1. A context for teaching with technology in management, leadership, and business

Stuart Allen, Kim Gower, and Danielle K. Allen

In May 2000, Scott Cook Chairman of Intuit Incorporated stated, “We’re still in the first minutes of the first day of the Internet revolution” (Levingston 2000, para. 2). Almost 20 years later it seems likely that educators are still in the early days of an ongoing change to new pedagogical techniques, modalities, and norms that draw upon technologies such as artificial intelligence (AI), machine learning, smart campuses and cities, the Internet of things, robots, and others. Many management and leadership educators have integrated technology into their classrooms in step with developments over the past few decades, evolving their pedagogy with the advent of video, computers, the Internet, virtual worlds, smartphone applications (apps), and social media. Distance education that uses online learning management systems (for example, Moodle, Blackboard, and Canvas) and apps form part of many management and leadership programs, whether presented in online, hybrid, or face-to-face formats.

The context of management, leadership, and business education is not just related to the technologies used in higher education. Students require preparation for leading, managing, and collaborating in workplaces that rely on technology and increasing virtual work with peers, customers, suppliers, and other stakeholders using technology to facilitate communication and support organizational effectiveness (Bligh and Riggio 2012). Management and leadership are increasingly delivered through or by technology. Consider the example of Uber (Kahai 2018), where employees receive instructions and feedback from an app. The evolving world of technology and its critical role in the global economy for leaders, managers, and business professionals starts with learning. This handbook combines insights from research and practice to provide a reflection on the current use of technology in higher education management, leadership, and business courses and programs, providing glimpses of the future.

The chapters in this volume were written by experienced practitioners using technology in novel and effective ways in their management and leadership classes (undergraduate and graduate), as well as by researchers reporting and reflecting on studies and literature that can guide instructors on the challenges and benefits of teaching with technology. This book is not limited to practice, literature, or research but instead considers all three to highlight the synergy of using technology in education.

THE EVOLVING CONTEXT

One of the most interesting stories we heard during our involvement in the “Teaching with technology” professional development workshops (PDW) at the Academy of Management’s (AOM’s) Annual Conference over the past decade was shared by Randy

Dunham, in which he described the early origins of the workshops which began in 1998. Randy was one of the originators of the workshop and a presenter for almost 20 years. These workshops started in the late 1990s, an era when overhead projectors were still a common technology used in classrooms (with many chalkboards, too). In this same era, video typically meant video cassette recorders used in combination with cathode ray tube televisions, before digital versatile disks (DVDs) and the modern flat panel light-emitting diode (LED) monitors and televisions became more common. While DVD players started to be used at the turn of the millennium, they were only commonly used after about 2002. Online learning management systems (LMSs) such as Blackboard, Moodle, and Canvas were scarcely in use around this time, although early versions of these systems appeared during the mid-1990s. Randy shared how challenging the transition was when the first data projector was used at AOM and how there was so much consternation surrounding this innovation.

For many educators, data projectors are no longer a rare commodity and are common to many physical classrooms. For some, data projectors are increasingly irrelevant as teaching takes place online, with smartphones and mobile devices steadily becoming the dominant means for students to watch presentations and videos, interact with instructors and peers, complete readings, and learn. However, we are aware that our readership (even instructors at the most resourceful schools) still sometimes lack access to basic technologies, cannot always get them to work as they want to or should, or have not mastered their effective use to support learning.

New ways to deliver learning content have allowed for innovative pedagogies such as flipped learning where students learn the content online (for example, videos, readings, and narrated presentations) and come to class for interaction, experience, and demonstration to support their learning (Arbaugh 2014). There are a gamut of needs and contexts that readers may find themselves in – some with technology-access issues and others with technology-use issues (how best to use technology in teaching and learning). In general, within this book, we have attempted to consider both by focusing on technologies that are free, affordable, and in common use. We have also attempted to ensure examples and how-to guides are included to support the use of technology. Implicit to the question of how to best use technology to support teaching and learning, we have encouraged a critical perspective and included insights on evaluating the effectiveness of technology in teaching and learning. We have also assumed, as flipped learning has demonstrated, that technology is not a negative force in higher learning but, when used effectively, can free up the student and instructor to focus on deeper learning.

A balanced view is needed when it comes to the role of technology in higher education. Some foresee educators being replaced by technology (Quora 2017; Haw 2019). Similar discussions have occurred regarding the replacement of the workforce with robots but have also highlighted that this change will lead to new roles for humans and support changes in how society is shaped, some of which will inevitably be positive (Hyancinth 2017). While aspects of higher education will be delivered and managed by technology, it can also be argued that true learning, at the cutting edge of human knowledge and experience, can be enhanced by the technology, freeing educators from the most routine aspects of grading and drumming out the same content year after year to focus on new discoveries, unique contexts, and meaningful relationships. Technology might enable learning in higher education to overcome some of its inefficiencies and lack of relevance.

