., & Bourdeau, S. (2019). Computer-supported collaboration: Simulation-based training using LEGO®. *Educational Technology Research and Development*, 67(6), 1507-1527.

- Buckley, C. (2015). Conceptualising plagiarism: Using Lego to construct students' understanding of authorship and citation. *Teaching in Higher Education*, 20(3), 352-358.
- Calderón, A., & Ruiz, M. (2015). A systematic literature review on serious games evaluation: An application to software project management. *Computers & Education*, 87, 396-422.
- Csizmadia, A., Standl, B., & Waite, J. (2019). Integrating the constructionist learning theory with computational thinking classroom activities. *Informatics in Education*, 18(1), 41-67.
- Danahy, E., Wang, E., Brockman, J., Carberry, A., Shapiro, B., & Rogers, C. B. (2014). Lego-based robotics in higher education: 15 years of student creativity. *International Journal of Advanced Robotic Systems*, 11(2), 1-15.
- Dann, S. (2018). Facilitating co-creation experience in the classroom with Lego Serious Play. *Australasian Marketing Journal*, 26(2), 121-131.
- Dumitraşcu, A., Corduban, C., Nica, R., & Hapurne, T. (2014). LEGO training. An educational program for vocational professions. *Procedia - Social and Behavioral Sciences*, 142(14), 332-338.
- EBSCO. (2021). ERIC. <https://www.ebsco.com/products/research-databases/eric>
- Fillippov, A. S., Fradkov, A. L., Ashikhmina, I. V., & Seifullaev, R. E. (2010). LEGO Mindstorms NXT robots and oscillators in control education. *IFAC Proceedings*, 43(11), 156-160.
- Giddings, S. (2017). LEGO and LEGO Foundation. In Peppler, Kylie (Ed.). *The SAGE Encyclopedia of out-of-school learning*. SAGE Publications, pp. 436-438.
- Graham, B., & Alison, J. (2017). Threshold concepts, LEGO® SERIOUS PLAY® and whole systems thinking: Towards a combined methodology. *Practice and Evidence of the Scholarship of Teaching and Learning in Higher Education*, 12, 249-271.
- Hussain, S., Lindh, J., & Shukur, G. (2006). The effect of LEGO training on pupils' school performance in mathematics, problem solving ability and attitude: Swedish data. *Educational Technology & Society*, 9(3), 182-194.
- James, A. R. (2013). Lego Serious Play: A three-dimensional approach to learning development. *Journal of Learning Development in Higher Education*, (6), 1-18.
- Jensen, C. N., Seager, T. P., & Cook-Davis, A. (2018). LEGO® SERIOUS PLAY® in multidisciplinary student teams. *International Journal of Management and Applied Research*, 5(4), 264-280.
- Kazakoff, E. R., Sullivan, A., & Bers, M. U. (2012). The effect of a classroom-based intensive robotics and programming workshop on sequencing ability in early childhood. *Early Childhood Education Journal*, 41(4), 245-255.
- Kim, S. H., & Jeon, J. W. (2009). Introduction for freshmen to embedded systems using LEGO Mindstorms. *IEEE Transactions on Education*, 52(1), 99-108.
- Kristiansen, P., & Rasmussen, R. (2014). *Building a better business using the Lego Serious Play method*. John Wiley & Sons.
- Lauwaert, M. (2008). Playing outside the box – on LEGO toys and the changing world of construction play. *History and Technology*, 24(3), 221-237.
- Lindh, J., & Holgersson, T. (2007). Does Lego training stimulate pupils' ability to solve logical problems? *Computers & Education*, 49(4), 1097-1111.
- Lindsay, S., Hounsell, K. G., & Cassiani, C. (2017). A scoping review of the role of LEGO® therapy for improving inclusion and social skills among children and youth with autism. *Disability and Health Journal*, 10(2), 173-182.
- McCusker, S. (2019). Everybody's monkey is important: LEGO® Serious Play® as a methodology for enabling equality of voice within diverse groups. *International Journal of Research & Method in Education*, 1-17.
- McFall, K. S., & Scholz, H. N. (2011). Comparison of an introductory engineering course with and without LEGO Mindstorms robots. *Technology Interface International Journal*, 11(2), 61-64.
- Moreau, C. P., & Engeset, M. G. (2016). The downstream consequences of problem-solving mindsets: How playing with LEGO influences creativity. *Journal of Marketing Research*, 53(1), 18-30.
- O'Brien, J. (2019). Forming powerful MBA teams using Lego architecture. *Journal of Applied Learning and Teaching*, 2(1), 79-82.
- Papanagnou, D., Lee, H., Rodriguez, C., Zhang, X., & Rudner, J. (2018). Not your typical simulation workshop: Using LEGOs to train medical students on the practice of effective communication. *Cureus*, 10(1), 1-9.
- Papert, S. & Harel, I. (1991). Situating constructionism. *Constructionism*, 36(2), 1-11.
- Papert, S. (1999). *Papert on Piaget*. www.papert.org/articles/Papertonpiaget.html
- Peabody, M. A. (2015). Building with purpose: Using LEGO SERIOUS PLAY in play therapy supervision. *International Journal of Play Therapy*, 24(1), 30-40.
- Peabody, M. A., & Noyes, S. (2017). Reflective boot camp: Adapting LEGO® SERIOUS PLAY® in higher education. *Reflective Practice*, 18(2), 232-243.
- Peabody, M., & Turesky, F. E. (2018). Shared leadership lessons: Adapting LEGO® SERIOUS PLAY® in higher education. *International Journal of Management and Applied Research*, 5(4), 210-223.

- Pike, C. (2002). Exploring the conceptual space of LEGO: Teaching and learning the psychology of creativity. *Psychology Learning & Teaching*, 2(2), 87-94.
- Primus, D. J., & Sonnenburg, S. (2018). Flow experience in design thinking and practical synergies with LEGO® SERIOUS PLAY®. *Creativity Research Journal*, 30(1), 104-112.
- Psenka, C. E., Kim, K. Y., Okudan Kremer, G. E., Haapala, K. R., & Jackson, K. L. (2017). Translating constructionist learning to engineering design education. *Journal of Integrated Design and Process Science*, 21(2), 3-20.
- Purcell, M. E. (2018). Hubris, revelations and creative pedagogy: transformation, dialogue and modelling 'professional love' with LEGO®. *Journal of Further and Higher Education*, 43(10), 1391-1403.
- Rainford, J. (2020). Confidence and the effectiveness of creative methods in qualitative interviews with adults. *International Journal of Social Research Methodology*, 23(1), 109-122.
- Ranscombe, C., Bissett-Johnson, K., Mathias, D., Eisenbart, B., & Hicks, B. (2020). Designing with LEGO: Exploring low fidelity visualization as a trigger for student behavior change toward idea fluency. *International Journal of Technology and Design Education*, 30(2), 367-388.
- Ringwood, J. V., Monaghan, K., & Maloco, J. (2005). Teaching engineering design through Lego® Mindstorms™. *European Journal of Engineering Education*, 30(1), 91-104.
- Šāblis, A., Gonzalez-Huerta, J., Zabardast, E., & Šmite, D. (2019). Building LEGO towers: An exercise for teaching the challenges of global work. *ACM Transactions on Computing Education (TOCE)*, 19(2), 1-32.
- Souza, I. M., Andrade, W. L., Sampaio, L. M., & Araujo, A. L. S. O. (2018). A systematic review on the use of LEGO® Robotics in Education. In *2018 IEEE Frontiers in Education Conference (FIE)* (pp. 1-9). IEEE.
- Tseng, W.-C. (2017). An intervention using LEGO® SERIOUS PLAY® on fostering narrative identity among economically disadvantaged college students in Taiwan. *Journal of College Student Development*, 58(2), 264-282.
- Wan, W. W., & Chiu, C. Y. (2002). Effects of novel conceptual combination on creativity. *The Journal of Creative Behavior*, 36(4), 227-240.
- Wengel, Y., McIntosh, A. J., & Cockburn-Wooten, C. (2016). Constructing tourism realities through LEGO Serious Play. *Annals of Tourism Research*, 56, 161-163.
- Xia, L., & Zhong, B. (2018). A systematic review on teaching and learning robotics content knowledge in K-12. *Computers & Education*, 127, 267-282.
- Zaldivar, D., Cuevas, E., Maciel, O., Valdivia, A., Chavolla, E., & Oliva, D. (2019). Learning classical and metaheuristic optimization techniques by using an educational platform based on LEGO robots. *The International Journal of Electrical Engineering & Education*, 58(2), 296-305.
- Zenk, L., Hynek, N., Schreder, G., Zenk, A., Pausits, A., & Steiner, G. (2018). Designing innovation courses in higher education using LEGO® SERIOUS PLAY®. *International Journal of Management and Applied Research*, 5(4), 245-263.



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Examining female characters in children picture books: an international teachers' perspective

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Keywords

Children picture books;
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underrepresentation.

Abstract

Books have a great influence on children's self-esteem, behavior and thinking (Southard et al, 2014). Accordingly, when children picture books present stereotypical images of gender roles, children might be misled. Thus, the present study examines whether American males and females are equally portrayed in children's literature or not. The purpose of this research paper is to examine the Caldecott Medal and Honor winners of children books in the 1940's and the children picture books in 2000's as they could have the greatest influence on how children would perceive stereotypical issues related to gender roles. Thus, the researchers carried out a close analysis of how the characters are exhibited in those picture books based on their gender roles, and whether this perspective has changed over time. The rationale for choosing these books is that they were bestsellers that time and also because of their impact on kids. The results show that female characters were presented less and with less important and more stereotyped roles than males.

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Introduction

Children's literature books are considered among the most significant sources that teach children concepts related to their life such as differences between males and females roles (Allen et al., 1993). According to Fox (1993), texts have an impact on us because they shape who we are as they are considered a mirror of our politics and values. Therefore, when children literature books provide children with stereotypical images of gender, children would be restricted to that image without understanding the different sex roles in their societies. Many studies on gender stereotypes came out in the 1970s due to the women's movement (Turner-Bowker, 1996). Studies conducted since the 1970s have shown that female characters were underrepresented and stereotyped. In this sense, Weitzman et al. (1972) state that "females were largely underrepresented in the titles, central roles, and illustrations. When females did appear in the books, their characterization reinforced traditional sex-role stereotypes, such as passivity and occupational limitations" (as cited in Meganck, 2010, p.5). Even though the underrepresentation of females in children's books started to shrink, the demeaning of their role is still present. Accordingly, Worland (2008) claims that "while sexism and female underrepresentation continue to decrease, they still exist" (as cited in Paynter, 2011, p.1). The importance of this study lies in the fact that the representation of gender issues in children's books mirror the social status and the image of American women. This paper underscores how women are represented in children picture books in the twentieth century, specifically from the 40's to 2000's. The research question is: are American males and females equally portrayed in children's literature when it comes to gender presentation and role?

Review of related studies

Research has shown that there has been much more emphasis on male characters than that of females in children literature. It has been noticed through critically analyzing children's books that the roles of power and superiority are always related to male characters; while women are always associated with domestic and subordinate roles (Dionne, 2010). McCabe et al. (2011) support the same findings by saying: "Compared to females, males are represented nearly twice as often in titles and 1.6 times as often as central characters" (p.179). Women are underrepresented in every aspect in children's picture books including the titles, the illustrations and the roles, and they have traditional roles such as taking care of the house, the children, and their husbands. However, men have active roles; they are the ones who lead and save others, and women are just followers of them (Weitzman et al., 1972).

According to Clark et al.'s (2003) study, in which they carefully examined the Caldecott winners children's picture books through different decades from the 1930's to 1960's, "Female characters in Caldecott winners and runners-up have become increasingly visible and gender stereotyping has become decreasingly evident" (p. 439). However, their findings have revealed that female characters were more visible in the late 1930s and 1950s than that of the 1940s and

the 1960s. This study adds to the findings of the previous studies that have examined the role of females in children books.

The theoretical framework of this study is based on the gender schema theory, which was originated by Sandra Bem in the late 1970s (Paynter, 2011). According to Bem (1981), this theory suggests that every society prescribes social roles to men and women, which they in turn expect their children to absorb these roles and be socialized with when they become adults. Thus, children learn those different social roles of men and women in their society, and then they start behaving according to what they learned about sex-typed role.

Methodology

Data collection

For the current project, seven children books, four from Caldecott Medal and Honor winners of children books published in the 1940s and three from 2000s, were examined and analyzed to see how female characters were represented in these children's literature books. These books are: *The little house*, *Many moons*, *White snow bright snow*, *Goodnight moon*, *Olivia*, *The problem with chicken*, and *Alice in wonderland*.

Criteria for selection

The researchers chose to investigate Caldecott Medal and Honor winners of children books from the 1940s, since they were bestsellers in the 40s to the bestsellers from the 2000's. In addition, Caldecott winners have an extraordinary influence on children, "these books represent an elite group whose influence on authors, the industry, teachers, and parents is widespread" (McCabe et al., 2011, p. 203).

Data analysis

Data was analyzed based on a Critical Multicultural Analysis approach (CMA), "critical multicultural analysis helps to analyze how power relations are exercised" (Botelho & Rudman YEAR, p. xiv). The reason for selecting CMA is that the researchers want to compare how female characters were represented in Caldecott Medal and Honor winners of children books in the 1940's and in the 2000's. Thus, the critical multicultural analysis is the best choice for this research because "CMA brings socioeconomic class into conversations about race, and gender, so we can better understand how these systems of oppression intersect" (Botelho & Rudman 2009, p. xiv). Accordingly, the researchers adopted the critical questions posed by Wooldridge (2001) to look at the following criteria in order to analyze their data:

1. Content: what assumptions does the text make about gender?
2. Events: what are the possible readings of the situations?

3. Characters: who is silenced and heard in the stories?
4. Illustrations: what ideological positions can you identify? Table 1 shows how the seven stories were coded.

Table 1: Coding of the data analysis

Personality traits	The little house 1942	Many moons 1943	White snow bright snow 1947	Good night moon 1947	Olivia 2000	The problem with chicken 2005	Alice in wonder-land 2008
Protagonist	0	1	0	0	1	1	1
Independent	1	0	0	0	1	1	1
Dominant	1	0	0	0	1	1	0
Active	1	0	0	0	1	1	1
Intelligent	1	0	0	0	1	1	1
Strong	0	0	0	0	1	1	0
Sex object	0	1	0	0	0	0	0
Competitive	0	0	0	0	1	0	0
Ambitious	0	1	0	0	1	0	1
Sensitive	1	1	1	0	0	0	1

The above table shows how the analysis of data was coded in this study. The personal traits used for coding the data are adopted from Frank Taylor's (2008) study which aimed to examine gender stereotypes in children's literature books. The female traits found in each story are presented with number (1); however, if the female character does not have a trait, (0) is used to present this information. For example, Olivia is the protagonist, and she is independent, dominant, strong, active, intelligent, competitive and ambitious. All these positive adjectives are presented with (1). However, she is not sensitive and this is coded with (0).

Children picture books of the 40s

The little house by Burton (1942) is about a little house that was built a long time ago by a man who wished that his grandchildren and his grand-grandchildren would come and visit this house. As a result, he made sure that the house was very well built in order to stay in a good condition for many years. The house was built in the countryside where it enjoyed nature alone away from the city. However, the house always wondered how the city would look like. After being alone for so many years, the countryside started to turn into a city where there were many houses, skyscrapers, and train stations, in addition to the cars and the automobiles and all the noise and pollution related to the city. The house became alone and sad because it did not enjoy the beauty and the tranquility of nature anymore. It continued to be sad until one great-granddaughter of the man who built it came across the house and recognized it. By then, she decided to take away from the city to the country where she thought the house would be happier. And she really did. She moved

the house to the country where it could enjoy nature and the birds' singing again.

The main focus of this story was on the house itself; however, the house was referred to as feminine, so the subject personal pronouns she and her were used to refer to the house. Since the main focus of this story is the house, there is not much focus on human characters here. There are only two characters represented: the man who built the house and his great-granddaughter. In fact, there is not much evidence from the events supporting our observation; however, it can be said that the man was just mentioned at the beginning of the story and illustrated with a picture. The great-granddaughter was mentioned three times near the end of the story, but she had a crucial role. She was the one who decided to move the house from the city to the country, and she really did that in order to make the house happy again by letting it live alone in the country and enjoy nature again. Accordingly, it can be said that even though the great-granddaughter was hardly mentioned and not a single picture of her, she was the one who thought and then decided what to do with the house, and she actually did.

Many moons, by Thurber (1943), talks about a little princess – Lenore – who becomes very ill – perhaps psychologically more than physically – and she wants the moon to be well again. Her father is ready to bring her whatever she wants to satisfy her and get well, so that he calls on all the wise men in his kingdom to help him get what his daughter requests. However, none of them can help him, saying that the moon is very big and far away and no one can ever get it, which made the king really angry and sad. The only one who can help the king in the palace is the jester who goes and speaks to the little princess, and from their talk he figured out that the princess sees the moon no bigger than her thumb and that it is made of gold. He asks the blacksmith to make her a moon that is no bigger than a thumb and made of gold. He then gives it to the princess, which makes her get well and very happy. However, the king is not happy because he is afraid that she will notice the moon at night and find out that the one she has is a fake one which might make her sick again. Another time, the king asks for help, but none of his wise men can do anything to hide the moon from the sight of his daughter. The jester is the one who can solve the problem for the second time as he finds out that Lenore thinks that when anything disappears or goes, another thing has to replace it like her teeth, flowers, and the unicorn horn.

There are five males shown in this story as opposed to only one female character who is the little princess Lenore. However, it could be said that all the males in the story were thinking about Lenore and how to make her happy by finding out ways to get her the moon. The king is the dominant character who is used to asking his wise men to get him whatever he requests; however, he is really busy thinking how to make his little one happy and healthy. Even though Lenore appears less than the other male characters in the story, it is for her sake that all the other men are thinking hard how to satisfy her. However, in one of the scenes when the king has a conversation with the Lord High Chamberlain, women are underrepresented. The chamberlain gave the king a list of all the things he brought to him including dancing women. In that scene, women are represented as

objects because he lists them with other nonhuman objects, and there is an illustration of two half naked women dancing for the king. It can be said that women are viewed as an entertainment object, which makes men happy, and enjoy their time as if women were just created to make men happy. All the characters that thought and tried to find ways to help the princess were males, but not a single woman in the story was shown to help in solving the problem. As if men are the only ones who can think and find out solutions for problems, but women are not wise enough to be capable of thinking and finding out solutions for any obstacles.

Tresselt's (1947) *White snow bright snow* mainly gives a beautiful description of how the snow starts to fall and cover the city, and how people react regarding that. It shows how men, women, children, and even some animals respond to that snowfall. The main characters focused on in this story are: a farmer, a postman, a policeman and his wife. It shows how those scurried to do their practical things when a snowstorm comes in contrast to the children who are so happy when it comes. Finally, the story shows how the farmer, the postman, the policeman and his wife become very happy when the snowstorm stops and the sunshine comes again.

This story represents males as the ones who go out and work; while females, although there is only one character – the policeman's wife, are the ones whose role is to stay home and take care of the house while the husband is out at work. Not just that, women here are represented as the ones who take care of the husband and serve him when he comes home tired or sick. For example, in one scene and illustration, the policeman's wife is shown in the kitchen, putting her husband's feet in a bowl of warm water and giving him medicine. Also, in another scene, she is shown sitting besides her husband's bed while he is sick, taking care of him and knitting him a sweater to protect him from the cold outside. Accordingly, women in this story are represented as followers of men who only have to take care of their husband and satisfy his needs.

Brown & Hurd's (1947) *Goodnight moon* is a bedtime children's story that describes a little bunny bedtime ritual who is saying good night to everything in his room. Why is not the gender of the little bunny in this story identified? Did the author of the story do that on purpose? However, the only female character in the book was a female rabbit. It was depicted as an old female sitting and knitting. It is obviously a stereotypical picture of females, even though the character has no role in the story.

Children picture books of the 2000s

Falconer's (2000) *Olivia* talks about a female pig that is able to do everything. She is very active and does not like sleeping a lot. She loves playing out, wearing fashionable clothes, painting, and she is really interested in reading books. Every night she can read up to five books. She lives with her family: father, mother, her little brother, and a cat. Her little brother likes imitating her; however, sometimes she cannot stand him and screams to his face, so that he will get frightened and run away from her. She loves her mother

very much, and she is really obedient to her.

