

2021

## Australian, Malaysian and Indonesian Accounting Academics' Teaching Experiences During the COVID-19 Pandemic

Hadrian Geri Djajadikerta

*Edith Cowan University, Australia, h.djajadikerta@ecu.edu.au*

Terri Trireksani

*Murdoch University, Australia*

Tricia Ong

*Edith Cowan University, Australia*

Saiyidi Mat Roni

*Edith Cowan University, Australia*

Soheil Kazemian

*Edith Cowan University, Australia*

*See next page for additional authors*

Follow this and additional works at: <https://ro.uow.edu.au/aabfj>

Copyright ©2021 Australasian Accounting Business and Finance Journal and Authors.

---

### Recommended Citation

Djajadikerta, Hadrian Geri; Trireksani, Terri; Ong, Tricia; Roni, Saiyidi Mat; Kazemian, Soheil; Zhang, Junru; Noor, Abd Halim Mohd; Ismail, Shafinar; Ahmad, Mohamad Azmi Nias; Azhar, Zubir; Shahbudin, Amirul Shah Md; Maradona, Agus Fredy; Yanto, Heri; and Wahyuningrum, Indah Fajarini Sri, Australian, Malaysian and Indonesian Accounting Academics' Teaching Experiences During the COVID-19 Pandemic, *Australasian Accounting, Business and Finance Journal*, 15(2), 2021, 103-113. doi:[10.14453/aabfj.v15i2.7](https://doi.org/10.14453/aabfj.v15i2.7)

---

# Australian, Malaysian and Indonesian Accounting Academics' Teaching Experiences During the COVID-19 Pandemic

## Abstract

This study analyses and presents accounting academics' experiences in six universities in Australia, Malaysia, and Indonesia to adapt to the swift change to the remote virtual classroom delivery model forced by the COVID-19 pandemic, while also gaining valuable lessons from this unique situation. In this study, autoethnography's basic principles were used. The main results suggest that the universities' combined current information and communication technologies, learning management systems, blended learning experiences, training, and supports, although not without hitches, were able to accommodate the shift to a remote virtual classroom model quite effectively. However, the move to fully online assessment has been conceded to likely increase the embedded risk of student cheating. The availability of reliable internet connection for students is also crucial in ensuring access equality and effective remote virtual classroom delivery.

## Keywords

Academic Teaching, COVID-19, Australia, Malaysia, Indonesia, University, Pandemic

## Authors

Hadrian Geri Djajadikerta, Terri Trireksani, Tricia Ong, Saiyidi Mat Roni, Soheil Kazemian, Junru Zhang, Abd Halim Mohd Noor, Shafinar Ismail, Mohamad Azmi Nias Ahmad, Zubir Azhar, Amirul Shah Md Shahbudin, Agus Fredy Maradona, Heri Yanto, and Indah Fajarini Sri Wahyuningrum



# Australian, Malaysian and Indonesian Accounting Academics' Teaching Experiences During the COVID-19 Pandemic

Hadrian Geri Djajadikerta<sup>1</sup>, Terri Trireksani<sup>2</sup>, Tricia Ong<sup>3</sup>, Saiyidi Mat Roni<sup>4</sup>, Soheil Kazemian<sup>5</sup>, Junru Zhang<sup>6</sup>, Abd Halim Mohd Noor<sup>7</sup>, Shafinar Ismail<sup>8</sup>, Mohamad Azmi Nias Ahmad<sup>9</sup>, Zubir Azhar<sup>10</sup>, Amirul Shah Md Shahbudin<sup>11</sup>, Agus Fredy Maradona<sup>12</sup>, Heri Yanto<sup>13</sup>, Indah Fajarini Sri Wahyuningrum<sup>14</sup>

## Abstract

This study analyses and presents accounting academics' experiences in six universities in Australia, Malaysia, and Indonesia to adapt to the swift change to the remote virtual classroom delivery model forced by the COVID-19 pandemic, while also gaining valuable lessons from this unique situation. In this study, autoethnography's basic principles were used. The main results suggest that the universities' combined current information and communication technologies, learning management systems, blended learning experiences, training, and supports, although not without hitches, were able to accommodate the shift to a remote virtual classroom model quite effectively. However, the move to fully online assessment has been conceded to likely increase the embedded risk of student cheating. The availability of reliable internet connection for students is also crucial in ensuring access equality and effective remote virtual classroom delivery.