The role of the educator will inevitably be redefined within the next decades, but that might not be a bad outcome, as it allows educators to go beyond transferring knowledge and skills, and to engage the mind and spirit in richer ways.

As Rickman (2004, para. 1) notes, “Training is about practice, about skill, about learning how to do things. Education is about fostering the mind, by encouraging it to think independently and introducing it to knowledge of the physical and cultural world. It’s about theory, understanding and a sense of values”. In this context, learning will continue with some help from technology to enable courageous management, leadership, and business educators to demonstrate their leadership in guiding this transformation.

TECHNOLOGY DIFFUSION IN HIGHER EDUCATION

Many of this book’s independently written chapters begin with statements about the growth of online learning, the increased use of technology in face-to-face and online classrooms, the expectation and comfort of the younger generation with technology (digital natives), the use of smartphones and apps, and the new affordances technology brings to education. However, looking back at the Babson Research Survey Group’s reports about distance education in the US between 2002 and 2018 (for example, Seaman et al. 2018), it is evident that most educators and educational administrators barely need to argue for why technology should or will play a greater role in education, as it is already playing a massive role. For 14 years, distance education (defined as instruction through technology) has grown, while total higher education enrollments have declined in the past four years. Many on-campus students now take distance courses, and distance education is edging up on face-to-face classes as the dominant location of instruction. While online learning has often been touted for its benefit of flexibility in attending class at more convenient hours without coming to campus, the appeal of this modality now extends well beyond nontraditional, working adult students (for example, military service members) who appreciate being able to take a course suited to their lifestyle or job. Based on research and the trends in this book, teaching and learning with and through technology seems set to become the dominant modality within the next decade.

With the advent of new technologies and their adoption, there is a point at which society exceeds the feeling of novelty. For example, the Pew Research Center reports that 96 percent of Americans have a mobile phone and 81 percent a smartphone (Mobile fact sheet 2019). Phones are no longer something new, and new capabilities continue to be added to them. There are now more members of society who have grown up learning through technology, as learning management systems, iPads, and smartphones are being increasingly woven into formal education. Given that over 50 percent of teenagers now have a smartphone by the time they are 11 years old (Kamentz 2019), it seems likely that much of the informal learning that the younger generation experiences is also influenced and facilitated by technology and the Internet.

The theory of the diffusion of innovation (Rogers 2003) suggests that people can be divided into categories based on how they respond to innovations, namely, the innovators (2.5 percent), early adopters (13.5 percent), early majority (34 percent), late majority (34 percent), and laggards (16 percent). These categories are presented along a curve, showing how innovations are initially adopted by a limited group (innovators) but grow in

popularity until a critical mass is achieved and the innovation becomes part of the social system, and a vehicle and expression of culture. Based on the figures from the National Center for Education Statistics (Fast facts 2019), in 2017, 33.7 percent of students were enrolled in at least one distance education course (a 2.1 percent growth over the previous year), suggesting that the US is nearing that critical mass in terms of its adoption of online learning. Notably, many courses that are not classified as distance education still use an LMS and other technologies.

Rogers (2003) suggests that responses to innovation move through five stages in the adoption process: awareness, interest, evaluation, trial, and adoption. For online and mobile learning, society is in a phase of mass adoption, and yet the technologies that are in use are often still in rapid stages of development to the extent that they are far from maturity (as we might argue the personal computer is). Smartphones and apps still have their glitches, and most apps have not reached the full capabilities that they are likely to, such as with the advent of wearables and future customization of interfaces that AI (including machine and deep learning) will allow. Educators are still within a curve as they adjust to existing technologies, while facing an annual onslaught of new and evolving apps, technologies, and ways of using technology. The curve of innovation might slow one day, but for now it seems that educators are within a period of adjustment.

Our opinion, based upon our work with the contributors to this book and the PDW attendees each year, is that we can see how varied management and leadership educators are in their adjustment, with some facing their first online class in 2020 and others working innovatively in adapting their pedagogy to the latest smartphone apps and robotic devices. As is evident in this book, unlike the “Teaching with technology” PDWs in the 1990s, most educators are not looking at how to use an overhead projector more effectively or how to transition to a data projector from a chalkboard, but are dealing with far deeper questions in reaction to the onslaught of technology. Will we have instructors anymore? What role will they play? Is technology serving its master or is technology being used for its own sake? How effective can learning become with the aid of technology?