The main character in this story is Olivia who is shown to be a 'supergirl'. She is super because she is eager to do and try everything, and she can also do many amazing things. In fact, it can be said that a female here is presented as someone who is able to do whatever she desires without someone preventing her to do what she would like to, so Olivia likes to be independent from others. In addition, she is dominant in this story, which is not always the case for female characters. The interesting thing is that her brother – he boy – is the one who is following and tries to do what she does, so that that male here is the follower of the female, not vice versa. Finally, it can be said that Olivia is a children's story, which presents females as clever, active, dominant, and independent.

In the story *The problem with chickens* by McMillan & Gunnels (2005), some women come across different problems with the chicken they raise, but they eventually can come up with a clever solution for all those problems, and have eggs to use for baking. That implicitly suggests that women are the ones who are supposed to cook and take care of the house and that is their only role in life. However, men are not supposed to perform such duties, and the story is going to be less powerful if those women are replaced by men.

Walt Disney's *Alice in Wonderland* by Scieszka, Blair & Carroll (2008). This story is about a young girl – Alice – who follows a rabbit and enters his hole. This hole leads Alice to the wonderland where she enjoys seeing and experiencing unusual adventures. In this story, Alice is represented as a female heroine who manages to overcome all the obstacles and dangerous events she encounters in her adventures. Also, she learns to be a woman who rebels against all the ideas about marriage and female suppression, and who does not need the presence of a male hero to protect her from any danger or to love and marry. Having such a protagonist character can be inspiring and empowering for little girls' ideas about their self-image as females in their own societies.

Findings

The analysis shows that there was a discrimination against female characters in the past. This aligns with Weitzman et al.'s claim (1972) that females are portrayed as passive and with few skills. As seen from the collection of stories that were analyzed in this research, in the 40s, the main characters were males. For instance, in the *Goodnight moon* by Brown & Hurd (1947), the main character is a male bunny and not a female. The only female in the story is shown as a female rabbit that just sits and knits, indicating that knitting can only be performed by women. In *White snow, bright snow* by Tresselt (1947), the female characters are the ones whose roles are to stay home and take care of the house while the husband is out at work. In addition, women are represented as the ones who take care of the husband and serve him when he comes home tired or sick. The power was given to males, meaning that females were underrepresented and even if a female was a main character, her role was limited to housekeeping, cooking and taking care of children. Male

characters are given the power as it can be seen in *Many moons*, by Thurber (1943), in which male characters were represented as smart, wise and decision makers. On the other hand, as time goes, it seems that the stereotypical image of females has decreased. This can be seen in the stories analyzed in this research paper. For example, *Olivia* by Falconer (2000), *The problem with chickens* by McMillan, & Gunnels and Walt Disney's *Alice in Wonderland* by Scieszka, Blair & Carroll in 2005 and 2008, respectively, the females have more powerful roles in stories, even though they are sometimes depicted in an stereotypical image. Looking at table 1, we can see that female characters in the 2000s are represented as more independent, active, and intelligent than in the 40s. The findings of the study support the gender schema theory that claims that children are impacted by gender choices at an early age (Starr & Zurbriggen, 2017). Therefore, when children are provided with books that stereotype and underestimate the roles and skills women have, this makes them "be gender schematic (or gender polarizing) themselves without even realizing it" (Starr & Zurbriggen, 2017, p. 2).

Conclusion

Reading picture books to children is not just entertainment but also an essential educational tool that can enormously influence children's points of views in aspects related to their gender roles. That would impact how they perceive their identities and gender roles in their societies.

According to the seven stories we analyzed, although female characters started taking equal roles in stories written for children, female characters are still underrepresented. By examining the seven children picture books, children's literature contributed to the gender bias against females throughout history. Children's books were discussed in many articles and for many decades regarding portraying gender roles in a traditional manner. Female characters were presented less and with less important and more stereotyped roles than males, which created a negative image of women. Even though the underrepresentation and the stereotypical image decreased, male characters are still having a more dominant representation in children's literature. Therefore, educators and caregivers need to exercise critical analysis to be aware of any hidden messages in the books they want to use. Therefore, there should be cooperation among teachers and book publishers. This cooperation can be done through ongoing communication between the two groups: teachers and book publishers. Until this communication takes place, teachers still need to be trained on how to critically choose children's books for their students. Experienced instructors and scholars can organize such training through offering workshops that highlight strategies and techniques that teachers can employ to select books for their students.

Limitations of the study

Based on the findings of the study, analyzing seven children's picture books is not enough to shed light on the representation of females in children's books. Thus, for further research, researchers should look for more

children picture books to see if underrepresentation and stereotypical image of female characters still exist.

Other award-winners could be examined for gender parity. Additionally, only books that were published in the United States of America were considered for analysis in this paper. Therefore, to know more about gender equity, books published in other countries should also be considered for analysis.

References

- Allen, A., Allen, D., & Sigler, G. (1993). Changes in sex role stereotyping in Caldecott Medal Award picture books 1938-1988. *Journal of Research in Childhood Education*, 7, 67-73.
- Botelho, M. J., & Rudman, M. K. (2009). *Critical multicultural analysis of children's literature: Mirrors, windows, and doors*. New York: Routledge.
- Brown, M. W., & Hurd, C. (1947). *Goodnight moon*. New York: Harper & Brothers.
- Burton, V. L. (1942). *The little house*. Boston: Houghton Mifflin co.
- Clark, R., Guilmain, J., Saucier, P.K., & Tavarez, J. (2003). Two steps forward one step back: The presence of female characters and gender stereotyping in award-winning picture books between the 1930's and the 1960's. *Sex Roles*, 49(9-10), 439-459.
- Dionne, A. M. (2010). *Developing critical literacy skills: Exploring masculine and feminine stereotypes in children's literature*. http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/WW_Critical_Literacy.pdf.
- Falconer, I. (2000). *Olivia*. New York: Atheneum Books for Young Readers.
- Fox, M. (1993). Politics and literature: Chasing the "isms" from children's books. *The Reading Teacher*, 46(8), 654-658 .
- McCabe, J., Fairchild, E., Grauerholz, L., Pescosolido, B. A., & Tope, D. (2011). Gender in twentieth-century children's books: Patterns of disparity in titles and central characters. *Gender & Society*, 25(2), 197-22.
- McMillan, B., & Gunnels. (2005). *The problem with chickens*. Boston: Houghton Mifflin Co.
- Meganck, S., (2010). *The portrayal of female's images in children's literature: An analysis of the prevalence of gender behavior patterns from 2000 to 2010*. Unpublished doctoral dissertation. Virginia Commonwealth University, Virginia.
- Paynter, K., C. (2011). *Gender stereotype and representation of female characters in children's picture books*. Unpublished doctoral dissertation. Liberty University.
- Starr, C. & Zurbriggen, E. (2017). Sandra Bem's Gender Schema Theory after 34 years: A review of its reach and

impact. *Sex Roles*, 76(9-10).

Scieszka, J., Blair, M., & Carroll, L. (2008). *Walt Disney's Alice in Wonderland*. Disney Press.

Southard, A., Morgan, H. & Zeigler-Hill, V. (2014). The influence of culturally authentic children's books on the self-esteem and racial preferences of elementary school students. *Revue internationale de psychologie sociale*, 27(3-4), 227-238. <https://doi.org/Disney Press>.

Thurber, J., & Slobodkin, L. (1943). *Many moons*. Harcourt, Brace and Co.

Tresselt, A., Duvoisin, R., Lothrop, L, & Shepard C. (1947). *White snow, bright snow*. Lothrop, Lee & Shepard Co.

Turner-Bowker, D. M. (1996). Gender stereotyped descriptors in children's picture books : Does Curious Jane exist in the literature ? *Sex Roles*, 35(7-8), 461-488.

Weitzman, L. Debora E., Elizabeth, H., & Catherine, R. (1972). Sex role socialization in picture books for preschool children. *American Journal of Sociology*, 1, 125-50.

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Understanding the concepts of digital learning approaches: An empirical analysis of schools in developing countries

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Abstract

The rising popularity of learning via e-learning platforms, coupled with the accelerated pace in mobile devices' uptake during the post-COVID-19 environment, presents tremendous learning demands on mobile and wireless networking infrastructure. Some fundamental principles and components are essential to maximizing user experience and online program success. This paper will explore the gaps between traditional learning and mobile learning by presenting a comprehensive survey of the two areas' cusps. We trace the practices in mainstream schools with potential online program development and delivery strategies to meet the school's ratification. We identify the critical learning and performance support. We then discuss several techniques and platforms that facilitate the efficient deployment of learning onto mobile systems. Finally, we discuss how to tailor learning to mobile environments, propose a set of activities that would augment online presence for students, and open directions for future research.

Introduction

The relentless growth of ICT (information and communications technology) and AI (artificial intelligence) has triggered a radical challenge to the notion and practice of traditional learning space. Mobile technology opens new opportunities for integrating classroom learning with online learning methods. This blended learning approach that amalgamates varied modes of learning and incorporates various ways to access content using mobile technology is not new. However, blended learning gives learners the impression of learner-centricity by providing more significant opportunities for learners to engage with learning materials. It does not augur well with industrial attachment or internship training where a crucial experiential component is lacking. In part, many educators have begun to consciously mix different elements of e-learning and face-to-face learning into a blended learning model (Mestan, 2019). It is not surprising that several writers posit a tendency to use blended learning scenarios by coalescing different approaches of learning and assimilating a variety of ways to access content, for instance, web-based, desktop, and mobile (Cigdam & Ozturk, 2016; Thomas et al., 2017; McCarthy, 2017). Interestingly, the universality of blended learning research in technology journals over extant higher education literature highlights that blended learning needs clarity as findings that blended learning will become the "new" normal in higher education course delivery are inconsistent (Norberg et al., 2011; Brown, 2016).

ICT and tools such as mobile communication devices have become necessary since they offer a new paradigm in connectivity, communication, and collaboration in our daily lives (Harfoushi, 2017). In the post-COVID-19 epoch, many schools worldwide are closed due to social distancing measures and other health concerns. Students across all levels, from primary school to universities, have shifted to home-based learning. This has caused personal, psychological, and sociological consequences for learners (Toquero, 2020; Cao et al., 2020; Cesco et al., 2021). Unless learners can quickly learn to adapt themselves in their personal and professional affairs and society at large, they are destined for disappointments in the digital learning space. The mundane cycle of change relating to ICT within the academic community has now become the 'new' normal. As the result of the continuous onset of new innovative ICT applications, devices, practices, and structures, members of the learning community are presented with numerous opportunities to improve classroom delivery, including the necessity for embracing technology for continual improvement. From a learner's perspective, mobile technology gives impetus for a relevant and fresh learning experience (McQuiggan et al., 2015). ICT development has created new devices like smartphones, electronic gadgets, cloud computing, and wireless networking, which have become the dominating factor in mobile learning (Vlădoiu, 2012).

The usage of mobile technology such as smartphones and tablets is profoundly entrenched in Generation Z learners (born between 1995 and 2010). It is not surprising that the overall enrolment in distance learning sees an increase in higher education across all sectors (Straumshein, 2017). Generation Z people have the innate ability to use

technology for their socializing and learning, as they barely have known life without the internet, smartphones, and computers (Hope, 2018). They seamlessly mix their online and offline worlds and perform more on their smartphones, laptops, and tablets than they do on personal computers (Piercy, 2017; Smith, 2015). Furthermore, mobile technology allows learners prospects to integrate spontaneous learning in a formal learning context.

Challenges in the developing countries' education system

Students from both Cambodian and Indian education systems have similar challenges especially relating to pedagogies with technologies, designing interactive activities, enhancing formal learning, gaining students' support, and dealing with problems using technology (Son, 2018). Moreover, obstacles in fully online learning are stress and anxiety caused by many different sources of challenges such as having too many online tasks, lack of motivation, and guiding students on how to manage and deal with new normal. Many other related psychological issues can trigger a student's new everyday life due to some family's lack of awareness of the nature of online education (Al-Kumaim et al., 2021).

Further, the teachers find difficulties in engaging low motivated and passive students in the online learning setting. It is indicated by few students who get involved in discussion. Some students do not focus and even go to sleep when they participate in the teleconference. Due to the students' laziness, unstable internet connection, and low English language proficiency, it demotivates them to participate in discussion and question and answer sessions using English. The student's English language proficiency becomes another problem in this online learning. It is because the students do not use English in daily communication both inside and outside the classroom.

Good pedagogy will not make sense if there are problems in technology access (Cakrawati, 2017). The financial situation of the students also creates difficulty, that is, the inability to afford sufficient internet data for online learning. They can only afford limited internet data that are insufficient to participate in online learning well. Many students have low digital literacy. They find problems in operating the applications and platforms used for online learning. This is mainly due to the unfamiliarity of learning online and interacting with those applications and platforms. It becomes a new challenge to teach students with low cognition and various learning styles in the online learning environment.

Relevant literature

Early writers like Jenkins, Browne & Armitage (2001) suggested that the main reason for the extensive investment in web-based technology is their potential to enhance teaching and learning, and to enhance the development of student-centered, independent learning (Pahl, 2003), fostering a deep approach to learning (Collis, 1997). The notion of technology-based learning is synonymous with e-learning,

which is learning content using electronic technology, not limited only to the Internet, intranets, but also chat rooms, e-bulletin boards, webcasts, computer-based instruction. This e-learning delivery method is typically used in distance education that allows both synchronous and asynchronous exchange of resources over a communication network (Iqbal et al., 2019). Indeed, e-learning holds promise for modern learners; it promotes communication and collaboration among students and instructors (Khan, 2000) and augments accessibility to learning by offering anytime and anywhere delivery. This collaboration also provides a means of exchanging personal information, such as attributes of participating members in an online group endeavor.

On the other hand, the ubiquity of modern mobile devices and the popularity of educational applications for mobile devices has enabled learning to become mobile vis-à-vis to learn from anywhere and at any time without the need to attend physical classes. It also characterizes a range of methods and approaches that bring about benefits and future growth of mobile technologies. The term mobile learning is a part of learning techniques. It refers to the escalation of mobile device usage in the learning community to deliver content and rudiments. Learning can be positioned in a broader range of contexts than traditionally (Uther, 2019; Li & Cao, 2020; Fakomogbon & Bolaji, 2020).

According to Park, Nam, & Cha (2012), mobile learning's acceptance varies depending on several reasons such as ease of use, perceptions of usefulness, and attitudes toward mobile learning generally. These, in turn, are based on self-efficacy, the relevance of the teaching, system accessibility, and social norms. This mobile learning approach should not be confused with personalized learning. It is a preferred mode of instruction in which the pace of knowledge and the instructional process are optimized for individual learning requirements. Consequently, the learning objectives and activities are driven by personal interests and often self-initiated; for instance, the instructional approaches, content, and arrangement may vary based on learner needs (Office of Educational Technology, 2015). Moreover, Barron (2006) asserted that it is indispensable that learning must be viewed with a broader learning ecology lens to appreciate how diverse groups of students adapt technology skills in both formal and informal settings.

Issues surrounding online learning platforms

Nowadays, technology-enhanced learning, namely an online learning environment with adaptive technologies, has gained popularity in teaching and learning. From a teaching standpoint, mobile learning is prompted by characteristics associated with the technologies and devices used, the massive size of data generated throughout a learning session, and the interactions among the learners outside the classroom. Owing to ICT and AI's digitalization, opportunities arise that lead to innovative teaching and learning approaches within institutions and universities. This has led to the implementation of big data analytics to efficiently process big learning data to add value to the mobile learning environments. With the proliferation rate of smart devices, their use is becoming widely accepted in

mobile learning, which provides instructors' capability to manage the learning content with the intention not only to facilitate the content delivery. It also augments the learning process by adapting content to learners' requirements, which is crucial.

From the extant literature, the authors conclude that mobile learning permits wider opportunities for students to learn on-demand vis-à-vis anytime and anywhere at their convenience. However, this type of knowledge can also present the chances of learning in or outside the classroom environment. The fundamental requisite for mobile learning is accessibility to mobile technologies with multimedia facilities, stable internet, and instructional content quality. As the education sector move quickly into the AI (artificial intelligence) arena, to harness the benefits of deep learning and artificial neural network pervasive in everyday learning. Deep learning refers to algorithms that can forecast possible outcomes based on user data, which lets a computer show behaviors learned from experiences rather than human interactions. It aids automation using algorithms in learning from data and consequently generate predictions (Ahmadi-Karvigha et al., 2019). Some developmental theorists went further to embed consideration of AI's benefits and risks in education as technology tools into the development, marketing, and deployment of these tools (Berendt et al., 2020). More importantly, AI impacts data protection and privacy, and fundamental rights in general; secondly, who (which body or organization) should be responsible for regulating AI in education (Berendt et al., 2020)?

The success of any learning platform is conditional upon the pedagogy adopted by the instructor using it. One aspect of this study is to investigate practical ways of implementing the learning platforms. We intend to speak generally about the challenges and opportunities afforded by these approaches inclusively as we explore their practical uses in the K10-12 education context. Online platforms that are in use in both formal and informal situations, particularly in education (like Blackboard or Moodle) or for social use (like Facebook or Twitter), are those pedagogies that are frequently linked to the implementation of these platforms.

Research objectives (ROs) and research questions (RQs)

The key objectives of this study are:

- (i) To identify the association between a school's adoption of new technologies and embracing a set of ICTs, specifically mobile learning and the school's performance.
- (ii) To cultivate students' ease of learning using technologies and improve their overall learning experience. And meet the requirements of national, social, and personal developments, which leads them to greater use of ICTs and permit users to navigate, learn, and communicate spontaneously to fulfill self-gratification.

Accordingly, this study applied the mobile learning technology and blended flipped classroom into K10-12 teaching to explore the characteristics of this teaching mode and then take its advantages to create effective learning and teaching (L&T) strategies in schools that promote deep learning.

To achieve the above-mentioned research objectives, this study was guided by three exploratory research questions that asked:

- (i) How do the affordances of mobile technology support widespread acceptance of learning in the COVID-19 environment?
- (ii) What are the contributing factors that facilitated schools and parents in embracing mobile learning?
- (iii) What critical challenges do schools and parents face in adopting mobile learning?

Methodological approach and data collection

The research design underpins the analytical identification of the learning environment and relevant variables. The design rests on the selection and application of data collection techniques, namely interviews, focus group discussions, non-participant observations, document, and social media account reviews, including thematic analysis methods (Meyer, 2001). With the compendium of the dataset, this study is interpretative, mainly intended to appreciate the realities of the research context from modern learners and the learning community who experience these realities (Creswell, 2003; Walsham & Sahay, 2006). To achieve the study objectives, a questionnaire was designed and distributed over a sample of 330 respondents.

Primary data

A survey questionnaire was developed to gather field study data in southwest India and Cambodia's capital and most populous city. The questionnaire incorporates general information data related to the respondents to gain an overview of the landscape of the L&T (Learning and Teaching) in schools, particularly the different media of L&T, their comfort zone, learning models, the services provided, and how they communicate. This was necessary because not much is known or documented about the different learning models and their media in developing countries and their e-inclusion approaches, including how they learn individually and for social development. The data collection methods included interviews (face-to-face and telephonic), focus group discussions, and non-participant observations.

Secondary data

This study applied a descriptive methodology using a literature review related to learning technology in mobile learning. Besides, this study also utilized a survey

methodology supporting the conclusion through the sample's responses, hypotheses testing, and providing a set of recommendations.

Research sample

A random sample was selected from the study population comprising staff members of the school, students, and parents. A total of 330 questionnaires were distributed, and 231 (or 70%) were collected. Table 1 shows the study sample distribution according to study variables.

Table 1: Sample distribution according to study variables (n=231)

Variable	Variable levels	Frequency	Percentage (%)
Gender	Male	80	34.6
	Female	151	65.4
Age	Less than 40 years	130	56.3
	41 – 50 years	71	30.7
	Over 50 years	30	13
Usage of ICT experience	Less than 3 years	39	16.9
	3 – 5 years	159	68.8
	Over 5 years	32	13.9
Nationality	Cambodian	172	74.5
	Indian	59	25.5

Study instrument

A questionnaire was developed after reviewing the literature from various references that deal with the research topic and related to the study objectives. The questionnaire comprised 25 questions. A Likert scale offered five options: Strongly agree = 5, agree = 4, neutral = 3, disagree = 2 and strongly disagree = 1. The study instrument consisted of the three following parts:

Section One deals with respondent's information such as gender, education, age, and experience. Section Two covers familiarity of ICT. Section Three measures the mobile learning adoption.