**JEL classification:** M40

**Keywords:** Academic Teaching, COVID-19, Australia, Malaysia, Indonesia, University, Pandemic

---

<sup>1</sup> School of Business and Law, Edith Cowan University, Australia. [h.djajadikerta@ecu.edu.au](mailto:h.djajadikerta@ecu.edu.au)

<sup>2</sup> Murdoch Business School, Murdoch University, Australia

<sup>3</sup> School of Business and Law, Edith Cowan University, Australia

<sup>4</sup> School of Business and Law, Edith Cowan University, Australia

<sup>5</sup> School of Business and Law, Edith Cowan University, Australia

<sup>6</sup> Murdoch Business School, Murdoch University, Australia

<sup>7</sup> Universiti Teknologi MARA, Melaka, Malaysia

<sup>8</sup> Universiti Teknologi MARA, Melaka, Malaysia

<sup>9</sup> Universiti Teknologi MARA, Faculty of Accounting, Pahang, Malaysia

<sup>10</sup> Universiti Sains Malaysia, School of Management, Penang, Malaysia

<sup>11</sup> Universiti Sains Malaysia, School of Management, Penang, Malaysia

<sup>12</sup> Universitas Pendidikan Nasional, Denpasar, Indonesia

<sup>13</sup> Universitas Negeri Semarang, Faculty of Economics, Semarang, Indonesia

<sup>14</sup> Universitas Negeri Semarang, Faculty of Economics, Semarang, Indonesia

## **Introduction**

The COVID-19 pandemic has shocked and brought along new significant challenges not only to the public health situation but also to the economic, social, and political aspects of people's life. All walks of life experience its effects, including higher education institutions globally. At universities, the way teaching and learning (T&L) was delivered suddenly has been reformed by the COVID-19 situation. Universities have to immediately shift their T&L delivery from predominantly face-to-face or blended learning to a remote virtual classroom or a fully online model to suit the restriction requirements. While different delivery models of online T&L (e.g., blended learning, fully online, or virtual classroom) have been around for some time (Means *et al.*, 2014), not all universities globally have had sufficient infrastructure and support systems, and experiences, to deliver an online, especially a remote virtual classroom, model. More crucially, there had never been an extraordinary event before COVID-19 that forced universities globally to shift all of T&L processes to a digital model quickly on very short notice.

A recent paper by Crawford *et al.* (2020) describes the responses towards COVID-19 made by several universities across twenty countries at the time when the pandemic started. The overall result shows that while the paces and forms of responses vary among these universities, it could be indicated that eventually all would have led to some kind of social isolation strategies and rapid redevelopment to entirely online offerings. The impact of the COVID-19 pandemic has, as expected, also experienced by business schools and their academics (Brammer and Clark, 2020). Along with work intensification for the shifted T&L delivery and the need for swift learning and adaptation, the balance between teaching and research workload has also been affected during this period of crisis.

This challenging situation due to the COVID-19 pandemic has, however, led to interesting and useful opportunities for academics to share their experiences in dealing with the rapid change to the digital T&L delivery model in this extraordinary situation while also taking valuable lessons from this situation to be applied in the future. In this paper, experiences from accounting academics in six different universities in Australia, Malaysia, and Indonesia, representing different levels of technology readiness and income groups, were brought together, analysed, and presented. This study obtains various findings and valuable lessons covering issues of information and communication technology (ICT) readiness, communication and preparation for the change to a remote virtual classroom model, adaptation processes, and issues surrounding the actual deliveries of the remote virtual classroom model.

The remaining of the paper is organised as follows. Section 2 discusses the relevant conceptual background and describes the background setting for the study, while section 3 explains the methodology. Section 4 describes the results and lessons learned from this study, and section 5 concludes the paper.

## **2. Conceptual discussion and background setting**

### ***2.1. Development of T&L in the information technology era***

The information technology era has transformed T&L processes and activities from the more conventional ways to more progressive education structures and approaches in many parts of the world (Goodchild and Speed, 2019). The current culture in the use of ICT has exerted some

pressure requiring most educators and learners to take advantage of the available technology to assist their T&L using an online means. ICT has provided a platform for educators and learners worldwide to co-learn, unlearn, and relearn according to their needs and pace (Arif *et al.*, 2015). While traditionally T&L has adopted conventional approaches that are largely classroom-based, more recently, T&L has increasingly adopted technology-enhanced learning (TEL) approaches that emphasise new learning experience (Goodchild and Speed, 2019; Oke and Fernandes, 2020).