Central to the recent wave of change in distance and online learning are the computer, mobile phones, and the Internet. However, these technologies have only played a part in the change. Inevitably, how educators and students have responded to these innovations by seeing opportunities for technology to be used in new ways, has led to the actual changes in the sociocultural patterns of education. As Bridges (2009) suggests, change is external, but transition or mastering the change is internal. Technology represents the change in higher education’s context, and the transition is how educators adjust their pedagogy and come to terms with this change. Technology is also not just the devices, networks, and software or apps that power devices but also the techniques for how these devices are used. Therefore, we believe that the greatest innovations will continue to come from passionate teachers and learners who seek to strengthen teaching and learning through embracing new techniques that incorporate technologies.

Similarly, educators and higher education face the impact of push and pull forces of the market, as the organizations where students will work or currently work create demands on students to perform with knowledge of current technologies. Universities also seek to be innovators, enabling students to arrive in the workplace with the advantage of cutting-edge technological knowledge and the capability to develop and implement, or innovate, new technologies. In the rush to introduce new technologies in first-to-market strategies

and keeping up with the college or university next door (or, increasingly, national and international competitors), universities and colleges are adopting and absorbing new technologies. Whether these technologies are truly effective and sustainable is a question that might only be answered over time, and these questions are explored in this book.

The question of whether higher education will be better off after such intensive change is worth thinking about. During and after any period of rapid change (in this case technology and education), consolidation is needed in order to dispose of the gimmicks and hold on to technologies and changes that truly add value. We are hopeful that, especially if educators keep their eyes on students' learning as the central outcome in adapting and adopting technology in the classroom, this period of change will end with a higher education system that is more adaptive, inclusive, accessible, relevant, affordable, and effective.

There is a difference between teaching and learning. Teachers' primary concern should be with learning, since when teaching is effective, learning occurs. However, the two can become decoupled in that the obsession with teaching can center on the beauty of the form or product created (such as an innovative online course full of entertaining and innovative materials and activities), while missing the learning (especially of some students). This becomes easier when faculty evaluations are skewed in particular ways to make faculty look good for doing so. A primary question then is, which technology tools aid student learning within specific domains, and which tools aid specific students within varied domains? Within some expressions of teaching with technology, the teacher barely teaches (in the traditional sense of speaking from the front of the class) but the student still learns. In this context, excellence in the design of learning, from selecting content to identifying how a varied group of students can best learn through appropriate learning activities, is the central goal of great teachers. Technology is then a tool within this educational process but not its ultimate expression or measure of learning.

Jack Ma, former chair of the Chinese Alibaba group, billionaire, philanthropist, and politician, expressed that computers (including robots and AI) are smarter than humans and that people therefore cannot compete with the productivity of robots (see also, Hyacinth 2017). Therefore, Ma continues, the future of education does not lie in knowledge that computers can more readily store and process, beyond human capabilities, but instead in teaching values, beliefs, independent thinking, teamwork, caring for others, and culture such as art, music, and sports, which set humans apart from machines (World Economic Forum 2018). Management and leadership educators can play a key role in differentiating humans from machines, ensuring that students can play a greater role in the organizations and societies of the future. Teaching with technology has added a new dimension to this challenge. Technology is an input, process, and output of higher education, and how it is used determines if education is meaningful and value-adding to society and organizations.

CONCLUSION

In many chapters of this book, readers will find the authors referring to exemplars of effective approaches to teaching and learning (for example, active learning, experiential learning, community-based learning, and mastery orientation). These chapters showcase that, instead of rote memorization, students have learned (a relatively permanent change

in behavior) the knowledge, attitudes or values, and skills designed into technology-support course objectives. It is this learning that will propel them to be successful members of their future organizations because they have become lifelong learners. That is, great teaching supports great learning, and great learning supports lifelong learning through enjoyment of sense of achievement and outcomes of learning. Technology can be an important aid to that learning.

In a January 2020 article authored by Jeff Selingo (former editor at *The Chronicle of Higher Education*), he reminds us that distance learning began in the 1800s via the mail system delivering materials to students who could not attend onsite classes, who also returned their assignments via the mail. He supports many of the premises of the authors in this handbook about the effective use of technology without sacrificing, but rather enhancing, the learning skills that are now a critical part of the world:

It's been called everything from "universal learning" to the "60-year curriculum" to "lifelong learning." The idea that learning is always on is nothing new ... The skills needed to keep up in any job are churning at an ever faster rate, making it increasingly difficult for legacy degree programs at traditional universities to keep up. Master's degrees and certificates used to be seen as the credentials to stay current in a career but they offer too much, take too long, and cost too much in an era when people need skill development constantly and in much shorter spurts ... colleges and universities need to shift their thinking from serving students to the needs of learner. (Selingo 2020, para. 6)

In an ideal world, technology can support universities in finding ways to balance their societal role as a pillar of the community by continuing to be centers of innovation and research, agents of change, communities of scholarship and wisdom, and contributors to the highest levels of learning.