Analysis

Advantages of mobile devices in distance learning

In referring to RQ1: While the authors of the study contend that enriching student mobile engagement is the central feature of effective learning, the findings indicated that students could enhance their engagement through peer-led discussions and group work. This study also supports Greden (2015), who asserted that conversations between the teachers and students, students and students within the classroom, draw attention to the quality of teaching and learning in an environment where collaboration occurs. In the same vein, Jay et al. (2019) argued that near-peer moderation programs working in partnership with faculty might increase student engagement.

The result of the study's findings is teachers' experience in teaching the subject demonstrates a corresponding methodology of blending theoretical and practical

exercises, which is vital for effective learning (Callaghan et al., 2002). Accordingly, students retain knowledge, especially when they can internalize the concepts taught, putting into practice what they are learning. In contrast, the rapid development of mobile technologies via smartphones, tablets, and laptops and online applications and tools has challenged educators to be radically transformed through the use of such technologies in their teaching and learning strategies (Alwraikat, 2017).

Online teaching and learning have become an everyday reality. The article provides an assessment of fully online course(s) delivered from teachers via Zoom, Google Meet, Google Hangouts or BigBlueButton in an online learning environment. Benefits and challenges of applied tools for online teaching and learning are delineated, leading to recommendations for future developments.

Two important affordances, viz. flexibility and portability, offer substantial benefits to students using mobile devices to access their LMS (Learning Management System) app. Students are no longer bound to a laptop or desktop computer, but with a fully functioning mobile LMS app, students can access their course on-demand (Lee, 2015; Ekundayò & Tului, 2010). Through mobile devices and mobile LMS, students can better manage learning and their activities.

Adoption of new technologies in learning experiences

In referring to RQ2: Technology-based learning is changing the way learning takes place because of its numerous advantages; for example, it fosters more significant access to knowledge by offering to learn on-demand. It provides scalability to a small as well as large group of learners. Furthermore, the content and curriculum can be developed and updated whenever the need arises, and more interestingly, it can be done remotely. For these reasons, technology-based learning has seen tremendous development in the training marketplace in government, industry, and education.

The significance of technology to education has also been recognized by educational institutions in developing countries and, in particular, the suburban areas that are embracing ICT for teaching delivery in the post-pandemic epoch. However, the technology-based learning programs come in different delivery modes and forms. For example, Phnom Penh schools can deploy online tools, such as discussion boards and e-mail, and real-time events, through videoconferencing and web conferencing. They can be self-paced and have a varying focus of instruction. With the appropriate combination of delivery modes and methodologies, technology-based learning offers more than a repository of learning resources online or a new way of reaching learners at a distance. When executed well, it presents a way to complement any learning process, and in most cases, it can bring learning to places where it has not traditionally been accessible.

Discussion

According to the survey results and consistent with the extant literature, one of the critical reasons for developing technology-based learning is their potential to enhance teaching and learning (Tanu et al., 2020). Also, it encourages the development of student-centered, independent learning and fosters a deeper approach to learning. While the popularity of the e-learning environment promotes more flexible and independent learning due to its scalability, it can still present an obstacle to institutions that cannot afford the initial investment. So, finding ways to augment existing e-learning resources can alleviate the expense of content development. From an educator's perspective, it is necessary for students to be participative in the class and collaborate rather than merely listening and memorizing. The students must be driven to apply concepts to real-world situations or to critique an assertion or claim. Hence, meticulous organization of materials in the e-learning platform is crucial. To improve existing e-learning applications, learning environments should offer personal services to help students use, manage, and interact with the learning system (see Table 2).

Table 2: Conventional versus technology-based learning

	CONVENTIONAL	TECHNOLOGY-BASED
Goal	Deductive: Faculty determine the scope of learning and establish right and wrong answers.	Inductive: Students use their experiences to create indicators of successful outcomes.
Aim	the course or subject to be learned	based on student's learning behavior
Learning objectives	based on faculty's judgments	stimulate self-confidence through the knowledge and application of knowledge
Nature of learning	The content is established by a curriculum, and all students study the same topics at the same time.	systemic, non-linear, with multiple feedback
Learning approach	Students have access to limited information, selected by the faculty.	usually highly visual and highly kinesthetic
Design for	Knowledge intensive: Teaching students who learn best by listening.	Students work on activities and projects connected to long-term goals aimed at building deep conceptual understanding and proficient strategy use.
Assessment	Students sit for the exams in a controlled environment. Students need to memorize large extent of the material even though only part of it will be tested.	Students are aware in advanced the assessment format. Have input into the criteria by which they will be assessed, receive feedback from the faculty throughout a course.

Key learning and performance support

A well-structured portion of instructional content on a mobile platform, presented through a mix of audio, video, simulation, and animations, can easily explain complex concepts more clearly. The media mix in a mobile learning instructional content may profoundly engage the student's intellectual capacity through effective participation in a collaborative learning ambience. Furthermore, the availability and accessibility of social network applications also encourage individual contribution to a group task in a mobile learning endeavor, hence, unleashing lasting relationships in discipline and particular interest among participants in a collaborative environment. In a similar vein, the effectiveness of collaboration in mobile learning could be alleviated through faculty's attitude, quality of instructional content, and the suitable connections of multimedia tools of related activity and task.

Teaching effect analysis

After one semester, teaching effects were analyzed using students' questionnaires, reflection reports, students' interview contents, and test scores of the initial week and 16th week. The contrast of two tests scores indicates the students' grasp and retention of knowledge improved significantly after a semester of blended flipped teaching. The average score increased from 76.43 to 88.12, an increase of 15.3%.

This study also coordinated a course evaluation questionnaire to all 84 students using four teaching modes: teaching content, interactive response, and learning impact. The questionnaires applied a five-point Likert scale, five points referring to very satisfied, four points satisfied, three points generally satisfied, two points dissatisfied, one point very dissatisfied. The results are shown in Table 3.

This study also examined students' learning experience according to the students' bi-weekly reflection reports and interviews. Mainly students were satisfied with the learning experience on various online learning platforms such as Zoom, Google Meet, Google Hangouts, and BigBlueButton. Some said in learning and exploring off-class, virtual platforms created three-dimensional scenes and presented the lesson's main emphasis during the classroom situation. The personal space and sense of virtual scenes facilitated students in eliminating interferences and get fully engaged in the learning experience. Several students declared in their interviews that they prefer learning online as they would be less shy.

Table 3: Questionnaire results of learning through mobile learning

Problem Dimension	Problem Statement	Average Value	Standard Deviation
Teaching Mode	This model is conducive to acquiring and expanding learning resources.	4.15	4.15
	This model is conducive to personalized learning.	4.24	0.76
	This model is conducive to effective use of time.	4.09	0.82
	This model is conducive to the cultivation of knowledge.	4.21	0.47
Teaching Content	The difficulty of teaching content is appropriate.	4.22	0.66
	The teaching content features high applicability.	4.36	0.51
	The teaching content is new and exciting.	4.45	0.48
	The teaching content is contemplative and learner-centric.	4.21	0.71
	Teaching activities vary in form.	4.16	0.59
Interactive Response	Teacher's feedback is in time; there are opportunities for interactions between teachers and students.	4.01	0.77
	Opportunities for interaction with peers	4.13	0.65
Learning Impact	Subject knowledge has increased.	4.16	0.54
	Knowledge/skill has enhanced.	4.27	0.45
	Independent learning has improved.	4.25	0.79
	Critical thinking and analytical ability have improved.	3.87	0.83

Challenges faced by schools in developing countries

With reference to RQ3: The introduction of technology-based learning in schools is not without challenges. They include:

- Bridging the digital divide triggered by low computer literacy rates as well as the dearth of accessibility to technology amongst specific learner populations;

- social loafing occurs when students are indifferent towards technology-based learning programs and/or are frustrated in their attempts to make use of technology because of the program's lack of face-to-face interactions.

From the result, it is observed that the inequalities in most countries within schools are far smaller than those found outside of schools, viz. within communities and homes. Moreover, in most industrialized countries, many classrooms in all schools have a Wi-Fi environment. This goes some way to eliminate inequalities between schools in low-income areas and those in high-income ones. Nonetheless, students in more impoverished urban neighborhoods have access problems, not only in the school itself, but in the community and at home.

Technology-based learning can potentially lead to social loafing during which students reduce their level of effort when they perceive that doing so will not have adverse social effects. The main reason for this phenomenon is that without the face-to-face contact of instructors and peers, it is easy for students to perceive that they are not being monitored. In particular, larger class sizes can contribute to social loafing unless students are held answerable for their actions, requiring students to post contributions on group discussion boards, or require periodic deadlines for deliverables. Students who are frustrated by the technology or better able to absorb information through face-to-face contact with an instructor may also reduce their effort in technology-based learning, which may be perceived as social loafing.

India, as opposed to Cambodia, does not have a single nationwide education system. Students can choose several educational pathways, e.g., state board examination, national board examinations, or even an international board examination. It has been 34 years since India did a significant restructuring of its national educational policy. Unfortunately, the Ministry of Human Resource Development, Government of India (2020) announced the National Educational Policy just before the Covid-19 outbreak. The new policy emphasizes the need for further consolidation, standardization, and investments in the education system. Lack of access to quality education is a persistent problem in India, especially among low-income groups in remote and rural areas. This pandemic uncovered the real gap in accessibility to learning in India. Government schools in India could put together some form of e-learning experience in a haphazard manner, while the private school systems were well-thought-out and systemized. Top private schools offer students greater access to relevant information, reduced cognitive load, and increased digital access, such as smartphones, tablets, personal digital assistants (PDAs), laptop computers, and MP3 players.

Development of students' ICT competence the mobile learning adoption

The result of RQ3 is the contemporary notion that the instructor's ability to integrate ICT into the curriculum is vital to students' successful take-up of ICT. Consequently, the next step needed to make courseware practical and valuable for all students, is for publishers to focus on providing resources for teachers to integrate with their lessons rather than fully online courses that attempt to duplicate what instructors do.

Student capacity for self-learning is crucial for ICT skill acquisition. This is due to the nature of computing as an individual activity, particularly for lower and upper secondary students, and the elevated pressure for problem-solving triggered by the current state of the technologies. Students who can monitor their learning, acknowledge when they are unable to grasp a concept, seek help, and communicate their knowledge needs to instructors are more likely to learn best from a self-paced system than those who are weak in these abilities. The development of student's ICT competence is illustrated in Figure 1.

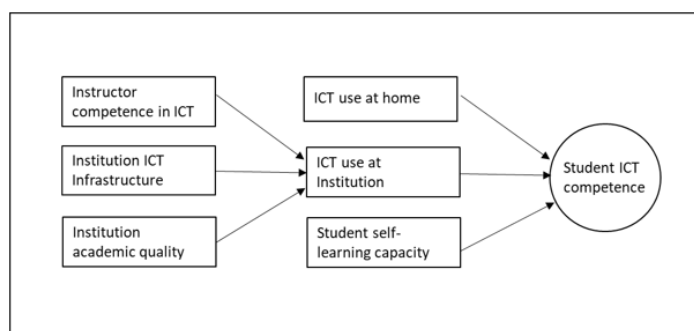


Figure 1: The development of student's ICT competence

Future research on technologies integration

A critical research area for instruction and curriculum lies in enabling faculty to make changes and bolster mobile devices like tablets, smartphones in their teaching delivery and finding effective ways to support them in this effort. The deployment of mobile technology in education provides new possibilities to integrate face-to-face learning and online learning. Many of our experienced and qualified faculty today are digital immigrants; hence, they have to keep up with their secondary school students (typically in Gen Z or iGen, or centennials) who are digital natives. The central question is that how should managers and educators construct the teaching tasks and assessments so that tablets and smartphones are essential parts of the learning toolbox for both faculty and students?

In this study, we concentrate on the instructional system design of mobile blended learning that can be used by faculty who are interested in delivering their lesson through mobile blended learning. The practical delivery of mobile learning and blended learning can be augmented via efficient instructional design and the inclination to use composite learning developments by combining various learning approaches and integrating a variety of ways to gain access to content by using mobile technology. Longitudinal

studies on mobile devices and pedagogy are needed by content areas (e.g., science, technology, engineering, and mathematics). Expanding non-traditional assessments to gauge student success and faculty effectiveness in the use of mobile devices should be meaningful endeavors.

To improve the implementation of mobile blended learning design, managers and educators can examine the essential steps of need analysis, design development activities, learning resources, determination of the learning evaluation, and validation by the experts. As the educational landscape continues to evolve and is being shaped by technological advancements, classroom teaching needs to change. Additionally, the issue of community investment in bridging the digital divide and in bringing e-learning to the poor and disadvantaged areas will continue to dominate discussions about technology-based learning in education and government.

Concluding remarks

Undeniably, web-based and mobile technology is increasingly ubiquitous and makes students ever more dependent on being connected to the internet regularly. Consequently, educators should consider to ingeniously inspire students to learn via mobile learning instead of conventional classroom instruction. One prevalent approach is the notion of blended learning (examined in detail by Halverson et al., 2017), where an online learning environment and activities support face-to-face classroom instruction.

As learning institutions accelerate the pace in mobile devices' uptake during the post-COVID-19 environment, they invariably depend on digital platforms to structure students' learning experiences. Schools must contemplate pedagogical practices and quickly adapt to exploit these changes. While this study shows that such pedagogies are still in their infancy, the authors believe that the instructional system design outlined above can guide making judgments about the efficacy of a learning platform and how best to use it in developing countries' education setting.

From the analysis of the development of students' ICT competence in mobile learning, the study found that mobile learning platforms should be encouraged for instructional delivery in the classroom to enhance students' performance. It should be recognized that mobile learning necessitates student mobility support and not simply support for mobile devices. The usage of mobile devices should be considered in support of other initiatives, for example, mobile calendar notifications for learning events.

Given the discussion on critical learning and performance support, a collaborative learning style should be employed more frequently for better performance during the mobile learning experience. It should be considered more often for students during group work and class assignments in the mobile learning environment.

Finally, students should be encouraged as much as possible to adopt the collaborative problem-solving learning style in writing their assignments. Simultaneously, it is advantageous

to provide access to ebooks to support online courses. However, there is a need to provide access to more than just ebooks, as learners require access to videos, podcasts, learning objects, and other performance support resources.

References

- Ahmadi-Karvigha, S., Becerik-Gerberb, B., & Soibelmanc, L. (2019). Intelligent adaptive automation: A framework for an activity-driven and user-centered building automation. *Energy and Buildings*, 188, 184–189.
- Al-Kumaim, N., Mohammed, F., Gazem, N., Fazea, Y., Alhazmi, A, & Dakkak, O. (2021). Exploring the impact of transformation to fully online learning during COVID-19 on Malaysian university students' academic life and performance. *International Journal of Interactive Mobile Technologies*, 15(5), 140-158.
- Alwraikat, M. A. (2017). Smartphones as a new paradigm in higher education overcoming obstacles. *International Journal of Interactive Mobile Technologies (IJIM)*, 11(4), 114-135.
- Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development*, 49(4), 193-224.
- Berendt, B., Littlejohn, A., & Blakemore, M. (2020). AI in education: Learner choice and fundamental rights. *Learning, Media and Technology*, 45(3), 312-324.
- Brown, M. G. (2016). Blended instructional practice: A review of the empirical literature on instructors' adoption and use of online tools in face-to-face teaching. *The Internet and Higher Education*, 31, 1-10.
- Cakrawati, L. M. (2017). Students' perceptions on the use of online learning platforms in EFL classroom. *English Language Teaching and Technology Journal*, 1(1), 22–30.
- Callaghan, M. J., Harkin, J., McGinnity, T. M., & Maguire, L. P. (2002). An internet-based methodology for remotely accessed embedded systems. In *Systems, Man and Cybernetics, 2002 IEEE International Conference*.
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 287, 1-5.
- Cesco, S., Zara, V., De Toni, A.F., Lugli, P., Betta, G., Evans, A.C.O., & Orzes, G. (2021). Higher education in the first year of COVID-19: Thoughts and perspectives for the future. *International Journal of Higher Education*, 10(3), 285-294.
- Cigdam, H., & Ozturk, M. (2016). Factors affecting students' behavioral intention to use LMS at a Turkish post-secondary vocational School. *International Review of Research in Open and Distributed Learning*, 17(3), 276–295.
- Collis, B. (1997). *Tele-learning in a digital world: The future of distance learning*. International Thomson Computer Press.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.) SAGE Publications.
- Ekundayò, O. T., & Tului, F. (2010). Learner management systems and environments, implications for pedagogy and applications to resource poor environments. In *Handbook of research on e-learning standards and interoperability: frameworks and issues* (pp. 499–525). IGI Global.
- Fakomogbon, M. A., & Bolaji, H. O. (2020). Effects of collaborative learning styles on performance of students in a ubiquitous collaborative mobile learning environment. *Contemporary Educational Technology*, 8(3), 268-279.
- Gergen, K. (2015) *An invitation to social construction*, (3rd ed.). Sage Publications.
- Harfoushi, O. (2017). Influence of cloud based mobile learning applications on user experiences: A review study in the context of Jordan. *International Journal of Interactive Mobile Technologies*, 11(4), 202–211.
- Halverson, L. R., Spring, K. J., Huyett, S., Henrie, C. R., & Graham, C. R. (2017). Blended learning research in higher education and K-12 settings. Learning, design, and technology: An international compendium of theory. *Research, Practice, and Policy*, 1-30.
- Hope, J. K. (2018). Could educational technology replace traditional schools in the future. In M. Khosrow-Pour (Ed.). *Encyclopedia of information science and technology* (4th ed., pp. 2421-2430). IGI Global.
- Iqbal, M.M., Farhan, M., & Jabbar, S. (2019). Multimedia based IoT-centric smart framework for eLearning paradigm. *Multimedia Tools and Application*, 78, 3087–3106.
- Jenkins, M., Browne, T., & Armitage, S. (2001). *Management and implementation of virtual learning environments*. Report UCISA. <https://www.ucisa.ac.uk/>
- Khan B. H. (2000). Discussion of resources and attributes of the web for the creation of meaningful learning environments. *Cyber Psychology & Behavior*, 3(1), 17-23.
- Lee, S. (2015). Design and Analysis of Mobile Learning Management System based on Web App. *International Journal of Multimedia and Ubiquitous Engineering*, 10(1) 417-428.
- Li, X.-D. & Cao, H.-H. (2020). Research on VR-supported flipped classroom based on blended learning — a case study in “learning English through news.”. *International Journal of Information and Education Technology*, 10(2), 104–109.
- McCarthy, J. (2017). Enhancing feedback in higher education: Students' attitudes towards online and in-class formative assessment feedback models. *Active Learning in Higher Education*, 18(2), 127– 141.
- McQuiggan, S., Kosturko, L., McQuiggan, J., & Sabourin, J. (2015). *Mobile learning: A handbook for developers, educators,*

and learners. John Wiley & Sons, Inc.

Mestan, K. (2019). Create a fine blend: An examination of institutional transition to blended learning. *Australasian Journal of Educational Technology*, 35(1), 70–84.

Meyer, C. (2001). A case in case study methodology. *Field Methods*, 13(4), 329–352.

Ministry of Human Resource Development, Government of India (2020, July 29). *National education policy*. https://ruralindiaonline.org/en/library/resource/national-education-policy-2020/?gclid=CjwKCAiAkJKCBhAyEiwAKQBCKqgBaZpcrC6zs00YK2_eNhpJ_bjlfwcPLRdurjwysNeksj1IAOK8RoClq4QAvD_BwE

Norberg, A., Dziuban, C. D., & Moskal, P. D. (2011). A time-based blended learning model. *On the Horizon*, 19(3), 207–216.

Office of Educational Technology. (2015). *National education technology plan*. United States Government. Department of Education.

Pahl, C. (2003). Managing evolution and change in web-based teaching and learning environments. *Computers in Education*, 40, 99–114.

Park, S. Y., Nam, M.-W., & Cha, S. B. (2012). University students' behavioral intention to use mobile learning: Evaluating the technology acceptance model. *British Journal of Educational Technology*, 43(2), 592–605.

Piercy, N. (2017). *Market-led strategic change: Transforming the process of going to market*. Routledge.

Smith, A. (2015). *Smartphone use in 2015*. <https://www.pewresearch.org/internet/2015/04/01/us-smartphone-use-in-2015/>.