Bower and Vlachopoulos (2018) describe TEL as the embedding of new technologies into T&L, including the training of staff and students to allow effective use of the technology. It is through this technological development that the traditional T&L has been gradually taken over by modern T&L as exhibited through pre-recorded and live lectures, online quizzes, tests, assignments, and many more. Despite such development, there are arguments that both conventional and technological approaches must be working hand-in-hand (or integrate) to achieve desired educational aims. As Kinshuk *et al.* (2016) assert, combining the formal and informal T&L (with the integration of traditional and modern approaches) is essential to adapt to the changing educational environment. Moreover, educators are expected to be agile and proactive in preparing students to face a more challenging future by embracing learning technologies (Samarawickrema and Stacey, 2007).

Nevertheless, one may argue that educators are not the only party that is affected by the development of T&L in the information technology era. Instead, students, being the direct recipients of education (i.e., learners), should lend themselves more into this new education landscape. The demographic gaps (in terms of family income, accessibility to technology, etc.) are significant enough to affect the digital divide substantially (OECD, 2015). To fully benefit from online learning, efforts should transcend from replicating a physical class through video capabilities to utilising a range of collaborative tools and engagement methods efficiently (Bower *et al.*, 2017).

## **2.2. COVID-19 situation affecting higher education and T&L**

In principle, T&L is a process to impart knowledge from the ones who own it to those who need it. This is a careful and pedagogically planned activity to ensure what is taught is learned. Only when both parties are accustomed to and familiar with the platforms on which the knowledge transfer takes place, then the process can be effective. In the wake of the COVID-19, the well-oiled T&L activities were drastically changed and abruptly shifted from mostly face-to-face to remote online delivery in a short span with a large magnitude, which had not been seen in our history (Zimmerman, 2020). Both teachers and students had to adapt the new study norms with little formal training (Krishnamurthy, 2020), which tested their resilience in multiple fronts.

During the COVID-19 pandemic, governments around the world urged the universities to close their campuses and move the T&L activities to a remote virtual classroom or a fully online model. In many jurisdictions, the changes were drastic, leaving the teachers a limited window to learn how to use the online learning platform and preparing materials for online delivery. On the receiving end, the students also had a short time frame to learn to use the online learning platform. This sense of urgency could lead to increased psychological stress among the teachers, which might affect the lecturing performance (Besser, Lotem, and Zeigler-Hill, 2020), and the cognitive capacity of the students to absorb the knowledge.

A report in the Australian news (Hunter, 2020) also describes that the push for the online T&L following the COVID-19 exposed the nation's digital divide. The digital divide is a complex and multidimensional phenomenon in which scholars argue that the issue sits beyond the technical *know-how*. Song, Wang, and Bergmann (2020), for example, propose that the digital divide is a three-faceted conundrum with the ICT access, the ICT use and the ICT outcomes as the first-, second- and third-order respectively.

ICT access has both demand- and supply-side constraints. The supply-side is primarily related to the ICT infrastructure, which is mainly within the domain of the government and the telco providers. On the demand side, the users' socio-economic status (Grishchenko, 2020) can present a hurdle to connect. In higher education, this is practically an affordability issue for both the universities and the students. For example, countries like Australia, Malaysia, and Indonesia have different socio-economic status (see Dutta and Lanvin, 2019), which, together with their individual country technology readiness aspects, may impact the effectiveness of any digital-based activities. As the T&L activities went online, the affordability issue presents a feasibility barrier for the lecturers to continue teaching and the students to continue learning.

The above discussion has led to an interesting and valuable opportunity for knowledge sharing among business academics based on experiences dealing with the rapid changes in the T&L delivery, forced by the extraordinary COVID-19 situation. This paper is accordingly written with that purpose in mind.

### 3. Methodology

This study aims to reflect on the experiences of accounting academics at six universities in three countries in the Asia Pacific region - two in Australia, two in Malaysia, and two in Indonesia - in managing and adapting to a sudden required shift to a remote virtual classroom model due to the COVID-19 situation. It provides valuable inclusive and comparative lessons and challenges faced by the accounting academics and their universities in dealing with this extraordinary circumstance, especially since these three countries represent different levels of technology readiness and income groups. In the 2019 Network Readiness Index (Dutta and Lanvin, 2019), one hundred twenty-one countries were evaluated and ranked against the aspects of technology, people, governance, and impact. Australia is categorised as a high-income economy and ranked 16<sup>th</sup> in the technology readiness aspect. Malaysia is categorised as a lower-middle-income economy that ranked 36<sup>th</sup> in the technology readiness aspect. Indonesia is categorised as a low-income economy and ranked 75<sup>th</sup> in the technology readiness aspect.