In this book, readers will find the passion and careful planning that the authors put into their work, which are rooted in their student-first approaches based on the needs of learners. In some instances, this can be accomplished easily and effectively with technology, and the authors will lead readers through their planning and implementation processes. In others, a progression of thought is evident in creating twenty-first century learners through some of the most current technology available, which is firmly planted in the ideals of creating reflective, collaborative, and critically thinking lifelong learners.

As the editors, we are honored to have worked with such a dedicated group of management, leadership, and business educators who are also lifelong learners and who are willing to look for continuous improvement and share their ideas and outcomes with others. We firmly believe that you will find value in every chapter, just as we have.

REFERENCES

- Arbaugh, J.B. (2014), 'What might online delivery teach us about blended management education? Prior perspectives and future directions', *Journal of Management Education*, **38** (6), 784–817.
- Bligh, M.C. and R.E. Riggio (eds) (2012), *Exploring Distance in Leader-Follower Relationships: When Near Is Far and Far Is Near*, New York: Routledge.
- Bridges, W. (2009), *Managing Transitions: Making the Most of Change*, Philadelphia, PA: Da Capo Press.
- Fast facts (2019), 'Fast facts', National Center for Educational Statistics, Washington, DC, accessed 20 December 2019 at <https://nces.ed.gov/fastfacts/display.asp?id=80>.
- Haw, M. (2019), 'Will AI replace university lecturers? Not if we make it clear why humans matter',

- Guardian*, 6 September, accessed 20 December 2019 at <https://www.theguardian.com/education/2019/sep/06/will-ai-replace-university-lecturers-not-if-we-make-it-clear-why-humans-matter>.
- Hyacinth, B.T. (2017), *The Future of Leadership: Rise of Automation, Robotics and Artificial Intelligence*, e-book, Kindle DX version, accessed 20 December 2019 at <https://www.amazon.co.uk/Future-Leadership-Automation-Artificial-Intelligence/dp/976960920X>.
- Kahai, S. (2018), 'E-leadership: an essential part of doctoral leadership education', in L. Hyatt and S. Allen (eds), *Advancing Doctoral Leadership Education through Technology*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. 11–35.
- Kamentz, A. (2019), 'It's a smartphone life: more than half of U.S. children now have one', NPR, 31 October, accessed 20 December 2019 at <https://www.npr.org/2019/10/31/774838891/its-a-smartphone-life-more-than-half-of-u-s-children-now-have-one>.
- Levingston, A. (2000), 'Internet entrepreneurs are upbeat despite market's rough ride', *New York Times*, 24 May, accessed 20 December 2019 at <https://www.nytimes.com/2000/05/24/business/worldbusiness/IHT-internet-entrepreneurs-are-upbeat-despite-markets.html>.
- Mobile fact sheet (2019), 'Mobile fact sheet', 29 June, accessed 20 December 2019 at <https://www.pewresearch.org/internet/fact-sheet/mobile/>.
- Quora (2017), 'The future of massively open online courses (MOOCs)', *Forbes*, 23 March, accessed 20 December 2019 at <https://www.forbes.com/sites/quora/2017/03/23/the-future-of-massively-openonline-courses-moocs/#a031fa36b830>.
- Rickman, P. (2004), 'Education vs training', *Philosophy Now*, August–September, accessed 20 December 2019 at https://philosophynow.org/issues/47/Education_versus_Training.
- Rogers, E.M. (2003), *Diffusion of Innovations*, 5th edn, New York: Free Press.
- Seaman, J.E., I.E. Allen and J. Seaman (2018), *Grade Increase: Tracking Distance Education in the United States*, Wellesley, MA: Babson Survey Research Group.
- Selingo, J. (2020), '3 things to watch for in 2020 and beyond', *Open Campus*, 7 January, accessed 20 December 2019 at <https://www.opencampusmedia.org/2020/01/07/3-things-to-watch-for-in-2020-and-beyond/>.
- World Economic Forum (2018), 'Jack Ma: love is important in business – Davos 2018', video, accessed 20 December 2019 at <https://www.youtube.com/watch?v=4zzVjonyHcQ>.