Son, J. (2018). 'Technology in English as a Foreign Language (EFL) Teaching'. In J. I. Lontas (Ed.), *The TESOL Encyclopedia of English Language Teaching* (1st ed.).

Straumshein, C. (2017, May 2). 'Volatile' but growing online ed market. <https://www.insidehighered.com/news/2017/05/02/report-finds-growth-volatility-online-education-market>.

Shukla, T., Dosaya, D., Nirban, V. S., & Vavilala, M. P. (2020). Factors extraction of effective teaching-learning in online and conventional classrooms. *International Journal of Information and Education Technology*, 10(6), 422–427.

Toquero, C. M. (2020). Challenges and opportunities for higher education amid the COVID-19 pandemic: The Philippine context. *Pedagogical Research*, 5(4), 1–5.

Thomas, R. A., West, R. E., & Borup, J. (2017). An analysis of instructor social presence in online text and asynchronous video feedback comments. *Internet and Higher Education*, 33, 61–73.

Uther, M. (2019). Mobile learning: Trends and practices. *Education Sciences*, 9(33), 1–3.

Vlădoiu, M. (2012). Towards instructional design of ubiquitous learning environments. *International Journal of Computer & Organization Trends*, 2, 108–112.

Walsham, G., & Sahay, S. (2006). Research on information systems in developing countries: Current landscape and future prospects. *Information Technology for Development*, 12(1), 7–24.



Using Google shared files to facilitate successful online student group collaboration

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Abstract

With a shift to mass online learning, maintaining the benefits of traditional on-campus collaborative group work is crucial for positive learning outcomes. Observations of online classes at a higher education business college reveal the risk of slipping into online lecturing if an educator feels that online group work 'doesn't work'. This EdTech review explores Google's suite of cloud-based shared files: Docs, Sheets, and Slides, through which we can maintain quality, efficient, and effective online group work. This review presents the history of cloud-based shared files, explores Google's suite of products, discusses the importance of social constructivist online peer-peer learning, and concludes with practical shared file case studies. This review challenges the educator to be student-centred. It equips them with practical instructions to incorporate shared files into their classroom activities. It asks the educator to consider our commitment to the modern online student – to provide quality learning outcomes by implementing cloud-based shared files that improve collaborative online learning experiences.

Boring online group work does more damage than simply wasting students' time and money: it diminishes learning. With a shift to mass online learning, maintaining the benefits of traditional on-campus classroom group work is crucial for positive learning outcomes. Observations of online classes at a higher education business college reveal the risk of slipping into online lecturing if an educator feels that online group work 'doesn't work'. However, pedagogy training can improve the skills of an online educator so that effective, collaborative peer-peer learning can be maintained in the online environment. One EdTech tool an educator can learn to use is the 'shared file', which can restore those social constructivist, collaborative peer-peer learning experiences that are at risk of being avoided. 'Shared file' is a collective term for cloud-based products that allow for collaborative creation and editing of the same file, either synchronously or asynchronously by multiple authors. Google's suite of cloud-based office tools – Google Slides, Google Docs, and Google Sheets can be used in education to facilitate more effective group work – both within the online and physical classrooms. This review is directed to educators and those who train them so that practices can be improved. It provides

a history of cloud-based shared files, explores Google's suite of shared file options, discusses the importance of quality online peer-peer learning, and concludes with practical case studies of shared file activities currently in use in the higher education online classroom so that the reader can facilitate quality, collaborative, peer-peer learning today.

Cloud-based shared files began with collaborative real-time editing (CRTE), which was first seen at what is now referred to as 'the mother of all demos'. This was a game-changing computer demonstration by computer scientist Douglas Engelbart in 1968, which not only showcased the first use of a computer mouse, hyperlinks, and computer-based collaborative working (Tweney, 2008; Perry & Morphet, 2015), but even spawned a musical to celebrate the significant event (Vanhemert, 2015). Engelbart was less concerned with smart computers and more interested in how humans could use computers to work smarter, by completing routine office tasks more efficiently and effectively, including using computer-assisted colleague collaboration (Tweney, 2008). Despite this demonstration being ground-breaking, it was not until the early 1990s that the business world took up many of these cutting-edge tools on display that day, and not until the 2000s that online collaborative working entered our daily office lives through products such as Google docs and Google Drive (Perry & Morphet, 2015). Fast-forward to the present and it is fair to say that the use of Engelbart's computing tools is now ubiquitous in our personal and work lives, and computer-assisted collaboration between colleagues does indeed make us work more efficiently and effectively – from co-authoring reports to brainstorming new business initiatives.

There are many online collaboration tools available, but we will focus on Google's offerings in this review. Google shared files form part of a freemium business product: Google Docs Editing Suite. The editing suite is freely available when you sign up for a Gmail account and provides you with four products: Slides, Docs, Sheets and Drive. The additional business-centred Google Workspace offers four levels of paid product choice, catering to businesses that require ad-free use, stronger security settings, and additional products such as a custom business Gmail account, and Google 'Meet' video and voice conferencing (Google, 2021).

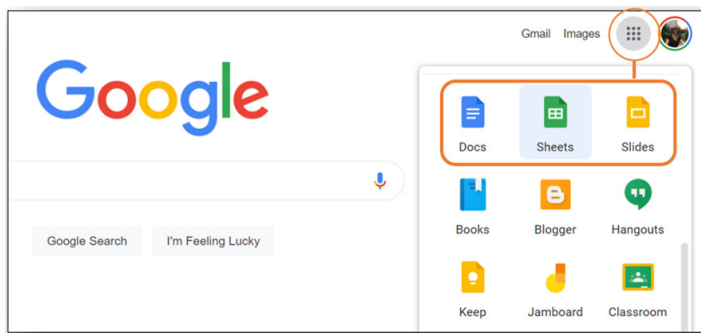


Figure 1: Google's Suite of shared file products found on the Google webpage.

Google Slides, Docs, and Sheets are comparable to PowerPoint, Word, and Excel, respectively. However, despite the advantages of the Microsoft suite (stronger word processor features and user familiarity, for example), the Google suite has some advantages over these more established office tools. For example, Microsoft products must be purchased and downloaded on your device, whereas, with Google Docs Editing Suite, these equivalent products are free and cloud-based. The latter provides more accessibility between devices: seamlessly switching from a laptop to a mobile, in either online or offline mode (Rodrigo, 2020). Another advantage is the suite's online collaboration capability. Whilst Word for example, can only recently support synchronous co-authorship of the one document and must be saved to OneDrive to allow online collaboration, Docs has been designed for this purpose and its ease of use in both sharing and synchronous and asynchronous collaborating is evident (Rodrigo, 2020). A major collaboration advantage of Docs is the assurance that your shared document can be opened by anyone, eradicating the frustration of Word users relying on version compatibility (Rodrigo, 2020).

A significant feature of cloud-based files, such as those in the Google suite, is that you need never have a physical document saved to your device. This has positives and negatives. Three positives are that your file is available from any device, as long as you have an internet connection, and that you can supply the file to others via a simple link, with easy to manage editing controls. Also, for asynchronous co-authoring of the one document, the removal of emails with version-controlled file attachments is a more efficient way of collaborating. However, one negative you may find is that if you are used to searching your work emails via the attachments filter to locate a document, you may find using cloud-based files frustrating to manage and difficult to get used to. Another negative could be found when you are simultaneously using both the Microsoft and Google suites of products for different work-related uses, due to the similarities between the offerings. This can mean that the user misses the more sophisticated features within Word, Excel, and Powerpoint, causing (perhaps unfair) frustration when using the Google products. Overall, Google shared files offer the ability to work in groups effectively and efficiently, just as Engelbart envisaged in 1968.

Students learning in groups from their peers is not new pedagogy – Lev Vygotsky's social constructivism is now ubiquitous practice in psychology and education, with

the latter involving the learner actively engaging in the learning process through interaction with others (Vasileva & Balyasnikova, 2019). It is through this interaction with an educator, a peer, or a group of peers, that the learner makes sense of what is being learned (Shackelford & Maxwell, 2012). In a meta example, Vygotsky himself had a small team of collaborators who helped him develop his own original theory and who, after his death, went on to develop further theories from that initial, fruitful collaborative relationship – together, they 'made sense' of other theoretical components to develop something new (Kaptelinin, 2014). Evidence from the education world has since shown that absorbing information from multiple voices improves knowledge understanding for the learner (Shackelford & Maxwell, 2012) and leads to better academic outcomes (Northey et al., 2017), something that regular students and Vygotsky and his friends have in common.

It is not just knowledge understanding that collaboration develops. Online students say that they benefit from small group learning due to its ability to foster a stronger online community (Shackelford & Maxwell, 2012). Further, student satisfaction during peer-peer interaction can be predicted by how strong their sense of community is and stronger social reinforcement and higher quality information exchange reveals benefits for student outcomes (Shackelford & Maxwell, 2012, Salmon, 2021). Therefore, building that online social presence is crucial. However, learning from your peers can quickly turn into the dreaded 'group work', when activities are poorly designed.

The success of small group collaboration relies then on the educator providing adequate support and instruction to ensure the group actually works well together (Shackelford & Maxwell, 2012). Working together well online, though, requires thoughtful artefact design and a consideration of how humans will interact with it. Vygotsky was a mentor and friend to Russian psychologist Aleksei Leontiev, a co-collaborator on his social-cognitive theory (Kaptelinin, 2014). Leontiev went on to develop the Activity Theory, which is grounded in much of Vygotsky's work, and focuses on the relationship between subjects and objects – that is, "purposeful, transformative, and developing interaction between actors ("subjects") and the world ("objects") (Kaptelinin, 2014, para. 1). Activity Theory is the current foundation of Human-Computer-Interaction Theory (HCI), which seeks to articulate the complex, dynamic, and conflicting relationships between humans and the objects they interact with via the computer. This leads us back to discussing the importance of promoting the use of cloud-based shared files for collaborative learning. We need to understand what works and what does not work so that we can use online learning objects effectively.

Khalil's (2018) research on using Google Docs for collaborative group work shows that student attitudes to the activity were poor when a student had a lack of technological skill, and when the instructions from the educator were not clear. Research also found that online collaboration was more successful when small groups were facilitated, which reduced the negative effect of dominant voices and stopped shared file synchronous authoring confusion (Roberts, 2013). These research findings are supported by the anecdotal

complaints from educators, who may simply be ill-equipped to deliver engaging and effective group work, therefore are not providing the right scaffolded support to their students. Ultimately, if facilitated well, sharing resources creates students who are more responsible for their own learning outcomes, who increase their participation, and build stronger peer-peer relationships (Shackelford & Maxwell, 2012). Whether face-to-face or online, students using shared files can experience positive learning outcomes due to the activity's underlying social constructivist pedagogy (Northey et al., 2017).

Those online educators who believe online collaborative group work 'doesn't work' need to develop the skills required to create well-designed and well-facilitated learning activities involved in community building and topic learning (Salmon, 2021). Educators wanting to improve these skills should look to Gilly Salmon's 5-stage model for online learning, which relies on scaffolding the learners through activities that support community building (Salmon, 2021) as a precursor to content learning. One such activity may involve collaborating on a shared resource. This shared resource is understood by both Activity Theory and Human-Computer Integration Theory as being the object through which collaboration will be object-centric (Kaptelinin, 2014), playing an integral part in humans focusing together to achieve a shared outcome in an online space.

In conversations with online educators, the uses of shared file activities are varied. Many have used them in class warmers, to facilitate revision, for content learning, for problem-based-learning, and for providing students with feedback. The following reported uses is included in the hope the reader will be inspired and empowered to incorporate a shared file activity into their online classroom:

Table 1: Shared file activities, learning benefits and challenges.

Category	First class warmer
Scenario	Used in the first class as a 'what do you hope to get out of this subject?' class opinion sharing. Great for gauging the expectations of your students.
Share file usage	Create a Google Doc and paste the link (with editing access) in the chat or an email to students. The educator monitors the doc as students use the page as a virtual whiteboard to replicate the traditional 'Chalk Talk' - where students write their individual responses on the blackboard/whiteboard (Roberts, 2013). The educator can then screen share the doc as a whole-class discussion generator or simply save the data for lesson planning purposes. Note, when you are using both a platform, such as Zoom and a shared doc, many students will use the shared doc in full screen mode. Be sure to verbally bring them back to the Zoom classroom window when the activity is done so you know you have their group attention again.
Learning benefits	Educators report that it motivates students to get involved because it provides a safe space to anonymously write their thoughts about the subject, they can view their new peers' thoughts at the same time, and they have agency rather than simply listening to the educator telling them what the class is going to involve. It can work well with any number of students if you are OK with having a messy whiteboard of words/phrases.
Challenges	With many students, it can lead to students writing over each others' posts (Roberts, 2013). Suggestion for a large class: change to a Google Sheet so each student has one row each to type in. Although this isn't as visually appealing, it may be an easier format for a post-class audit of student information to be used to plan for upcoming lessons.

Category	Revision
Scenario	Used at the start of class to retrieve content from the previous lesson.
Share file usage	Prepare a list of True/False questions pertaining to the previous week's content. Use a shared Google Doc or Sheet with two columns labelled True and False. Insert enough shapes for students to choose one and enter their name into. As you ask your True/False questions, students move their avatar left or right under the chosen heading.
Learning benefits	Educators report that whilst Zoom polls are effective for revision, adding in a gamification element increases the enjoyment of a standard revision section of a lesson. Not only having to think of the answer but having to physically move your avatar from left to right is simply more active and reportedly, fun. Because of the fun element within gamification, it's incredibly successful as a short-term memory boost for the revision lesson and its content (Treiblmaier & Horst, 2018).
Challenges	Some students cannot engage easily with shared docs if they are using a mobile phone because of the restricted screen size. Using Kahoot!, which is designed for mobile learning, could be an easier gamification product solution for some students. However, if you have only one or two students who can't use the shared file, you can invite them to use their voice or put their answer in the chat to remain involved. Also, choosing one student who can't access the file to be the quizmaster instead of you may also create inclusion for a tech-challenged member of the group.
Category	Content Learning
Scenario	Listening comprehension activity.
Share file usage	Use a Google Slide and create one slide per group of three, or a Sheets and create one tab per group of three. Add a beginning slide or tab to write some listening comprehension questions. Students complete the listening (e.g., podcast, YouTube clip) individually and then in groups, answer the comprehension questions on their designated slide or tab (they can copy and paste the questions to their own workspace if it's easier for them).
Learning benefits	Educators say that in traditional unstructured 'watch a video and then discuss' activities, the skills required to effectively cooperate with peers are often lacking and cause lengthy and poor-quality group work. Using a shared file with pre-written comprehension questions focuses students' attention on the task, structuring some of the social skills required for effective online cooperation (Kaptelinin, 2014). Khalili (2018) reports that it also saves time in that the educator can intervene more easily when they are monitoring all groups virtually, not needing to enter each breakout group to check on progress but being able to target those specific groups
	who still have blank pages or incorrect answers. Also, students can gain deeper knowledge through peer-to-peer interaction in small groups (Northey et al., 2017), a useful activity structure for videos with difficult content to comprehend.
Challenges	If a student is working from a mobile phone or has tech issues, this could restrict the ability for them to enter information on the shared file. If that's the case, simply allocating a scribe in the group so a tech-challenged group member can use their voice only will allow for adequate participation. Hint: Knowing who your tech-challenged students are can be very helpful. Consider giving your students a Microsoft Form to complete at the start of your study period to find out what learning challenges students may have so you can lesson plan around their challenges.
Category	Asynchronous feedback
Scenario	A student workbook for in-class and asynchronous co-authorship between the student and educator.
Share file usage	The educator creates a Google Doc workbook and posts it for the students to access. The students save the file as their subject code and name and share the link with the educator. The students must ensure they have selected 'editing access' when creating the link. The educator then pastes the links beside each student's name on the roll and clicks the link at any point during the lesson, the week, or the study period to check on student progress and provide feedback when necessary.
	Some educators report the positives of 24/7 accessibility to the student's

Learning benefits	work since the student and the educator can co-author the same document and not be constrained by availability for synchronous appointment times. This is especially useful for formative learning purposes, ensuring formative feedback is provided before major assessments are due (Sekulich, 2020).
Challenges	Some educators may find it cumbersome to store a large amount of individual student links. However, good administration management could minimise the potential challenges here. If you have a large class and it sounds daunting to have 50+ student workbook links, consider the
	alternative administration involved in emailing student documents back and forth.
Category	Problem-based learning (PBL) group activities
Scenario	An online group PBL assessment task, involving collaborative group work resulting in a presentation.
Share file usage	The educator creates a Google Sheet, with an instruction page for the PBL task and a blank slide per group. Each group uses the internet to solve the PBL task and present their information on their dedicated group's slide. Each group then gives a short presentation to the class by sharing their screen. Ensure you instruct the class to come back together to the main classroom to see the presenters' faces as they present.
Learning benefits	Cooperatively working in a group through social constructivist practices increases social presence, which in turn, increases cognitive presence (Shackelford & Maxwell, 2012). Students also report appreciating the support of the educator being able to monitor the group's progress and intervene on the shared workspace to keep students on task (Khalil, 2018).
Challenges	Many educators say that they have underestimated the length of time required for students to complete a PBL activity online. Consider all those micro-online experiences such as getting into groups, muting and unmuting, talking over the top of someone, perhaps having voice only and not visible faces for social cues, and cooperating using technology that may be unfamiliar. This can cause additional time taken up achieving cooperation and less time for the task completion. A rule of thumb is to add 10 minutes of admin, tech issues, and chatting to any group activity time. Moreover, if you are using a shared doc for a group assessment task, ensure you have given your students enough practice opportunities, so they are comfortable with the technology and focus on the learning outcomes of the assessment.

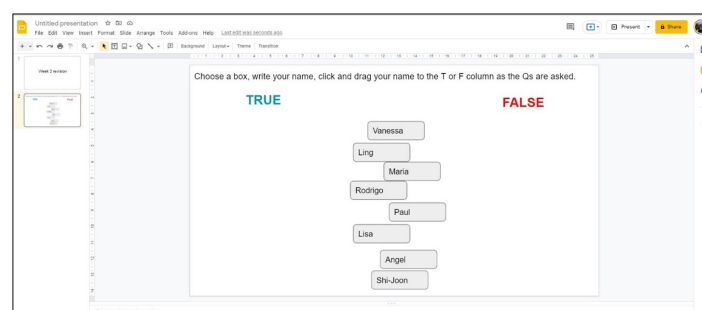


Figure 4: Using a Google Slide to facilitate a revision activity.

To conclude this EdTech review, it's important to note that collaborative online learning is not new, nor is it incredibly difficult. For an educator to succeed at quality online teaching, they need three things: an awareness of the teaching tools available to facilitate efficient and effective group work, an understanding of the proven benefits of social constructivism (and the theories it spawned) to create better learning outcomes, and a willingness to try new pedagogies. Once these three components are present, the educator need only test out a few Google shared file activities with some faculty peers, and then jump into the deep end at their next online lesson. By presenting a history of cloud-based shared files, exploring Google's suite of shared file options, discussing the importance of quality online peer-peer learning, and concluding with practical case studies that any educator can follow, this review has aimed to improve online group work. Facilitating boring and ineffective group work – or omitting it altogether to lecture – is not fulfilling our commitment to the modern online student to provide effective and efficient collaborative learning opportunities. Implementing online technology, such as a shared file, improves collaboratives learning experiences.

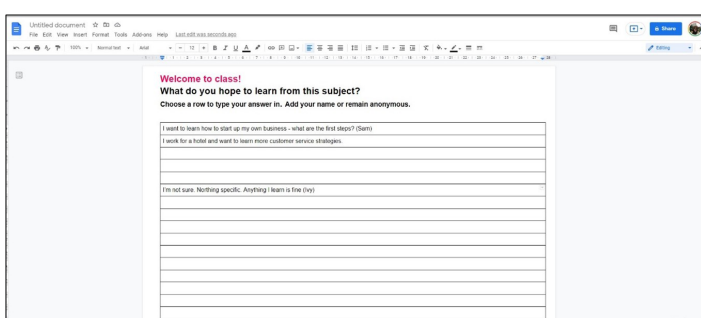


Figure 2: Using a Google Doc to facilitate a warmer activity.