Fourteen accounting academics from six different universities contribute their reflections on their experiences moving to and delivering remote virtual classes at their respective universities during the COVID-19 pandemic. In this study, the basic principles of autoethnography approach were applied. Autoethnography is an approach to research and writing that aims to describe and analyse personal experience (Ellis, 2004; Jones, 2005). All of the academics provided their self-reflection at around the same time, and hence the data could be cross-analysed. The analysis was performed iteratively, following steps suggested by Miles *et al.* (2014), including data condensation, data display, and conclusion drawing and verification. In the data condensation process, recurring themes were identified and cross-analysed. Afterwards, narrative descriptions

of the academics' experiences were formed, and conclusions were made and reported as findings of this study.

This paper assigns the following simple labels to the six universities: the two Australian universities are labelled as A1 and A2, the two Malaysian universities are labelled as M1 and M2, and the two Indonesian universities are labelled as I1 and I2. The accounting subjects taught by these academics during the COVID-19 affected semester covered both undergraduate level subjects with class sizes ranging from 15 to 263 students and postgraduate subjects with class sizes ranging from 6 to 93 students.

#### **4. Reflections and lessons learned: Managing T&L challenges due to COVID-19 situation**

##### ***4.1. ICT and online T&L capabilities pre COVID-19 situation***

All academics in this study perceived that their universities were well-equipped with the ICT required for delivering remote virtual classes. The tones of the reflections, however, show some slightly different sentiments regarding the level of sophistication of the technology owned by their individual university. All of the academics have conducted some kind of blended learning at their universities prior to the COVID-19 situation. While some academics felt that the ICT at their universities were clearly at an advanced level, some others expressed that their universities were equipped with adequate ICT but at a level that was more moderate.

For example, a comment from an A1 academic mentioned: *"Since [my University] embarked on technology-enhanced learning, the University and [the School] have put in place several initiatives to ensure that the IT and infrastructure for online delivery are feasible"*, while an I2 academic said: *"The University had some information technology infrastructure, but when it comes to online learning, the University's online learning facilities were still basic."* Despite some differences in the perceived levels of ICT sophistication across the six universities, overall it could be inferred that all six universities were inherently at a fairly equal level playing field in terms of their readiness to handle the ICT demand of the shift to remote virtual classroom model.

All universities also had some kind of learning management system (LMS) that were used for administrating and delivering their blended learning programs, either using platforms such as Blackboard, Moodle or Google Classroom (i.e., at A1, A2, and I2), or using their own internally developed LMS (i.e., at M1, M2, and I1).

##### ***4.2. The forced shift to a remote virtual classroom model***

The timeline of the shift to a remote virtual classroom delivery model due to COVID-19 was somewhat quite similar across six universities in this study. The move to this T&L model was mostly made during the third to the fifth week of the semester, except for one university that did it in the eighth week of its semester. The actual move to the remote virtual classroom model was made between one week to three weeks after the announcements made by the universities. Semester academic calendars were also adjusted to accommodate this T&L model shift. The transition period in M1 and M2 universities, for example, included some additional non-teaching weeks to prepare for the transition. An M2 academic said: *"The way in which how the transition from traditional classroom teaching to a full fledge online teaching was an interesting one. When*

*the decision to halt the teaching ..., the University decided that there would be no classes for the next three weeks.*" Another M2 academic described: *"The [non-teaching transition period] allowed time for students, lecturers, and administrators to prepare themselves for the change."* An M1 academic mentioned: *"the University is looking for the best method to resume studies."*

The universities made their communications to staff and students through various channels. Interestingly, while the two universities in Australia largely communicated with their staff and students via email, the four universities in Malaysia and Indonesia utilised various digital communication channels (i.e., email, website, messenger applications (WhatsApp, Telegram, Line), and social media platforms (Facebook, Instagram, Twitter)). The academics also made contacts with their students via similar channels and through their learning management systems.

Despite some minor confusion and concerns about adaptability level and workload implication raised by some staff in the universities, all of the academics in this study felt that overall the communications made by their universities were managed well. An A1 academic, for example, mentioned *"the University was updating the staff effectively from time to time about every step that was supposed to be taken. We [were] never surprised by any decision made by the University, as everything had been discussed in advance."* Similarly, an I2 academic said *"In general, the process of communicating the changes in the examination system and teaching and learning process was managed well by the University. That is, the University provided detailed guidance about how the move from offline to online learning should be conducted."*

There was also no significant objection from the students with regards to the actual move to the remote virtual classroom model in all six universities. An M1 academic mentioned: *"The majority of students welcome the [T&L model shift]. Only a small percentage disagree because they have no learning materials [since] they left them on campus when they were rushing to go home before the MCO [Movement Control Order]."* An I1 academic described: *"[The students] seem to understand the changes, but some of them concern about their internet connection at homes."* An A2 academic, for example, said: *"Students from my class somehow are very calm and not surprised. They accept the fact that everything is switched [to] online"*. Referring to communication as one of the fundamental aspects of good crisis management (Marra, 1998), the universities and academics in this study apparently had fittingly performed their roles.

#### **4.3. Adaptation and issues in the actual delivery of the remote virtual classroom**

While all academics had had experience delivering some kind of blended learning before the COVID-19 situation, i.e., utilising a learning management system to store some teaching materials and/or pre-recorded lectures, and/or managing some assessments, none had previously any experience in designing, managing and delivering a remote virtual classroom, with fully online assessment, model. Due to this sudden shift to a remote virtual classroom model, rapid learning and adaption were required and expected from the universities, academics and the students. There were many interesting issues emerged across universities during the actual deliveries of these remote virtual classes.

The video conferencing and communication platforms that were used by the academics in this study for their remote virtual classroom teaching and contact with the students turned out to be varied across the university regions. Academics at A1 and A2 used Blackboard Collaborate,

those at I1 and I2 used Zoom, while academics at M1 and M2 used mostly Microsoft Teams, Google Meet, or Webex. At A1 and A2, Blackboard Collaborate had been provided in their university systems, and hence easy access could be made by both the academics and the students. At M1 and M2, there was no real requirement to choose or use a certain platform. Academics at both M1 and M2 had first tried Zoom, but due to security concerns, most had moved to either Microsoft Teams, Google Meet, or Webex. The remote virtual classroom lectures during the semester were done by the academics either from campus, from home, or both.

There were three main issues that could be identified in this study. Firstly, ICT capacity and internet connection. The actual test of the ICT capabilities happened when the remote virtual classroom model was delivered. Overall, all the academics in this study felt that their universities' ICT worked adequately to handle the remote virtual classroom delivery, with some relatively minor glitches that could be sorted out. For example, there had been situations where the system could not cope with the number of students who connected to the system, which made it crashed or froze, or lowered the video and audio quality. Those technical issues could eventually be sorted out and did not lead to any significant effects.

From the students' perspective, some students were fortunate to have a smooth transition to the remote virtual classroom model. An M2 academic, for example, said: *"It was an easy transition for most of them as they all had their own gadgets on which they could easily get online. Students with unstable internet connections had leveraged on free mobile internet provided by the government and other private corporations."* However, it was not a level playing field for all students in other universities and other countries with different socio-economic status. The issue of availability of stable internet connection, or sometimes even adequate access to an internet connection, was quite substantial and problematic for some students. This is mostly an affordability issue affected by the users' socio-economic status (Grishchenko, 2020), which leads to the important issue of access and learning equality. This is obviously an issue that requires great attention in any application of remote virtual classroom model since it affects the effectiveness of the T&L delivery. One suggestion, for example, from another M2 academic, is for *"guaranteed and continuous access of [the] internet with sufficient bandwidth capacity for students to access the online learning platforms being provided by the University."*

The second issue relates to the adaptability of the academics and students to the remote virtual classroom model. All of the academics in this study had some experience in delivering some kind of blended learning, and hence apparently, those experiences assisted them with the transition to the remote virtual classroom model, which was overall achieved well by all of these academics. An M1 academic said: *"I have been teaching ... using the blended learning method, ... With this experience, it can, to some extent, speed up the process of transformation from teaching in the classroom to teaching using online or digital T&L delivery mode."*

Rapid new learning and skill development were expected, and in some of the universities, extensive training were provided by the universities (including some for the students). ICT supports had seemingly also assisted in the delivery process. These short-term stop-gap measures to ensure continuing educational services (Krishnamurthy, 2020) apparently worked fine for the universities and the academics in this study. Some academics also looked for additional external sources to learn, such as YouTube. It was also quite apparent that the fairly satisfactory adaptation of the academics and the universities was influenced by the availability of effective learning management systems and workable conferencing and communication platforms. Nevertheless, the

academic reflections also indicate some difficulties to adapt that were experienced by their colleagues, mostly due to a lack of technological skills and their reluctance to change from the conventional classroom-based T&L model.