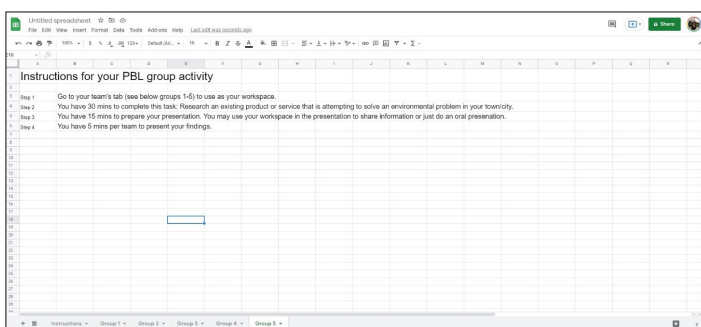


Figure 3: Using a Google Sheet to facilitate a PBL group activity.

References

- Google. (2021). *Google docs: Free online documents for personal use*. Google.com.au. <https://www.google.com.au/docs/about/>
- Kaptelinin, V. (2014). Activity theory. In *The Encyclopedia of Human-Computer Interaction*. Interactive Design Foundation. <https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/activity-theory#:~:text=The%20foundational%20concept%20of%20the>
- Khalil, Z. M. (2018). EFL students' perceptions towards using Google Docs and Google Classroom as online collaborative tools in learning grammar. *Applied Linguistics Research Journal*, 2(2). <https://doi.org/10.14744/alrj.2018.47955>
- Northey, G., Govind, R., Bucic, T., Chylinski, M., Dolan, R., & van Esch, P. (2017). The effect of "here and now" learning on student engagement and academic achievement. *British Journal of Educational Technology*, 49(2), 321–333. <https://doi.org/10.1111/bjet.12589>
- Perry, M., & Morphet, T. (2015). Panopticon or panacea?

Googledocs, word processing, and collaborative real-time editing. *Scholarly and Research Communication*, 6(4). <https://doi.org/10.22230/src.2015v6n4a213>

Roberts, S. L. (2013). The "chalk talk" 2.0: Using Google Docs to improve the silent discussion in social studies. *The Social Studies*, 104(3), 130–136. <https://doi.org/10.1080/00377996.2012.703972>

Rodrigo, A. (2020). *Microsoft Word vs Google Docs compared (which is better to use in 2020?)*. Business Envato Tuts+. <https://business.tutsplus.com/articles/google-docs-vs-microsoft-word--cms-35158>

Salmon, G. (2021). *Five stage model for online learning*. Gilly Salmon.com. <https://www.gillysalmon.com/five-stage-model.html>

Shackelford, J. L., & Maxwell, M. (2012). Sense of community in graduate online education: Contribution of learner to learner interaction. *The International Review of Research in Open and Distributed Learning*, 13(4), 228. <https://doi.org/10.19173/irrodl.v13i4.1339>

Sekulich, K. M. (2020). Learning through formative feedback: A review of the literature. *International Journal for Professional Educators*, 86(3), 51–59.

Treiblmaier, H., & Putz, L.-M. (2018). Increasing knowledge retention through gamified workshops: Findings from a longitudinal study and identification of moderating variables. *Hawaii International Conference on System Sciences*. Hawaii International Conference on System Sciences, Hawaii.

Tweney, D. (2008). Dec. 9, 1968: The mother of all demos. *Wired*. <https://www.wired.com/2008/12/dec-9-1968-the-mother-of-all-demos-2/>

Vanhemert, K. (2015). The most epic demo in computer history is now an opera. *Wired*. <https://www.wired.com/2008/12/dec-9-1968-the-mother-of-all-demos-2/>

Vasileva, O., & Balyasnikova, N. (2019). (Re)introducing Vygotsky's thought: From historical overview to contemporary psychology. *Frontiers in Psychology*, 10(1515). <https://doi.org/10.3389/fpsyg.2019.01515>



Update of the COVID-19 Higher Education Literature Database (CHELD v2)

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Introduction

The year 2020 was the most challenging year for global contemporary higher education. Universities were rapidly thrown into an emergency online teaching paradigm. While we were all in the same boat, the coronavirus (COVID-19) pandemic highlighted the differences between the figurative staterooms and steerage in higher education. The digital divide, across capabilities, technology, and connectivity, meant students could not continue their learning journey, educators were unable to engage with learners, and organisations were unable to support their staff and students. The difference between institutions with adaptive and agile crisis leadership and those without was evident (Bavik et al., 2021). This saw dichotomies of empowered staff and those that missed opportunities for professional learning, digitally capable graduates compared to students not meeting graduation requirements, and rapid policy changes protecting staff and students contrasted with at risk staff and students through the ongoing requirement to teach on campus. Other differences reported by the earliest global analysis of higher education (see Crawford et al., 2020) included innovations in curriculum delivery and assessment, a decrease in international enrolments and engagement, support of research activities, and partnerships across higher education institutions and with industry and peak bodies.

There was a rapid increase in journal articles being published in 2020 (Palayew et al., 2020). This was largely attributed to the need to quickly disseminate research findings about

COVID-19 and a pandemic environment not previously experienced with such widespread impact. And with this increase in literature came the need to synthesise this information through literature reviews and meta-analyses. With the launch of websites, such as the National Library of Medicine (2020) LitCovid, and the Centers of Disease (2020) Database of COVID-19 Research Articles, which later became part of the World Health Organization (2020) COVID-19 database, Butler-Henderson et al., (2020) identified the need for a database specifically related to higher education teaching and learning. The COVID-19 Higher Education Literature Database (CHELD) was developed to assist researchers with the publication of systematic literature reviews by completing the first step in a systematic literature review for them. The CHELD followed the PRISMA approach for article selection (Moher et al., 2009), as summarised in Figure 1, for all published journal articles about COVID-19 learning and teaching in higher education up to 30 June 2021.

The CHELD Version (v) 1 website has been accessed 789 times between August 2020 and May 2021, with the database downloaded 165 times during the same time (Institute of Research Innovation, 2021). The publication about the CHELD v1 (Butler-Henderson et al., 2020) has been viewed 535 times and cited 19 times during the same time period. Similarly, the ResearchGate version of the paper has been viewed 536 times, and the database downloaded 180 times. The CHELD v1 contained 137 articles (and one duplicate) published in the first six months of 2020. Compared to other disciplines, there was not the rapid publication of higher



Figure 1. CHELD article selection process (Butler-Henderson et al., 2020, p. 3).

education literature (with a few exceptions). Therefore, it was imperative for the authors to update the CHELD with the literature from the second part of 2020.

The purpose of this short communication is to provide an update to the first version of the CHELD to encompass six additional months of the literature on COVID-19 within the higher education discipline. The value in doing so is to provide a new snapshot of the progressive response to COVID-19 by the higher education sector. This database provides easy access to a rigorous and valid assessment of manuscripts that discuss the response to COVID-19 within universities and other tertiary institutions.

Methods

The method adopted by this systematic review has been previously described by Butler-Henderson et al. (2020), and has been replicated here to update the CHELD. All journal articles published in 2020 in either of the four following sources were considered: (1) Academic Search Ultimate, EBSCO, IEEE Xplore, Informit Online, Ovid, Proquest, ScienceDirect, Scopus, and Web of Science; (2) Google Scholar; (3) the first 100 journals in the Scimago (SJR) "Education" category; and (4) any journal that published at least three papers selected through the first two methods, using the search string in the title and abstract: [higher education OR university OR college] AND [COVID OR coronavirus]. The process of article selection was using the Covidence® online software, as per Butler-Henderson et al. (2020). The difference between Version 1 and 2 applies to the data extraction stage. Responding to feedback from users of the CHELD, the quality assessment score was removed from CHELD 2. We recognise that this variable is only used in certain disciplines and its inclusion in CHELD v1 meant some

disciplines were unable to use the CHELD. As a database of all disciplines in higher education, the CHELD aims to not be exclusive and this amendment in Version 2 aims to rectify this. Following publication of the CHELD v1, the authors undertook a thematic analysis of the 137 articles. However, whilst it was intended to update the CHELD with these themes, it was also recognised that there may be differences across disciplines, and as such not included in CHELD v2. An addition to CHELD v2 is the full reference using APA 7th edition for each record, to simplify the referencing process for users of the CHELD v2. The CHELD v2 is available at [https://doi.org/10.37074/jalt.2021.4.1.22d].

Results

There had been a rapid increase in publications in higher education related to learning and teaching in the six months since CHELD v1 was undertaken. Table 1 shows the difference in each PRISMA stage for CHELD v1 compared to v2. The number of articles (738) included in CHELD v2 is more than a five-time increase in just six months.

Table 1. Difference in article numbers at each PRISMA stage for CHELD v1 versus v2.

PRISMA stage	CHELD version 1	CHELD version 2
Time period	1 Jan – 30 Jun 2020	1 Jan to 31 Dec 2020
Identification (after removing duplicates)	3,945	12,919
Selected titles and abstracts	371	2,144
Selected full-text articles	137 (+ 1 duplicate)	738

Where the month of the article when first published (including online first) was available (528 articles), the greatest number of publications were in June (88, 16.7%), followed by September (82, 15.5%) and November (68, 12.9%). The majority (153, 20.7%) of articles published were either about institutions in the U.S. or, were an opinion piece from U.S.-based authors, followed by India (41, 5.6%), and Saudi Arabia (33, 4.5%). Articles were published from 92 different countries, and 42 (5.7%) of article were from more than one country. The heat map shown in Figure 2 shows the distribution of publications across the world.



Figure 2. Heat map of geographical distribution of publications.

CHELD v1 (Butler-Henderson et al., 2020) cited a yet to be published proposed framework to measure the stage of pandemic response for higher education institutions. These stages are: 1. Rapid adaptation (“to rapidly adapt core business for the new context”), 2. Improvement (“to optimize the adapted core business to improve quality and begin to consider non-core activities”), 3. Consolidation (“to evaluate pre-pandemic measures of social, economic, and environmental success”), and 4. Restoration (“to determine what a return to business-as-usual looks like, and how it can occur”: Crawford, 2020, cited in Butler-Henderson et al., 2020, p. 14). In CHELD v2, the majority (519, 70.3%) of articles indicated most institutions are still at the stage 1 rapid adaption stage, with 19.1% (141) at stage 2 improvement, 7.7% (57) at stage 3 consolidation, and only 2.8% (21) of articles indicating their institutions are at the stage 4 restoration. An analysis across the year shows that whilst there has been growth in stage 2 improvement throughout the year, most articles implied they have yet to transition into stages 3 consolidation and 4 restoration.

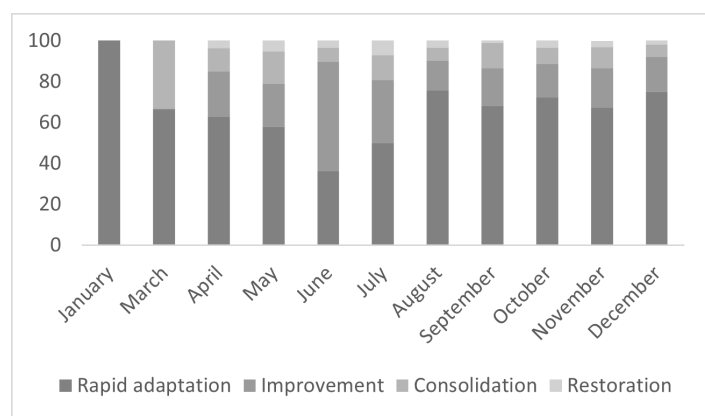


Figure 3. Distribution of stages of response across the year.

The type of articles range from empirical research (for example, survey, evaluation, interview), practice (for example, case study, autoethnography, practice report), and theoretical pieces (opinion, commentary, reflect, review), as summarised in Table 2. An analysis of the shift in these categories across the year (Figure 4) shows an increase in research papers as the year progressed. The types of studies were relatively evenly distributed across quantitative (176, 39.4%), qualitative (128, 28.6%), and mixed (143, 32.0%). The majority of article were about students (334, 53.4%), with nearly a quarter (154, 24.6%) about staff and 21.4% (134) about staff and students. Only three (0.5%) were about engagement with community related to teaching and learning. Most papers were published in the areas of health (108, 36.0%) and STEM (96, 32.0%).

Discussion and conclusion

This short communication reports on the research on COVID-19 and teaching and learning in higher education, published between 1 January 2020 and 31 December 2020. For educators, the COVID-19 Higher Education Literature Database (CHELD) is an important resource to enhance the understanding of how learning and teaching

Table 2. Summary of article characteristics.

Article characteristic (number of articles)	Type	Number	Percentage
Article type (738)	Action research	9	1.2
	Autoethnography	3	0.4
	Case study	75	10.2
	Commentary	40	5.4
	Descriptive	27	3.7
	Discourse analysis	3	0.4
	Ecological approach	1	0.1
	Impact paper	4	0.5
	Opinion/Perspective	41	5.6
	Practice report	7	0.9
	Program evaluation	38	5.1
	Reflection	26	3.5
	Research study	242	32.8
	Review	101	13.7
	Short communication	10	1.4
	Survey	104	14.1
	Technical report	3	0.4
	Theoretical	4	0.5
Type of study (447)	Mixed	143	32.0
	Qualitative	128	28.6
	Quantitative	176	39.4
Participant type (625)	Academic & Students	134	21.4
	Academic/Leadership/Professional	154	24.6
	Community	3	0.5
	Student	334	53.4
Discipline (300)	All	23	7.7
	Health	108	36.0
	Humanities	47	15.7
	Other	26	8.7
	STEM	96	32.0

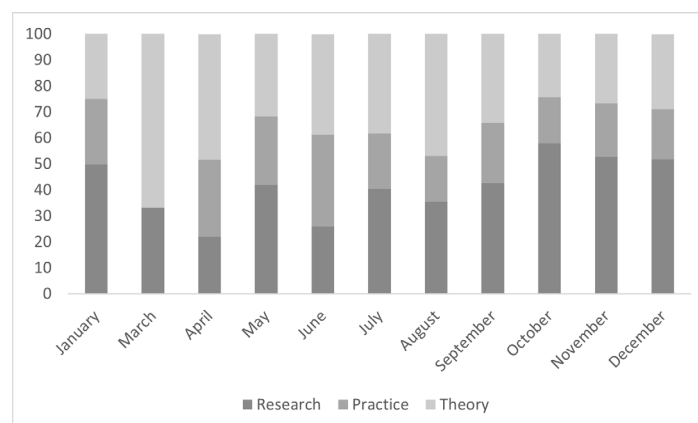


Figure 4. Distribution of publication type across the year.

during COVID-19 was conducted. Further, it is a resource for academic administrators and leaders to learn from the successes and lessons from other institutions, and to enrich their students’ learning experiences and quality of life. This database also provides an opportunity for scholars to undertake future research, and we encourage scholars draw upon our systematic efforts in their own research; an appropriate citation to the database is included below.

The CHELD is the first of its kind in the higher education literature, and curates the existing literature, in the context of COVID-19, for higher education practitioners and researchers. Promotion of this resource will be important in supporting COVID-19 scholarship of learning and teaching. We also hope that this database will provide access to new insights into learning and teaching as we collectively learn

from the successes and failures in the higher education sector during the COVID-19 pandemic.

CHELD v2 citation:

Butler-Henderson, K., Tan, S., Lalani, K., Karakka Mandapam, S., Kemp, T., Rudolph, J., Crawford, J. (2021). COVID-19 in Higher Education Literature Database (CHELD). Version 2. Institute of Research Innovation. DOI: <https://doi.org/10.37074/jalt.2021.4.1.22d>

References

Bavik, Y., Shao, B., Newman, A., & Schwarz, G. (2021). Crisis leadership: A review and future research agenda. *The Leadership Quarterly*, Advanced Online Publication.

Butler-Henderson, K., Crawford, J., Rudolph, J., Lalani, K., K.M. Sabu. (2020). COVID-19 in Higher Education Literature Database (CHELD V1): An open access systematic literature review database with coding rules. *Journal of Applied Learning & Teaching*, 3(2), 11-16. <https://doi.org/10.37074/jalt.2020.3.2.11>.

Centers of Disease. (2020). *COVID-19 databases and journals*. <https://www.cdc.gov/library/researchguides/2019novelcoronavirus/databasesjournals.html>.

Crawford, J. (2020). *COVID-19 and higher education: A pandemic response model from rapid adaption to consolidation and restoration*. Unpublished manuscript.

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, P., & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), 9-28. doi:10.37074/jalt.2020.3.1.7

Institute of Research Innovation. (2020). *COVID-19 Higher Education Literature Database. Version 1*. <https://www.instituteofresearchinnovation.com/data/covid-19-and-higher-education-coronavirus>.

National Library of Medicine. (2020). *LitCodid*. <https://www.ncbi.nlm.nih.gov/research/coronavirus/>.

Palayew, A., Norgaard, O., Safreed-Harmon, K., Helms Anderson, T., Neimann Rasmussen, L., & Lazarus, J. V. (2020). Pandemic publishing poses a new COVID-19 challenge. *Nature Human Behaviour*, 4, 666–669. <https://doi.org/10.1038/s41562-020-0911-0>

World Heath Organization. (2020). *COVID-19 database*. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov>.

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The challenges of feedback in higher education. A brief discussion paper based on a review of selected literature

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Abstract

Feedback is integral to the process of education but is not a simple process and in mass education and global systems presents numerous additional challenges. This paper, which is intended as an informative awareness-raising paper, provides a review of recent literature on the challenges that educators and students face when feedback is given and received. It conceptualizes feedback as a process that requires multiple inputs and should support the partnership between educators and students through dialogue and engagement. Feedback literacy that incorporates the role of emotion is seen as a key aspect of professional and student development to motivate and engage students.

Introduction

Good teachers are often characterized by their expert knowledge, their ability to deliver that knowledge in an engaging and often entertaining manner and their capacity to evaluate and provide feedback in a way that encourages and motivates. Good students are often characterized by their ability to demonstrate their knowledge based on key assessment criteria, their participation and contributions, their willingness to seek clarification and their capacity to use the feedback received to improve aspects of their learning. There is an interplay between the teacher and the students based on knowledge, application of that knowledge, feedback and growth. Educators have a responsibility to maintain high standards of teaching and learning. This is often termed 'academic rigour' although the concept is often poorly defined and understood. Further, it does not seem to have narrative resonance in the current higher education context where fluidity and adaptability are the norm given we face unprecedented change. This also applies to the idea of best practices which have been increasingly questioned when the environments are unfamiliar and unpredictable. We are walking in uncharted territory. In my own experience in higher education, the role of the teacher is to provide broad direction and guidance and be in a partnership with the students, so they can focus on their learning and apply their existing knowledge and grow. The provision of student feedback is essential in this process and in this context some

principles can be established based on things that work. In this paper I present a brief review of recent literature on education feedback and identify some key themes. Based on this review and the themes the paper supports, the concept of training in feedback literacy for both educators and students with consideration to the role of emotion and shared responsibility to ensure the process achieves the desired results.

A brief review of selected literature

Feedback is often not properly understood and can be challenging - Henderson et al. (2019). Boud and Molloy (2013) discuss extensively the idea of feedback. They summarize important aspects of effective feedback such as the move from monologue to dialogue and more collective approaches to the provision of feedback, for example, peer feedback. They also consider the role of feedback in growth and development.

The need for developing 'feedback literacy' which I define not only as the ability to receive and successfully use the feedback provided but also as the capacity to give effective, timely and meaningful feedback is a concern for both educators and students (Bowen et al., 2017; Molloy et al., 2020; Philippakos, 2017). Feedback is essential for the learning process and can be extremely powerful and rewarding for both educators and learners. It is also a time-consuming and laborious process as noted by Winstone and Carless (2019). They discuss models of feedback that include fostering engagement with feedback and 'feedback literacy' in students as well as promoting dialogue. Standardization is one of the responses to workload but O'Donnovan et al. (2021) point out that the rapport with the teacher and its impact also needs to be considered.

Weaver (2006) says that, to improve student learning, feedback needs to provide clear messages, be timely and to focus on the desired learning outcomes. Essentially giving specific comments that provide guidance rather than just focussing on the negative aspects or failures. This does not mean avoiding criticism, but the criticism must be supported

by comments that, when processed and acted on, lead to clear improvements. So, feedback needs to allow sufficient time for the student to process, re-focus and improve. Comments should be aligned to the assessment requirements and marking rubrics. Dawson et al.'s (2019) analysis supports Weaver in relation to students' perceptions of feedback and the importance of providing quality comments that are clear and consider affect. Saplaçan et al. (2018) also discuss the importance of emotions in their study of feedback in digital systems. They recommend feedback in digital systems that creates positive emotions. So, the role of emotion is also a consideration in the feedback process which is ultimately about communication.