The third issue relates to necessary adjustments to the subject materials, assessments, and supports for students. Most academics made only some small changes or even did not make any change to the subject materials. By assessing the levels of sophistication of the prior blended learning and the academics' experience, it could be inferred that those who had previously managed and delivered a more intensive blended learning model would have materials that would be quite suitable for the remote virtual classroom model. Most additional supports given to students were in the form of extra time or an extended due date for completing assignments. All assessments, including the final examination, were made online. In some subjects that usually include questions that required written calculations, mostly they were made into narrative or multiple-choice questions.

While non-invigilated assessments such as online or written assignments (including tests, essays, and reports) are common, usually, the final examination is designed to be invigilated. Hence the embedded risks of cheating in the overall assessment could be limited only to the non-invigilated assignments. In this COVID-19 driven remote virtual classroom model, the final examination was also revised into an online assessment. An A1 academic said: *"A major drawback for online assessments is that supervision would no longer be possible."* Accordingly, it had increased the embedded risks of student cheating due to a lack of invigilation. Nevertheless, all academics had put significant efforts to minimise the potential student cheating, such as using the Turnitin to detect plagiarism, developing many different sets of examination papers, doing some initial check of student identification, etc.

Finally, the reflections gained from the academics in this study were extensive with some more details beyond what were summarised in this article. Other issues, such as effects on workload magnitude and balance, workplace and mental well-being of staff and students due to the pressure of drastic change, support for staff and students beyond the ICT related support, and careful rethinking of value propositions of the universities, were also captured as important issues surrounding this T&L delivery model shift. The final insight gained from this study is that, for now, remote virtual classroom model must still be seen as a method of choice since it is more prone to potential technical and social barriers than the conventional face-to-face or the blended learning, which is less web demanding.

## 5. Conclusion

This study brings together, evaluates, and shares experiences of fourteen accounting academics at six universities in three different countries (i.e., Australia, Malaysia, and Indonesia, representing different levels of technology readiness and income groups) in dealing with and adapting to the abrupt change in teaching and learning process and delivery due to the COVID-19 situation. This forced shift to a remote virtual classroom model had given an unexpected but excellent opportunity for universities and academics to test their capabilities in delivering effective remote virtual classroom model. Overall, the results of the study indicate that all of the academics and their universities included in this study have survived this gigantic test, and considering the circumstance, they were able to deliver appropriate T&L to their students. However, there are

many lessons learned from the experience, which indicate that while the internet provides huge opportunities for an alternative web-based learning environment, the technology infrastructure, and the digital and mental capacities of the academics and students, should be effectively prepared and supported.

The results of our study, in this unique situation and context, contribute to the business T&L literature and could be utilised as valuable practical lessons not only within the COVID-19 context but also in the general context of crisis management. The paper also has several limitations. Firstly, the discussion in this paper was derived from the perspectives of accounting academics in six universities in three different countries, and hence should be inferred within this context. Furthermore, if we consider the number of universities in these three countries, there would likely be much more fruitful experiences that we could gain from other accounting or business academics in other universities. Secondly, there would likely be some other influential and relevant factors surrounding our T&L experiences dealing with this COVID-19 situation that were not captured in this paper. Hence other studies with different settings could be beneficial to expand the lessons learned from this extraordinary circumstance.

## References

- Arif, M., Illahi, M., Karim, A., Shamshirband, S., Alam, K.A., Farid, S., Iqbal, S., Buang, Z., and Balas, V.E. (2015), "An architecture of agent-based multi-layer interactive e-learning and e-testing platform", *Quality and Quantity*, Vol. 49 No. 6, pp. 2435-2458. <https://doi.org/10.1007/s11135-014-0121-9>
- Besser, A., Lotem, S. and Zeigler-Hill, V. (2020), "Psychological stress and vocal symptoms among university professors in Israel: Implications of the shift to online synchronous teaching during the COVID-19 pandemic", *Journal of Voice*, available at <http://www.sciencedirect.com/science/article/pii/S0892199720301909> <https://doi.org/10.1016/j.jvoice.2020.05.028>
- Bower, M. and Vlachopoulos, P. (2018), "A critical analysis of technology-enhanced learning design frameworks," *British Journal of Educational Technology*, Vol. 49 No. 6, pp. 981-997. <https://doi.org/10.1111/bjet.12668>
- Bower, M., Lee, M.J. and Dalgarno, B. (2017), "Collaborative learning across physical and virtual worlds: Factors supporting and constraining learners in a blended reality environment", *British Journal of Educational Technology*, Vol. 48 No. 2, pp. 407-430. <https://doi.org/10.1111/bjet.12435>
- Brammer, S. and Clark, T. (2020), "COVID-19 and management education: Reflections on challenges, opportunities, and potential futures", *British Journal of Management*, Vol. 31, pp. 453-456. <https://doi.org/10.1111/1467-8551.12425>
- Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, p. and Lam, S. (2020), "COVID-19: 20 countries' higher education intra-period digital pedagogy responses", *Journal of Applied Teaching and Learning*, Vol. 3 No. 1, pp. 1-20. <https://doi.org/10.37074/jalt.2020.3.1.7>

- Dutta, S. and Lanvin, B. (2019), *Network Readiness Index 2019*, Portulans Institute, Washington D.C.
- Ellis, C. (2004), *The ethnographic I: A methodological novel about autoethnography*, AltaMira Press, Walnut Creek, California.
- Goodchild, T. and Speed, E. (2019), "Technology enhanced learning as transformative innovation: A note on the enduring myth of TEL", *Teaching in Higher Education*, Vol. 24 No. 8, pp. 948-963. <https://doi.org/10.1080/13562517.2018.1518900>
- Grishchenko, N. (2020), "The gap not only closes: Resistance and reverse shifts in the digital divide in Russia", *Telecommunications Policy*, Vol. 44 No. 8, p. 102004. <https://doi.org/10.1016/j.telpol.2020.102004>
- Hunter, F. (2020), "'Digital divide': 2.5 million Australians with no internet connection", *The Sydney Morning Herald*, 27 March, available at <https://www.smh.com.au/politics/federal/digital-divide-2-5-million-australians-isolated-with-no-internet-connection-20200327-p54egn.html>
- Jones, S.H. (2005), "Autoethnography: Making the personal political", Denzin, N.K. and Lincoln, Y.S.(Eds.), *Handbook of Qualitative Research*, Sage, Thousand Oaks, CA, pp.763-791.
- Krishnamurthy, S. (2020), "The future of business education: A commentary in the shadow of the Covid-19 pandemic", *Journal of Business Research*, Vol. 117, pp. 1-5. <https://doi.org/10.1016/j.jbusres.2020.05.034>
- Marra, F.J. (1998), "The importance of communication in excellent crisis management", *Australian Journal of Emergency Management*, Vol. 13, No. 3, pp. 6-8.
- Means, B., Bakia, M. and Murphy, R. (2014), *Learning online: What research tells us about whether, when and how*, Routledge, New York. <https://doi.org/10.4324/9780203095959>
- Miles, M.B., Huberman, A.M. and Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook*, Sage, Thousand Oaks, California.
- Oke, A., and Fernandes, F.A.P. (2020), "Innovations in Teaching and Learning: Exploring the Perceptions of the Education Sector on the 4th Industrial Revolution (4IR)", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 6 No. 2, p. 31. <https://doi.org/10.3390/joitmc6020031>
- Organisation for Economic Co-operation and Development. (2015), *Education policy outlook 2015: Making reforms happen*, OECD Publishing, Paris.
- Samarawickrema, G. and Stacey, E. (2007), "Adopting web-based learning and teaching: A case study in higher education", *Distance Education*, Vol. 28 No. 3, pp. 313-333. <https://doi.org/10.1080/01587910701611344>
- Song, Z., Wang, C. and Bergmann, L. (2020), "China's prefectural digital divide: Spatial analysis and multivariate determinants of ICT diffusion", *International Journal of Information Management*, Vol. 52, p. 102072. <https://doi.org/10.1016/j.ijinfomgt.2020.102072>

Zimmerman, J. (2020), "Coronavirus and the great online-learning experiment", *The Chronicle of Higher Education*, 10 March, available at <https://www.chronicle.com/article/coronavirus-and-the-great-online-learning-experiment/>