Boud and Carless (2018) considered students' responses to feedback and their capacity to understand and process feedback and propose a feedback framework that considers students' feelings and ability to act in addition to their ability to interpret and process. Sofoklis and Megalokonomou (2021) identified gender variations in the receipt of feedback as well as differences in short and long-term outcomes based on the students' perception of their own abilities. Ali et al. (2017) suggest further studies are needed into students' characteristics to identify potential predictors of engagement with feedback.

Robert and Winstone (2017) argue that, for feedback to be effective and achieve the desired result, the process must be one shared responsibility between students and educators. They conclude that the impact of feedback resides not only in the abilities of educators to provide well-constructed input but also in the capacity of students to use it to make improvements. Ossenbeger et al. (2019) extensively reviewed feedback attributes and provide a useful and comprehensive categorization which includes, in addition to process, timing, criteria and multiple inputs, the learner openness to receive it and its response to the feedback received.

Therefore, to work the responsibility must be shared between giver and recipient. Sheppard et al. (2018) support the idea of formative assessment favouring assessment systems that are linked to motivational theories and cognitive development based on the students' qualitative insights on their learning process rather than standardized testing. This context also highlights the importance of providing adequate feedback considering affect and the idea of shared responsibility.

Main themes emerging from this review

The importance of giving and receiving feedback is undeniable. Feedback is a fundamental component of teaching and learning. The way in which the feedback is put into actions that allow growth is ultimately its main purpose. However, it is often the part of the model that is not put into practice.

Feedback is a process of dialogue and this dialogue may have multiple inputs as in the case of peer reviews. The opportunity to respond needs to be observed because without a response the dialogue is not possible. Feedback works best when it is a collaborative process.

Effective feedback is a catalyst for growth. The giver must be able to identify key areas where improvements can be made and do it in a constructive way providing guidance and examples. This requires clearly establishing the desired outcomes in advance in the assessment process and for the intended recipient to be able to understand those expectations also in advance. The process can be time-consuming and laborious, particularly in mass education systems. Global education systems also present the additional challenge of intercultural understanding. Standardization of feedback is one of the remedies often proposed to cope with the workload, but it is not enough.

Emotions play an important role and need to be considered. Emotions are also influenced by culture, so for international education this is also an additional consideration. Ideas like compassionate feedback or kindness in feedback should be embedded in the process of providing constructive feedback. Maintaining high standards is not incompatible with kindness and compassion. Critique should provide guidance and open new directions to motivate and engage hopefully fostering exploration and curiosity. Feedback works when it inspires the recipient to improve and the improvements are visible. There is a shared responsibility between givers and receivers in the process.

Feedback requires training on the part of both educators and students. The development of feedback literacy should be part of professional development as well as student development.

Conclusions

Feedback is an essential part of teaching and learning. When it works well it leads to growth and development as it opens new directions. It is often poorly understood by students and not well constructed by educators. Standardizing feedback is insufficient. Feedback literacy should be a component of professional development and should be incorporated in teaching practices for feedback to achieve the desired results. This training should take into consideration the role of relationships and emotions. Additional research is needed into cultural, gender and other characteristics that may affect engagement with feedback. None of this is easy, none of this is simple, but when it works and educators see the growth and development in students, it can be extremely rewarding for all.

References

- Ali, N., Ahmed, L., & Rose, S. (2017). Identifying predictors of students' perception of and engagement with assessment feedback. *Active Learning In Higher Education*, 19(3), 239-251. <https://doi.org/10.1177/1469787417735609>
- Boud, D., & Molloy, E. (2013). Rethinking models of feedback for learning: The challenge of design. *Assessment & Evaluation In Higher Education*, 38(6), 698-712. <https://doi.org/10.1080/02602938.2012.691462>
- Bowen, L., Marshall, M., & Murdoch-Eaton, D. (2017). Medical student perceptions of feedback and feedback behaviors

within the context of the "educational alliance". *Academic Medicine*, 92(9), 1303-1312.

Carless, D., & Boud, D. (2018). The development of student feedback literacy: Enabling uptake of feedback. *Assessment & Evaluation In Higher Education*, 43(8), 1315-1325. <https://doi.org/10.1080/02602938.2018.1463354>

Dawson, P., Henderson, M., Mahoney, P., Phillips, M., Ryan, T., Boud, D., & Molloy, E. (2018). What makes for effective feedback: Staff and student perspectives. *Assessment & Evaluation In Higher Education*, 44(1), 25-36. <https://doi.org/10.1080/02602938.2018.1467877>

Goulas, S., & Megalokonomou, R. (2021). Knowing who you actually are: The effect of feedback on short- and longer-term outcomes. *Journal Of Economic Behavior & Organization*, 183, 589-615. <https://doi.org/10.1016/j.jebo.2021.01.013>

Henderson, M., Ryan, T., & Phillips, M. (2019). The challenges of feedback in higher education. *Assessment & Evaluation In Higher Education*, 44(8), 1237-1252. <https://doi.org/10.1080/02602938.2019.1599815>

Molloy, E., Ajjawi, R., Bearman, M., Noble, C., Rudland, J., Ryan, A. (2020). Challenging feedback myths: Values, learner involvement and promoting effects beyond the immediate task. *Medical Education*, 54(1), 33-39. <https://doi.org/10.1111/medu.13802>;

Nash, R., & Winstone, N. (2017). Responsibility-sharing in the giving and receiving of assessment feedback. *Frontiers In Psychology*, 8, 1-9. <https://doi.org/10.3389/fpsyg.2017.01519>

O'Donovan, B., den Outer, B., Price, M., & Lloyd, A. (2019). What makes good feedback good?. *Studies In Higher Education*, 46(2), 318-329. <https://doi.org/10.1080/03075079.2019.1630812>

Ossenberg, C., Henderson, A., & Mitchell, M. (2018). What attributes guide best practice for effective feedback? A scoping review. *Advances In Health Sciences Education*, 24(2), 383-401. <https://doi.org/10.1007/s10459-018-9854-x>

Philippakos, Z.A. (2017). Giving feedback: Preparing students for peer review and self-evaluation. *The Reading Teacher*, 71(1), 13-22. DOI: 10.1002/trtr.1568

Saplacan, D., Herstad, J., & Pajalic, Z. (2018). Feedback from digital systems used in higher education: An inquiry into triggered emotions – two universal design oriented solutions for a better user experience. *Studies in Health Technology and Informatics*, 256, 421–430. <https://pubmed.ncbi.nlm.nih.gov/30371503/>

Shepard, L., Penuel, W., & Pellegrino, J. (2018). Using learning and motivation theories to coherently link formative assessment, grading practices, and large-scale assessment. *Educational Measurement: Issues And Practice*, 37(1), 21-34. <https://doi.org/10.1111/emip.12189>

Weaver, M. (2006). Do students value feedback? Student perceptions of tutors' written responses. *Assessment & Evaluation In Higher Education*, 31(3), 379-394. <https://doi.org/10.1080/02602930500353061>

Winstone, N., & Carless, D. (2019). *Designing effective feedback processes in higher education: A learning-focused approach* (1st ed.). Routledge. <https://doi.org/10.4324/9781351115940>



Group role play case: Designing a multiple sting, digitally focussed, marketing communications campaign plan for Cirque du Soleil's next London show.

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Abstract

Drawing on the magic of Cirque du Soleil, this armchair case study invites you to make an imaginary step into the world of digital advertising agencies. Flexing your communication skills and applying your marketing knowledge, this real world, hands-on activity challenges you to collaborate together to create a digitally focussed campaign that addresses the author-developed client brief. This case is designed for use in digital marketing and marketing communications (marcoms) modules on both undergraduate and postgraduate programmes.

Learning outcomes

By the end on this case study, you should be able to:

- (1) Create a range of typical customer personas;
- (2) Develop an engaging, headline email marketing sequence;
- (3) Formulate a content marketing plan using the digital funnel concept;
- (4) Collaborate in a team to create a high-level advertising agency campaign plan.

Key words

Advertising agency brief campaign planning, Cirque du Soleil, digital funnel, digital marketing communications, events marketing, marcoms, role play.

Introduction

In this experiential seminar activity, you are invited to role play digital marketing specialists in an advertising agency

and your team are challenged to develop a digitally focussed marketing campaign for Cirque du Soleil's upcoming winter tour series in London.

Cirque du Soleil (www.cirquedusoleil.com) is a Canadian headquartered, experience events company that offers a range of static (notably in multi-show Las Vegas) and often tent-based touring shows that were born out of the French-Canadian circus tradition. The theatrical experiences move through the major cities in the three primary markets of North America (where the founders' spiritual home is, in Montreal), Europe and Asia, with less frequent visits to the other continents. Each year a new Cirque du Soleil show usually transfers from touring in North America or Asia to London, as part of a wider European tour.

In preparation, you need to create 'typical customer' personas to help understand the well-heeled (medium-high income) customer base, using residents/visitors and new/existing customer segmentation dimensions. You will then create an outline of an email communications campaign and use the digital funnel concept to optimise the deployment of your content marketing assets. Having familiarised yourselves with the client brief, you are then invited to role play a group of advertising specialists (perhaps from leading agencies such as: Rocket Mill, Red Hot Penny or Adam & Eve) to develop a digitally focussed campaign. The key objective is to draft together, on a single screen page, an integrated marcoms plan for the next upcoming Cirque du Soleil show series, planned for a circa 8-12 week run between January and March at central London's prestigious Royal Albert Hall.

Advertising agency client campaign brief

The Cirque du Soleil brand summary and mission statement According to Forbes (Carone, 2012) the essence of Cirque du Soleil's secret sauce hails from being able to consistently communicate its brand of creativity and surprise across a myriad of touch points. Using non-star performed acts of

physical ingenuity, fantastical costumes and make-up, and the global language of music, the French-Canadian street performer-inspired rebirthing of the circus tradition has become a truly global, performing arts brand. Cirque du Soleil's mission statement is: "To invoke the imagination, provoke the senses and evoke the emotions of people around the world" (Cirque du Soleil, n.d.), a philosophy that is extended all the way from ticket sales, through its web presence and into social media platforms to its post-experience customer relationship management technology.

Campaign background and objectives

To introduce the Cirque brand experience to new and lapsed customers by promoting the latest show's arrival in town.

To re-engage with Cirque du Soleil's loyal customers and advocates via the electronic CRM (Customer Relationship Management) system to encourage early purchasing intent and stoke positive electronic word of mouth (eWoM) referral through user generated content (UGC).

Challenges that the campaign aims to address

For new customers: Explain the premium priced, no star, no animal, circus inspired theme concept that defines the Cirque experience.

For returning customers: Communicate a distinctive, compelling, storytelling narrative that generates anticipation and excitement to stimulate high volumes of early, online sales.

The campaign needs to appeal to both earlier booking local residents (in greater London/home counties area) and more spontaneous tourists.

The Cirque experience appears to work best live and in-person, although attempts have also been made to develop rich, digital content for streaming and IMAX cinemas. Cirque marketers have found that social media channels have been increasingly successful in generating positive electronic word of mouth and driving engagement.

Target audience

With average ticket prices reaching close to £100 (US\$150) per person, typical target customers have substantial disposable income and comprise couples, wealthy families, and adult groups. VIP packages target the high value corporate entertaining segment by providing augmented options for; intimate box experiences, close-to-stage seating, enhanced hospitality, and behind the scenes pre-show access.

Competition

Premium performance art and cultural events such as opera and West End musicals.

Brand values and market positioning

The Cirque du Soleil Corporate Social Responsibility (CSR) strategy report describes its four pillars of engagement as:

- Talent – providing an inspiring, healthy and safe work environment for our employees
- Community – being a responsible agent for change in communities
- Procurement & Partnerships – making responsible choices in procurement and partnership
- Environment – reducing the environmental impact of our activities

Beyond world-renowned shows, the company explains in its website press kit (Cirque du Soleil, n.d.) that it has extended its brand into "multimedia productions, immersive experiences, theme parks and special events".

Desired campaign media channels

Historically, Cirque du Soleil has used the central London out of home (OOH) sites including: buses and bus shelters, impactful wrapped taxis, billboards and prominent digital displays (e.g. Piccadilly Circus). Often its bold, strong use of contrasting, bright colours and clean, empty space enabled it to stand out from other advertisements. More focus and budget have increasingly been put on digital channels, particularly social media platforms both paid and organic. Personal referral and user generated content (UGC) is particularly valued for driving sales conversion, thus community engagement is also a key focus.

Questions/Tasks:

- (1) Create 3-5 'typical customer' named personas and bring them alive using four evocative bullet points.
- (2) Develop six pre-event, one in-event, and two post-event email marketing headlines that would be used to engage existing, known customers.
- (3) Using a content marketing approach, formulate a RACE (Reach, Activate, Convert, Engage) funnel of marcoms touchpoints for new customers.
- (4) Using a single screen timeline, create a visually impactful marcoms campaign summary.

Additional learning resources

Blue ocean strategy applied to Cirque du Soleil. <https://www.blueoceanstrategy.com/bos-moves/cirque-du-soleil/>
The explainer: Blue Ocean Strategy. <https://youtu.be/sYdaa02CS5E>

Campaign proclaimed that advertising agency Publicis had won the European Cirque du Soleil account for advertising, online and customer relationships. <https://www.campaignlive.co.uk/article/week-cirque-du-soleil-hires-publicis-dialog-integrated-brief/969991>

Creating digital, immersive experiences <https://stackla.com/resources/case-studies/cirque-du-soleil-creates-immersive-digital-experiences-with-user-generated-visuals/>

Digital promotion in China. <https://www.shenglidigital.com/result/cirque-du-soleil/>

Event marketing planning overviews. <https://www.eventbrite.co.uk/blog/academy/event-marketing-strategy-ds00/> and <https://www.ventureharbour.com/ultimate-guide-marketing-films-tv-shows-online/>

Overview of Cirque du Soleil's email marketing approach. <https://www.marketingsherpa.com/article/case-study/how-cirque-du-soleil-uses>

Pennanen, T. (2012). *Marketing plan for a contemporary circus*. <https://core.ac.uk/download/pdf/38072978.pdf>

The challenges of marketing Cirque du Soleil. <https://www.linkdex.com/en-gb/inked/cirque-du-soleil-marketing>

References

Carone, C. (2012). Cirque Du Soleil shows big brands how to be remarkable and magical. *Forbes*. <https://www.forbes.com/sites/onmarketing/2012/02/27/cirque-du-soleil-shows-big-brands-how-to-be-remarkable-and-magical/>

Cirque du Soleil. (n.d.). *About Cirque*. <https://www.cirquedusoleil.com/press/kits/corporate/about-cirque>

Cirque du Soleil. (n.d.). *Mission statement*. <https://www.cirquedusoleil.com/press/kits/corporate/about-cirque>

Cirque du Soleil. (2019). *Corporate social responsibility (CSR) strategy*. <https://www.cirquedusoleil.com/-/media/cds/images/citizenship/road-map/roadmap-en.pdf?la=en>



Case teaching note: Designing a multiple sting, digitally focussed, marketing communications campaign plan for Cirque du Soleil's next London show. Group role play seminar activity.

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Case study summary

This armchair created case is based on the events marketing challenge of selling a perishable service, seats for a Cirque du Soleil winter show series, located temporarily at London's iconic Royal Albert Hall venue. A real-world advertising agency client campaign brief format is used as the core case body content to provide a concise and rich problem statement. Preparing initially individually and then working in small groups, students are invited to address the campaign brief, building a digitally focussed, integrated marketing communications plan. Students are required to use their marketing knowledge of the RACE and AIDA frameworks, tentpole and content marketing and to apply their understanding of personas and segmentation. The role play format also offers the opportunity for students to reflect on their team working skills.

Teaching objectives

- (1) Through experiential role play learning, enable students to feel what it might be like to work in a team creating a digitally focussed advertising campaign plan.
- (2) Practically apply the user journey 'persona' concept applying critical inference from a concise advertising agency campaign brief.
- (3) Experience the complex challenges faced when designing engaging email marketing messaging.
- (4) Critically apply conceptual framework learning on content marketing and the digital funnel to create an integrated marcoms touchpoint plan.

Target audience

This small group role play is designed to form part of a marketing, marketing communications or digital marketing module for intermediate and advanced undergraduates or Master's level programmes in the field of marketing, specifically in digital and marcoms modules.

Suggested teaching strategy

To complete all four questions in-class using small group discussion, this case benefits from being allocated 90-120 minutes of class time. However, the timings below assume only a short, 60 min session is available, with the case and questions 1-3 attempted individually prior to the instructor facilitated session taking place. Questions 1-3 essentially scaffold students towards being able to create a campaign plan.

Pre-class

Invite students to engage with the case, read some of the linked reference materials, and undertake wider independent reading/research. This might include exploring the company website to appreciate the sales and booking user experience. Students may be allocated small group study time to work together (social learning is popular and can be powerful) to discuss the case and attempt questions 1-3, capturing their insights in detailed notes for later use in class.

In-class

5 mins - Remind students about the key case highlights and group task (question four). Remind them of the content marketing, RACE, and AIDA frameworks, and introduce the tentpole marketing framework [three phases: pre-event, event and post-event]. Encourage one group member to capture ideas using a PowerPoint slide/white board/flip

chart sheet with a horizontal timeline, with the event period towards the right (allowing some space for post event marketing).

25 mins - In groups of 4-5 students, challenge them to develop an integrated, digitally focussed marcoms plan.

25 mins - In plenary ask each group to present in 30 seconds their plan. Then, if time permits, invite groups to consider some of the following wider discussion questions:

- What roles did group members play? [e.g. chair, time keeper, creative, problem solver, numbers person, time keeper, documenter, presenter]
- What challenges did you face in completing this task?
- What are your development areas for working with other people?
- What kind of budget do you think a campaign like this would require? How might you estimate a realistic budget figure from publicly available information? [Use question to explore forecasting by inference. Assume perhaps 5%-20% of revenue might be 'invested' in advertising (point students at the company report and accounts for a more precise figure). Estimated Revenue = % seats sold x average ticket price x capacity x performances + food & drinks sales + merchandising sales + partner sponsorship].
- How would you measure the marketing campaign's success? What are the SMART commercial objectives? [e.g. % seats sold and/or £?m sales, plus new customer acquisition and enhanced net promoter scores by end of the tour?]

Close 5 mins: What did you learn from this exercise?

Alternative teaching method

Assuming limited pre-class preparation, assign specific groups to consider one question only for 25 minutes and then allow 20 minutes for play back and discussion (5 minutes per question). Close with the reflective 'What did you learn from this exercise?' question.

The richness of the case means that it benefits from more class time, and could easily be used across one 120 minute session or two separate seminars: first seminar 5 minutes reminder and 40 minutes 'development of the campaign' where the seminar tutor visits the teams and answers questions. The second seminar could be used for group presentations (after some polishing took place in between seminars), challenging questions (and answers) and

reflection.

Indicative answers to discussion questions

(1) Create 3-5 'typical customer' named personas and bring them alive using four evocative bullet points.

Billy & Willy
<ul style="list-style-type: none"> • Dual income, working professional parents in their late 40's • Live in Woking with their two school aged children and dog, Rufus • Busy social lives, enjoy travelling for regular city breaks and inter-continental holidays, enjoying the finer things in life • Travel to central London six times/year for a meal and a live show (musicals)
Charli
<ul style="list-style-type: none"> • Fun loving Bridget Jones type, works in an unfulfilling city finance admin role • Privately educated, lives in a central London shoe box flat, spending all her disposable income on socialising and the latest Kings Road fashions • Enjoys nothing more than a flamboyant girls' night out on the weekends
PeeKay
<ul style="list-style-type: none"> • Larger than life senior procurement professional for a global company • Pescatarian, single, homeowner with no debts, enjoys treating themselves to the good life • Enjoys a diverse range of evening and weekend excursions with their wide circle of friends • Generous supporter of a range of LGBT+ charities and events
Bee
<ul style="list-style-type: none"> • Single, suburban house mum, focussed on her two kids • Busy with school runs, the parent governor role she has and other charity work • Sold up highly successful events business to focus on more family time after divorce • Enjoys occasional visit to high-brow arts events, provided they are child friendly

(2) Develop six pre-event, one in-event, and two post-event email marketing headlines that would be used to engage existing, known customers.

Pre-event

Coming soon! From Cirque du Soleil introducing: "SHOW NAME" (creates anticipation and word of mouth)

Cirque du Soleil's newest show "NAME" is coming to the Royal Albert Hall. (demonstrates newness of the show and takes advantage of the prestigious hosting venue)

"NAME" from Cirque du Soleil – Tickets Now Available. (Simple awareness)

Treat Yourself to Some Mid-Winter Spectacle: "NAME" awaits you. (Rewarding yourself)

Don't Miss Cirque's Hottest Show: Book Now. (Fear of missing out)

Limited Seats Still Remaining – Book Your Show Tickets Now. (Urgency and scarcity)

In-event

Limited Tickets Still Available for Last Remaining Shows: Don't Miss This. (Fear of missing out (FOMO) evocation)

Post-event

Cirque du Soleil Bids You 'Au Revoir' (Cross-cultural reminder of sophistication)

We're Missing You Already: "NAME" Show Highlights (Nostalgic reflection)

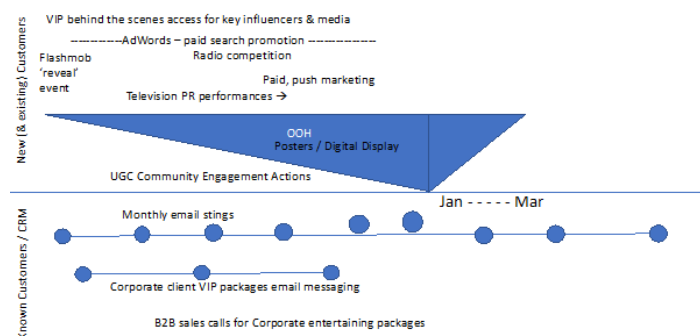
The monthly pre-event email headlines, starting six - eight months out, start by building awareness of the new show, shifting through interest and desire to book now action urgency [AIDA]. During the live show period, a FOMO (fear of missing out) message is used, progressing to a post-show period low cadence frequency mail out that seeks to drive fond, nostalgic memories.

The revenue management team at Cirque du Soleil shade out or limit seat sale capability for the second half of the run to encourage demand to fill up in the less popular show nights (Mon, Tue, Wed). This also limits the time commitment risk in each market – if sales flop – the troop can cancel the tail end shows and move their sales capacity to another city. Double show days (using 1600 starting matinees that are family friendly) can increase peak demand capacity, sometimes even triple show days (adding a 1200 performance) are offered. Clearly, dark (non-performing) days are scheduled in too.

(3) Using a content marketing approach, formulate a RACE funnel of marcoms touchpoints for new customers.

Reach	Morning radio competition to win tickets Flashmob 'surprise' reveal event Live performance on high profile television talk show(s) Poster campaign "Coming Soon"
Activate	Multi-media explainer of show theme Boosted Tik Tok UGC competition Behind the scenes VIP trips to preview the show for influencers and prize winners Engagement with grass roots performing arts organisations OOH FOMO 'Don't Miss This, Secure Your Tickets Now'
Convert	Long Tail AdWords (including: circus, Cirque to London Show, Musicals, SHOW NAME, West End Musicals) Targeted tech platform serving of video shorts with book now messaging Remarketing using web cookies
Engage	Pre-show email engagement teasers Serve up shareable creative content to encourage advocacy Exclusive behind the scenes insights & updates

(4) Using a single screen timeline, create a visually impactful marcoms campaign summary.



The visualisation is meant to merely be an indicative example of the kinds of digital marketing actions that a group may develop in a short time period.

Potential task-related assignment/examination questions

- Identify longtail keywords that might form part of a pay-per-click (PPC) paid search initiative.
- Discuss (using long and short-term thinking) where you would set the upper limit target for cost per acquisition (CPA) for two scenarios; (a) eight weeks before curtains up and (b) an off-peak, mid-week evening at the back end of a lacklustre run (assume 50% of the 5,200 capacity is still available for the performance).
- Identify how best to drive engagement through culture/entertainment journalists and appropriate social influencers using PR.
- Develop an eCRM onboarding plan for new fans using the tent pole marketing events framework (i.e. consider three distinct phases: pre-event, event, post event).

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Burton, R., & Ormrod, G. (Eds.). (2021). *Transition to Professional Nursing Practice* (2nd ed.). London: SAGE.

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The transition for new graduate nurses from school to workplace often leaves them experiencing a myriad of feelings, from excitement, trepidation, uncertainty to even culture shock. Many have expressed being unprepared for life after study. The second edition of this book by Associate Professor Rob Burton and Dr Graham Ormrod, *Transition to Professional Nursing Practice*, highlights the responsibilities associated with being a fully qualified nurse and identifies professional and workplace issues requiring attention to help any new graduate nurse entering the workplace with confidence. This book review aims to provide a summary and evaluation of its content and scope.

Upon entry to the workforce, newly-graduated nurses often find themselves facing the complex roles and responsibilities required of a registered nurse. Confronted with the workplace and professional issues surrounding their practice, these new graduates often face multiple challenges in assimilating into their new workplace during the early part of their professional careers. Recognising these challenges, Rob Burton and Graham Ormrod published the second edition of their highly successful book, *Transition to Professional Nursing Practice*, to discuss the essential professional issues encountered by new nurses during their transition from a student to a newly-qualified professional nurse. With over 30 years of experience in nursing education each, both editors have particular interest in nursing professional development and education. In line with his current role as the International Program Director at the School of Nursing and Midwifery, Griffith University, Burton provides an international outlook on continuous education and professional development in nursing. Ormrod, whose last role was the Director of Health Partnerships at the University of Huddersfield, adds insights into the professional and managerial functions of the nursing practice. The book is divided into 11 chapters (including conclusion) and covers a wide range of topics pertinent to a new nurse during his or her transition from a nursing school to the actual workplace.

Chapters 1 and 2 explore the transitional stages of a new nurse's journey from a student to becoming a qualified nurse. The authors discuss how new graduate nurses navigate the new healthcare environment to work in a diverse range of specialisation fields within the healthcare industry. During this transition, these new graduates would undergo the professional socialisation process and experience a myriad of feelings from excitement, trepidation, uncertainty to even culture shock. The authors share several strategies on how these new graduate nurses could develop workplace resilience, such as reflective practice, cultivating supportive relationships, establishing strong mentorship and structured clinical residency programmes.

In Chapters 3 to 5, the authors explore professional issues relating to nursing practice when these new graduates embark on their career. They discuss about how national legislation, professional regulation and ethical-legal issues within the healthcare sector influence health care agenda and professional practice for nurses. Like their medical colleagues, nurses are responsible and professionally accountable for the clients under their care. Therefore, they are expected to exercise clinical decision-making and critical judgement for their own practice, rather than simply depending on someone else's instructions or orders. In these chapters, the authors have embedded many case studies on legal, ethical, and professional issues. Whilst these issues seem to be fundamentally different, they are invariably intertwined within a nurse's professional practice. The authors hope to highlight the possible professional dilemmas which newly-graduated nurses may face during their course of work. The authors then present several ethical-legal and professional frameworks to guide new nurses on how to overcome these dilemmas using principled reasoning.

Chapter 6 focuses on the multiple hats that a professional nurse wears, highlighting the increased responsibilities and multiple roles required of them at the workplace. Within the hospital setting, nurses are oftentimes assigned a group of

clients during their work duty, requiring them to lead and manage the healthcare team effectively. In this chapter, leadership and management theories are presented and case studies are used to help readers translate these theories into practical application at the workplace. The authors also share about strategic planning, clinical governance, and other management concepts within the healthcare setting. As a nurse rises through the ranks in their professional career, he or she is expected to assume leadership roles and positions within the organisations and be involved in day-to-day operation of the organisations, such as workforce planning, staff recruitment and development, resource allocation, and effective communication networks.

Chapters 7 to 9 explore the professional development of the nurses and discuss clinical specialisation, career development, and continuous professional education. As healthcare becomes increasingly sophisticated, the profession will need to stay professionally relevant by keeping themselves updated on the advancements in science and technology. They will also need to maintain their clinical competencies in accordance with professional regulation, evidence-based guidelines, and national competency frameworks. Such endeavour will require all nurses to embrace continuous learning and professional development. As such, the authors highlight the importance of learning, teaching and assessment in practice and shared about the different educational theories and concepts commonly used in nursing education. Using these theories and concepts, one example being Kolb's experiential learning theory, the authors present useful examples on how nurses can create a conducive learning environment by engaging in preceptorship, peer coaching, mentorship, and bedside assessment.

Chapter 10 is a new addition to the book's second rendition and covers several global nursing matters using an international outlook on globalisation and its impact on global health issues. Topics such as nurse migrations and national professional regulatory systems in developed countries were explored to help readers gain greater awareness of healthcare issues at the national and international fronts. The authors share about the United Nations' 2030 Sustainable Development Goals and how nursing could contribute to their actualisation through active participation on the International Council of Nurses' platform, influencing global and national health policies, and improving dissemination of nursing research and innovations.

Overall, the book addresses an impressive range of topics from ethical-legal issues in healthcare, managerial functions, professional development, to safety and quality of care. It also includes up-to-date information about the fast-changing healthcare landscape and undertakes great efforts to bring an international perspective to ensure the relevancy of these topics for the readers. The topics are carefully laid out to highlight the pertinent issues faced by any new graduate nurses and the skillsets required for them to enter the healthcare workforce successfully. The book also contributes to the Singaporean nursing education literature by expounding the importance of 21st-century skillsets, such as critical thinking, clinical reasoning, and global mindset, deemed essential for these nurses to assume wider professional responsibilities and autonomy in the future (Goh et al., 2019).

As the book is primarily targeted at graduating nursing students or new graduate nurses, the authors have made great efforts to compile many relevant case studies. These features allow the readers to grasp the reality of workplace issues during the transitional period and combine theory-driven or evidence-based strategies with practical applications. As most of the case studies were drawn from the authors' experience with nursing practices and systems found in the United Kingdom, Australia, and Canada, its content scope seems to pay particular focus on nursing issues commonly found in these countries, where the theory-to-practice gap is more profound than those in the developing countries.

This book is recommended for all new nurses who wish to build their workplace confidence and resilience in order to achieve personal growth and professional development. Nurse educators can also use this book to develop effective strategies to help fresh graduates transition to their professional roles smoothly.

Additional reference

Goh, H. S., Tang, M. L., Lee, C. N., & Liaw, S. Y. (2019). The development of Singapore nursing education system – Challenges, opportunities and implications. *International Nursing Review*, 66(4), 467-473. <https://doi-org.libproxy1.nus.edu.sg/10.1111/inr.12539>



Staats, B. R. (2018). *Never stop learning: Stay relevant, reinvent yourself, and thrive*. Harvard Business Review Press.

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Bradley R. Staats is an associate professor of operations at the University of North Carolina's Kenan Flagler Business School. His expertise includes data analytics, global business, health and safety, information technology, operations, organisational culture, performance, teamwork, and outsourcing. He examines individuals, teams, and organisations' interconnections to improve their operational performance to build competitive advantage, stay relevant, and innovate to succeed continuously (UNC Kenan Flagler Business School, 2021). He is the author of the award-winning book: *Never stop learning: Stay relevant, reinvent yourself and thrive* (Harvard Business Review Press, 2018).

The book consists of ten chapters, an extensive note, an index, acknowledgements, and an overview of the author. He addresses the necessity to keep on learning, especially in today's economy where change is constant. As technological automation continues to grow, an increased number of routine jobs are redundant. To survive in this new environment, individuals require continual learning to improve their knowledge and impact on the economy. Staats stresses the importance of dynamic learners – people who continue to outperform peers and realise higher impact and fulfilment by leveraging learning to build more knowledge. To help individuals to be more effective lifelong learners, he outlines a framework and several principles and practices. In chapter 1, Staats highlights four interrelated dynamics of learning workers – routinisation, specialisation, globalisation, and scalability. Staats provides readers with statistical data of the manufacturing and agriculture industry's employment rates from the 1850s to 2000s, where one would see the significant drop in labour costs in these industries. This change's leading driver was due to productivity improvement resulting in routinisation. As technological investments and management practices increased, productivity was enhanced, and labour need[ed to be] drastically decreased. Such implications signalled the decreasing value of repetitive manual labour and the need for change.

In contrast, nonroutine tasks saw a growing trend (e.g., scientists or caregivers). Such findings emphasised the

critical importance of continued learning and growth. Specialisation was the next driver of the learning economy. As individuals gain familiarity in an area, they would achieve more opportunities to learn, which allowed increased awareness of the knowledge they are unaware of. Staats uses the medical field as an example to illustrate his point. Doctors started to explore human anatomy to learn more effective remedies. Girolamo Fracastoro first suggested that bacteria and viruses were the cause of disease in the 1500s, and the theory was further expanded 200 years later by Marcus von Plenciz and so on. With the advancement of human anatomy knowledge, it became necessary for more profound familiarity with each part of the body, leading to the present medical specialities. (This would also probably explain the increasing thickness of textbooks with every new edition).

The third driver of the learning economy is globalisation. Advanced technology has enabled people to work remotely, which allowed global customers to have access to solutions for their problems as such governments changed their rules for companies to bring in the necessary equipment and services. Such an opportunity granted the technological industry to scale up their operations, resulting in remarkable growth. The example implied the importance of staying relevant through sharing of knowledge globally. Lastly, scalability – one's ability to scale one's learning -- is crucial to the learning economy. By disseminating new knowledge beyond oneself and reaching larger audiences, individuals can collectively increase efficiency to innovate and respond to change.

Staats investigates learning by marrying two academic fields: operations and behavioural science. He thus gains a unique perspective that involves three steps which structure the subsequent chapters of the book:

1. Figuring out what you need to do to become a dynamic learner;
2. Identify why you do not do these things;
3. Understand the steps to overcome challenges.

In the next chapter (2), Staats starts his writing by questioning the readers: "Why don't we learn from failures?" He offers a case study, multiple reasons, and its consequences. Contrary to most success stories we hear about when a failure occurs, the hero realises what is wrong and comes up with a great solution/discovery (yay!). The norm is somewhat contrasting – especially when we do not learn from failures even though we ought to. Staats provides an example of "learning from failure" through the case study of Thom Crosby, CEO of Pal's Sudden Service. Crosby was intrigued to release a new product line – salad, which was a trend at that time. After several field tests, the product was launched, but the customers' response was rather lukewarm, and the product line was eventually terminated after approximately \$6 million had been lost. However, he did not dwell on his mistake; instead, he took it as a form of education. He recognised his error and stepped back to consider and understand what went wrong and improve the approach going forward.

Staats presents a few reasons why it is challenging to incorporate failures in our learning. The first reason is one's denial when facing failure. The scientific term for this is atychiphobia – a fear of failure. When one fails, the body experiences pain in the form of embarrassment, shame, or anxiety. In the context of an organisation, fear and pain are experienced as: no promotion, lowered expectations, etc. Such outcomes throw an individual into uncertainty; therefore, to avoid such pain (threat), humans deny or downplay their failure, in turn losing the opportunity to learn from mistakes and improve.

A contribution to fear of failure is being afraid of taking risks because of one's overemphasis on the possible negative outcomes. We do not take risks as humans are fearful of loss. Research shows that the potential gains should be twice as great as the risk for humans to act. Therefore, if the anticipated outcome is more negative than positive, the likelihood of action is minute. Another reason is that people overestimate their future suffering. It was researched that people are poor in predicting an adverse event's intensity or duration, such as losing a job or flunking a test. Individuals tend to expect that bad possible outcomes outweigh the joy of success; hence, they would instead choose inaction than losing and suffering. We also overestimate the adverse effects of failure because we do not recognise that it is a normal part of life. Research showed that humans react to bad outcomes in four steps: attention, reaction, explanation, and adaptation. Attention is when we recognise a failure, and reaction is the response to an adverse event, which is usually negative (shame, embarrassment). Next is explanation where we understand what occurred. Adaptation where we adapt to the new information found. The first two steps are usually fast to occur and accepted, but the last two steps are where learning may be hindered. This is because we misattribute the events and adjust our standards and convince ourselves that no failure occurred, rather than adapting. An example would be attributing the mistake to a situation instead of accepting responsibility and improving oneself.

So, what can we do to avoid hindering our learning? We have to first destigmatise failure by bringing the struggles into the open. By sharing one's failure, individuals can learn from each other and improve performance. It also means that

the individual is thinking about acting, which increases the probability of learning new things. Second, ambiguity needs to be removed. We revisit the "explain" step by encouraging individuals to take responsibility and not blame the situation for one's mistake. Finally, to overcome and learn from failure, one must recognise that the mistake is typically not as bad as you think—chapter 2's key; value failure – one's first step to becoming a dynamic learner.

In chapter 3, the content discussed that learning is gained through process focus and not outcome focus. Process focus is central for learning as it involves understanding what and how inputs affect essential outputs. Hence, to have an outcome, individuals need to understand how inputs contribute to the task and how they interact to produce a result. The example given by Staats is the game of blackjack. The game's objective is to get closer to 21 than the dealer without busting over 21. It encompasses careful strategising for every situation and stimulating the possible outcomes for the best probability of winning. Despite the strenuous process, it is possible to boost the gain as all the inputs (cards) and interactions (rules for where dealer hit or stay) are known. By being process-focused, individuals can see through the noise surrounding the signal and increase knowledge. A process focus also builds discipline in learning by having specific learning goals that facilitate productive learning habits.

The challenges that prevent people from having a process focus are outcome bias and performance mindset. The former refers to how one interprets the events that occurred; if the outcome is positive, the evaluation is that the process was fair and vice versa. The latter refers to a fixed mindset where success or failure is due to intelligence. These two factors are detrimental and hinder dynamic learning. Thus, people need to weigh process focus more significantly than outcome focus.

Chapter 4, entitled "Asking questions", explores how curiosity leads to learning. Learning in all contexts begins with a question. By questioning the information given, it helps us identify what our exploration is meant to answer. At the same time, we also fill in the blanks on our knowledge. Asking questions also opens up the opportunity for other people to provide help, and the easiest way to go about it is to ask: "What do you think?" and await the response with an open mind. The process seemed so straightforward, yet individuals tend to only reply a question with "I don't know" and cease all forms of learning. Why is that so? The first explanation might be the need for speed. In getting things done, it involves answering questions instead of questioning. An example would be doing routine tasks where we do not question the process but blindly follow them to a tee. In doing so, individuals may not understand things as well as they think since they are just assuming that is how the work gets done. Another reason we fail to ask questions is self-censoring. In self-censoring, we believe we should not ask questions or lack the awareness that we need to do so. This is because people are worried that others might think less of them when they do not have an answer. If one lacks the awareness leading to the limiting of questioning, it could be due to how we seek and respond to information. When people decide according to the information most readily

available, it restricts individuals from asking questions. They are quick to assume that they understand the situation according to the data. This phenomenon is also called availability bias. Finally, the final challenge of asking questions is confirmation bias. Individuals look to confirm their beliefs by either choosing a channel that would say 'you are right' or one who would question your perspective. The former option is usually the norm. Thus, such a biased approach in evaluating data and asking questions prevents lifelong learning. To overcome such biases, people need to have strong opinions that, however, are weakly held to encourage new perspectives. One could also reach out to others for a different perspective by rejecting one's viewpoint and looking for evidence to support the alternate. Listening actively and waiting patiently before concluding is the next step. Instead of being defensive when one's views are challenged, one should listen, reflect and be open to suggestions.

Chapter 5 attempts to explain the necessity of recharging and reflection amidst learning and not constant action. Staats tries to convince readers that contemplation is a crucial factor for effective learning. Contemplation provides two components: reflection and rejuvenating. The concept is quite simply: thinking about what is happening around us creates knowledge that undergirds learning. Researchers propose two systems that sit beneath how we process information and learn – single and double loop processes (Argyris, 1977). Staats focuses on the double-loop process, which has two benefits for learning. The first one is cognitive; we build knowledge. As people take the time to reflect, they rediscover things that they do not understand and are clearer about the things they know but need further understanding. They would also recognise and make connections between new ideas. Next is behavioural; reflection builds self-efficacy – "the belief in one's capabilities to organise and execute the course of action required to manage prospective situations." (p. 82). By engaging in reflection, the double-loop process is activated, motivating learning. Apart from reflection, individuals also need to make sure that the physical body is well-rested and recharged to tap into our analytic horsepower.

Despite knowing the benefits of reflection and relaxation, it is a challenge for individuals to engage in the practice due to action bias – we think we need to be always on the go, and rather be seen doing something rather than nothing, which severely hampers learning. There are potentially four things that prevent us from pausing: regret, confused action with progress, underestimating the resulting cost, and underestimating the potential gains. Regret is derived from disappointment regarding an alternative course of action. In other words, people fear making the wrong choices and would instead choose inaction, which prevents them from pursuing strategies or learning. The second driver is the confusion of action with progress. This phenomenon is where people complete small but relatively unimportant tasks that produce minute positive feelings, but they have little to show. This occurs when we view action and progress as synonymous; therefore, it is crucial to decouple the two to overcome action bias.

Thirdly, people do not take breaks to reflect as they underestimate the resulting cost. This can be seen in the impact of workload on performance. For example, if nurses were to attempt to work continuously without rest, they would have a higher chance of making a mistake, such as administering the wrong medication. Hence, not taking time to recharge and reflect could have higher costs. Lastly, we underestimate the gains from reflection. Staats' research found that just a five-minute break could improve workers' productivity as an exhausted mind may be limited in its understanding and learning. All in all, dynamic learners fight the urge to act meaninglessly and recognise the essence of resting and reflecting. Staats ends the chapter with five strategies for better learning.

1. Block out time for thinking. This action engages one's slow, thoughtful information-processing system to spark double-loop learning;
2. Incorporate premortems for important decisions. Premortems help people think carefully about a topic and forces one to think of the things that may go wrong. They may also prevent overconfidence and assumption of the success of ideas;
3. Conduct an after-action review (AAR). By doing so, people are creating an opportunity for improvement;
4. Plan to take breaks to rejuvenate during workdays;
5. Take a vacation to avoid burnout, recovering energy, and clearing mind for future learning.

The next chapter (6) focuses on Being yourself to learn. As humans get older and join organisations for work, the temptation to conform to the rules increases, which benefits us by lowering our stress and anxiety to meet expectations. However, the urge to fit in also limits our ability to learn. Staats illustrated how being ourselves leads to learning for two reasons: motivation and positive emotions. When we are truly ourselves, we are more likely to expend necessary effort and do things stemming from intrinsic motivation (mastery, autonomy, purpose). For individuals to feel satisfied during their work, they need motivational factors such as task achievements, growth, and responsibility. In such a scenario, we are then likely to also engage in our work and work harder and longer and learn more. Being yourself also gives rise to positive emotions which reshape the learning process. Psychologist, Barbara Fredrickson labelled this model as "broaden-and-build". It was theorised that positive emotions occur in a safe space, thus encouraging us to think more broadly and diversely and expand our awareness of situational factors. Moreover, positive emotions also stimulate our reaction time and allow us to be more observant, drawing ample cognitive resources. Hence, positive emotions broaden learning and understanding of our environment.

Nevertheless, being authentic is portrayed as a challenge as we face conscious and unconscious barriers. An example

is the imposter phenomenon. It occurs when we question our capabilities and doubt ourselves, which makes us take on someone else's guise to get the required job done. When we act like someone else, we not only risk losing our identity (harming ourselves subconsciously), but we also miss out on learning opportunities. There is then a higher risk of cardiovascular diseases and other health issues such as anxiety and negative emotions detrimental to learning. Too much anxiety interferes with decision making and action taking and limits the amount of information retrieved. To overcome and be yourself, one needs first to discover how to free yourself to be you. The simplest way to go about doing this is to engage in self-expression and reflect what they find meaning in. Another way is to learn to identify patterns of increasing positive feelings in daily activities. One could consider surrounding oneself in things that make one happy. These elements allow our individuality to stand out, making people more positive and motivated to learn. Chapter 7 is introduced as follows: "Playing to strengths, not fixating on weakness". Staats substantiates this point by stressing the benefits of focusing on strengths. First of all, strengths can create motivation. Albert Einstein is quoted as having said: "That is the way to learn the most, that when you are doing something with such enjoyment that you didn't notice that the time passes." (p. 119). Individuals are more engaged and motivated when making discoveries in the tasks we complete, and these positive effects are realised by focusing on strengths. Our internal states (e.g., physical health) also benefit from focusing on strength. It was reported that individuals who used their strengths during the day were more energetic and well-rested. Strengths also create external motivation when achieving goals leads to recognition and praise from others. If strengths can be so powerful for learning, why are we still so fixated on our weakness? Perhaps, we are too obsessed with fixing our weaknesses to identify our strengths. People tend to dwell on things that went wrong due to the belief that we need to excel on all dimensions to shine in the long run. Such faulty beliefs impede a person from having the prospect to develop their strengths further. But that does not imply that we totally ignore our weaknesses. Instead of focusing on qualities that do not add value, we should concentrate on key qualities that enable us to create value and differentiate ourselves.

To successfully learn from our strengths, we need first to identify them. Doing this alone is a challenge, but one need not fret – insights can be gained from others, such as people who know us well. Receiving feedback from others also helps consolidate the stories and opens up more improvement opportunities. Another key to learning from our strengths is carefully evaluating our critical weaknesses. It is necessary to do so as the weakness may be in the way of accomplishing a larger goal. Feedback garnered about one's weakness can help support our strengths to counteract this. Staats closes the chapter with a caution to not be overconfident with our strengths and become arrogant.

Chapter 8 explores how successful learning could be attained by combining specialisation and variety. Staats points out that learning would be compromised if an individual is too specialised or too varied and that by marrying both components, learning would be optimised. Specialisation

is a powerful tool as it could activate a force: the learning curve. As one accumulates experience, it improves their performance and knowledge on a specific matter, even if at a decreasing rate. A focus on specialisation saw its benefits with more efficient working methods. However, it has its setbacks as routine work decreases motivation to learn, leads to a too narrow view of experience, becomes irrelevant with continuous change and stunts learning. To overcome such a challenge is to vary activities. Variety alters our knowledge and motivates people to connect prior learning to novel information. Contrasting with specialisation, variety offers more ideas to be drawn upon, and it encourages people to participate in different activities to overcome boredom. But variety also has its share of disadvantages: surface learning due to insufficient knowledge, having to relearn key aspects of older tasks after engaging in varied tasks, and overloading the working memory leading to stress and impaired performance. After exploring the pros and cons of the two aspects, Staats suggests that taking either approach would eventually stunt growth in learning and takes an exciting methodology to combine both tactics. In practising the approach, a T-shaped person is created – highly skilled in a broad set of things and an expert in a narrower discipline. Staats provides an example of a person engaging in T-shaped learning – Sloan Gibson, US cabinet secretary (Bernstein et al., 2014; Buell et al., 2016) and ends the chapter with pointers how to become a T-shaped learner. Staats introduces chapter 9 with some personal reflections of his academic route. He echoes how fundamental results delivery stemmed from the importance of process, dealing with failure, asking questions, building the right profile of expertise, etc. Most importantly, a theme that arose in these reflections was: repeated interaction through learning with the same people dramatically improved performance. This finding leads to the core of his doctoral dissertation, whereby he realised that apart from having strategies to learn by ourselves, the people we interact with are also integral to one's eventual success or failure.

Why do others impact on one's learning? It could be due to relationships leading to motivation (intrinsic/extrinsic). Early research suggested that bad relationships can dissatisfy people but not motivate us. In contrast, a good relationship could improve personal health and expectancy and generate social support. Such an occurrence is called prosocial motivation – a wish to help and encourage others. When bringing co-workers' relationships closer, productivity improved, substantiating that relationships drive improvements. Another benefit obtained by learning from others is the incorporation of new knowledge. When working with others, individuals gain information and experiences that one is unfamiliar with, which leads to an increased opportunity to learn. Apart from such benefits, people also process information more efficiently and solve problems jointly when surrounded by others as everyone's knowledge could be combined and interpreted differently to create ideas.

Having learnt of the advantages of learning from others, why do people still struggle to put this into action? Firstly, we underplay the collaborative efforts and show the least appreciation in others' role in our success. It is also called – coordination neglect, where groups are better at dividing

labour than coordinating labour due to the inability to divide a task and then integrate it effectively (Heath, & Staudenmayer, 2000). One other challenge comes in finding and extracting their knowledge. People tend to focus on shared information rather than unique information when searching for information. This is because humans tend to look for information consistent with existing views and feel good intrinsically when sharing information that both parties know well. However, that compromises learning.

The next challenge is an interpersonal one where it was revealed that diversity often harms learning and performance. When surrounded by individuals with differing perspectives, people are less accepting of others' views. This is termed naïve realism (a human tendency to believe that we see the world around us objectively, while those who disagree with our perspective must be uninformed, irrational, or biased: Ward et al., 1997). If these differences were converted into productive conflict, this could lead to the generation of insightful ideas. However, conflict becomes personal and impedes learning more than usual. Henceforth, to avoid wasting energy and allow successful learning from others, Staats proposes a four-step process: (1) Build relationships by shifting one's mindset to focus on interactions with others; (2) finding ways to work with the same people repeatedly to create a foundation for learning; (3) taking an inquiry approach to working together by collaborating; and (4) reconceptualising the point of interaction by sharing and teaching others.

Staats concludes the book with four mindsets that all individuals should have in the learning economy to adjust, learn, stay relevant and excel:

1. Focused: choose topics to learn and focus on them deeply to attain sufficient knowledge;
2. Fast: one needs to pick up learning in the correct direction and also speed up quickly in that area;
3. Frequent: be open to learning opportunities as chances often present themselves in unexpected ways;
4. Flexible: individuals need to be flexible enough to decelerate and switch to new opportunities.

Staats advises readers to keep in mind that learning is hard and needs constant attention. It is a never-ending process and requires one to recognise the challenge and seek to overcome it, with determination. With that, "Dynamics learners are ready for this process. Happy Learning" (p. 171). Never stop learning argues that for individuals to persist in the everchanging environment, lifelong learning is a necessity. Staats' extensive research identifies the challenges and reasons people are resistant to change and learning, which hinders their self and workplace progression. The book pinpoints the drivers of change in employment, such as globalisation, specialisation, and productivity improvement. People need to recognise and apply it to stay relevant in the competitive environment. I found chapters 2, 7, and 10 exceptionally intuitive. Chapter 2 discusses valuing failure,

and Staats' research hit close to my heart. People are afraid to be defeated not only because it is painful when losing face, but also because society frowns upon failure. The society is less forgiving when it comes to failure, especially if the costs are high (Assomull, 2017). However, with Staats' approach to valuing failure, it is hoped that a society more tolerant to making mistakes may be created. Chapter 7 would also benefit readers, as it empowers individuals to reflect on their strengths and be less disapproving of one's weaknesses. Instead, the author suggests that readers develop their critical weakness which can help support their strengths. Staats concludes the book with a motivational note and stresses "dee-termination" (using his child's pronunciation of the word, stressing the first syllable) in dynamic and lifelong learning. Despite its brevity (two pages), the final chapter's impactful and motivational words would leave readers inspired.

The book can be critiqued for its lack of educational theories and principles. As most of the author's findings and writings stemmed from his research discoveries, it could be seen as a limiting factor within educational pedagogies. The first half of the book also contained stronger arguments and was more in line with the book's title in staying relevant and reinventing oneself. But the latter half of the book felt more like learning exercises that were less beneficial to me, but this would vary with readers. As a whole, the book was an interesting read. Although the book addresses adults in the business world, I would recommend individuals who are interested in lifelong learning and focused on personal improvement to pick this book up. Staats' approach to lifelong learning is practical, and its framework guides readers to become more effective learners. By leveraging on the insights gained from the book, actionable knowledge is created.

Additional references

- Argyris, C. (1977). Double loop learning in organisations. *Harvard Business Review*, 55(5), 115-125.
- Assomull, A. S. (2017, November 8). Fear of failure holding Singapore back: Study. *The Straits Times*. <https://www.straitstimes.com/singapore/fear-of-failure-holding-spore-back-study>
- Bernstein, E., Gino, F., & Staats, B. (2014). Opening the Valve: From software to hardware (A)(B). *Harvard Business School*, 15, 9-415.
- Buell, R. W., Huckman, R. S., & Travers, S. (2016). Improving access at VA. *Harvard Business School Case 617-012*, 6.
- Heath, C., & Staudenmayer, N. (2000). Coordination neglect: How lay theories of organising complicate coordination in organisations. *Research in organisational behavior*, 22, 153-191.
- UNC Kenan Flagler Business School. (2021). *Bradley Staats*. <https://www.kenan-flagler.unc.edu/faculty/directory/bradley-staats/>
- Ward, A., Ross, L., Reed, E., Turiel, E., & Brown, T. (1997). Naive realism in everyday life: Implications for social conflict and misunderstanding. *Values and knowledge*, 103-135.



Kamei, Robert K. (2021). *Strategic learning. A holistic approach to studying*. World Scientific.

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Live as if you were to die tomorrow. Learn as if you were to live forever (Mahatma Gandhi, cited in p. 155).

Willing or unwilling, we are all compelled to lifelong learning. It is thus unsurprising that an elective by Professor Robert Kamei (the founding Vice Dean at Duke-NUS Medical School and the author of *Strategic Learning*) on Learning to Learn Better is exceedingly popular at Singapore's flagship university, the National University of Singapore (NUS). The course inspired Kamei to write this excellent and enjoyable book that at around 200 pages, is structured into ten chapters. The book also comes with appendices, a useful bibliography and numerous boxed quotes from Kamei's students that showcase their experiences with studying. Laudably, it is complemented by a freely accessible website (strategiclearn.org). Although the intended audience for the book is predominantly university students and teachers, the book's holistic and strategic approach to learning – and us all being compelled to lifelong learning in a knowledge economy – mean that it is useful for learners of all ages.

Kamei's book dispels 12 commonly-held myths about learning and presents science-based facts about learning that are often counter-intuitive. Our perceptions of learning are frequently wrong. As learners, for instance, we need to be neither super-smart nor super-hard-working. We, however, need to be strategic in order to learn better. With the tremendous amount of things that we need to learn in a lifetime, being metacognitive (the ability to know how to learn) is a critically important competence. In fact, we should all become experts how we learn best, and the book helps us on this never-ending journey of self-discovery.

While the book's author thankfully refuses to offer "a few simple, magical suggestions that will transform your study and make you a brilliant learner" (p. 9), he offers a Holistic Learning Framework that is developed throughout the book. The two key parts of the framework are (1) the Metacognitive Cycle and (2) its foundation of self-regulation and well-being. The Metacognitive Cycle is the "engine of any successful learning plan" (p. 35) and consists of an iterative process that involves setting study goals (both

aspirational and SMART), planning, and implementing one's study plans. The foundation of the Metacognitive Cycle is self-regulation and well-being (chapters 7 and 8).

Chapters 2 to 6 elaborate on planning aspects of the Metacognitive Cycle and discuss strategies to combat our being trapped in Ebbinghaus's classic forgetting curve. They show how, when we for instance prepare for exams, we can slow the decay of forgetting and recall information better, rather than just recognising it. Various encoding strategies such as chunking (grouping content in a way logical to us), mnemonics (my favourite mnemonic example from the book is how to remember the six strings of a guitar EADGBE: Eat All Day Get Big Easy) and encoding specificity (i.e. studying in an environment similar to the location where it needs to be recalled) are exemplified. Amazingly, using such learning strategies can change our brain: "the anatomical part responsible in the brain, like a muscle, can grow in size" (p. 57). Knowledge is cumulative: the more we know, the more we learn. While having a good memory makes studying (and life in general) easier, it is comforting to know that Einstein apparently had trouble remembering his own phone number!

Kamei highlights the Goldilocks phenomenon that learning materials should be 'desirably difficult' or in other words, 'just right', i.e. neither too easy nor too hard. An increased effort to process information leads to a greater depth of processing and better recall. This is where the technique of interleaving similar topics leads to a flattening of Ebbinghaus's forgetting curve and to a more durable memory. In addition, spaced learning is preferable to 'blocked learning' – popularly known as cramming or 'brain dumps' – as it helps us to reset the forgetting curve.

Memorisation is sometimes belittled in our era where we have a wealth of information at our fingertips as we can google things within seconds. Hence, it is useful that Kamei reminds us that in Bloom's taxonomy (and its variants), memorising, while not necessarily implying understanding, is a vital building block for more complex forms of learning (such as understanding, applying, analysing, evaluating and creating).

Chapters 7 and 8 discuss the foundation of the Metacognitive Cycle as self-regulation and well-being. Self-regulation here refers to our ability to control our emotions and behaviours in order to reach our study goals, and it is closely related to self-discipline. Apart from highlighting the importance of understanding what motivates and demotivates ourselves, Kamei offers two powerful techniques for self-regulation: "if-then" statements and routines. Once I have completed the 'if' (the goal I have set – like writing on this book review for an hour), I get to do the 'then' (usually a treat, like reading the newspaper). Kamei also shares with his readers the impressive routines of famous high performers such as Twyla Tharp and Michael Jordan who had relentless practice routines that helped them become who they were. In addition to self-regulation and self-discipline, the remaining foundational pillars of the Holistic Learning Framework are health and wellbeing. Improving one's sleep and health help focus while studying. As the right time allocation between studies, leisure and rest differs from one individual to another, it is important for us to figure out our right balance and that will enhance our learning.

After Kamei has gone through what are largely the planning aspects of his Holistic Learning Framework in his book's first eight chapters, chapter 9 focuses on implementation and evaluation and reflection. While I was wondering whether so many chapters on planning in a ten-chapter book is overdoing things, former President Eisenhower's quote convinced me otherwise: "I have always found that plans are useless, but planning is indispensable" (cited in p. 131).

In the Metacognitive Cycle, planning, implementation and evaluation are in a continuous loop. Evaluation consists of what Kamei cleverly calls the 3 R's: Review, Reflect, and Revise. Amongst other things, chapter 9 also includes a useful discussion of study groups. While the bulk of the book focuses on students and how they can learn better (but we are all lifelong learners!), chapter 10 contains some great insights into teaching. Kamei is justifiably skeptical of the "classroom as a factory model... where all students learn the same thing, at the same space, at the same time, in the same way" (p. 138). However, he still sees a place for great lectures that "inspire, convince and summarize" (p. 136), and on more than one occasion, Kamei states that "to teach is to learn twice" (p. v) – this love for learning was incidentally also one of my key motivators why I chose teaching as a career.

There are many things to like about Kamei's slim tome. One of them is the Japanese-American author's sharing of personal narratives about his family's and his own learning. Amongst other things, he shares his struggles with learning Japanese in college. This struck a chord with me, as I, rather unsuccessfully and pathetically, tried to

learn Mandarin twice, both in Germany and in Singapore. I am thus very familiar with the unhelpful negative self-talk described in *Strategic Learning*: "you aren't very good at learning languages; you better give up" or "learning another language isn't so important after all" (p. 13). While reading Kamei's book, I realised that I had lacked a strategic learning approach and hence set myself up for failure. The book is very well-structured and the Holistic Learning Framework that organises it is a masterstroke.

Part of a reviewer's job is to think critically. While Kamei is aware of socio-economic and cultural influences (such as societal attitudes towards education, poverty, or malnourishment) on students' learning, he deliberately chose not to include them. It is good to remind ourselves that as well-educated professionals that live and work in high-income countries, we are very privileged. However, the bottom of the economic pyramid (about half of the global population) still has to go by on a handful of dollars a day, and often receives a rather questionable education, if at all. Although Critical Thinking is highlighted as a key 21st century skill, Kamei's book could have been more critical in Brookfield's sense of the word (Brookfield et al., 2019). Finally, when it comes to the Metacognitive Cycle, I wonder whether rather than a loop, a spiral (like a spiral staircase along the lines of Nonaka's knowledge-creating spiral) may be an even more apt metaphor, as learning and knowledge are cumulative (see Nonaka & Takeuchi, 1995).

Kamei's sincerity and humanity in undertaking great efforts to help his readers (and students) is obvious throughout. I found his self-deprecating humour refreshing and his humility touching. Whether or not Kamei's "big goal" for his book "that it becomes a popular bestseller" (p. 27) will be achieved will also depend on his publisher's marketing efforts. In his disarming, self-disclosing style, Kamei wrote: "I am indeed worried that no one will read it. Or, even worse, that there will be a long list of readers writing scathing reviews saying how bad the book is" (p. 129). I am absolutely certain that his concerns are entirely unwarranted, as I very much enjoyed this insightful and immensely practical book that I highly recommend.

Additional references

Brookfield, S. D., Rudolph, J., & Yeo, E. (2019). The power of critical thinking in learning and teaching. An interview with Professor Stephen D. Brookfield. *Journal of Applied Learning and Teaching*, 2(2), 76-90.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press.