Chapter 28
Is the Avalanche of E-learning Coming to the UAE?

Dennis Lee, Elissar Toufaily, and Tatiana Zalan

Abstract The higher education system worldwide is on the cusp of disruptive change due to innovative education providers such as digital platforms and universities offering fully online or blended programs. While the e-learning industry in the UAE is projected to grow significantly, the level of adoption of e-learning has not been high. The overall purpose of our multistage research project is to understand the barriers to the adoption of e-learning in the UAE despite the benefits of online education, such as lower costs and pedagogical benefits. We propose a preliminary conceptual framework explaining the students' attitudes and intention to adopt e-learning. In our future research, we will refine and test the conceptual framework and provide guidelines for higher education institutions and policymakers on institutional change to support e-learning initiatives.

Keywords Higher education • E-learning • Students' perceptions • Barriers to adoption • The UAE

Introduction

The title of the paper alludes to the widely cited report by Barber, Donnely, and Rizvi (2013) *An Avalanche is Coming* on the potentially disruptive change facing the global higher education system. Specifically, a new phase of competition is emerging, as the very notion of the traditional university is coming under pressure from innovative "disruptors" such as digital platforms (e.g., Coursera, edX, and Udacity) and universities offering low cost fully online or blended programs (Weise & Christensen, 2014; Barber et al., 2013). For example, the growth of applications to online MBAs has outstripped some traditional formats of the degree (Murray, 2016). These changes are driven by escalating costs and tuition fees in traditional universities, learners' desire for flexibility, and advances in ICT. These developments go

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hand in hand with the globalization of the higher education industry and improvements in e-learning pedagogy enabling a fusion of modularization and mastery-based learning (Bowen, 2012; Christensen & Eyring, 2011; Weise & Christensen, 2014). For the purposes of this research, we define *e-learning as web-based learning which utilizes web-based communication, collaboration, multimedia, knowledge transfer, and training to support learners' active learning without the time and space barriers* (Lee, Yoon, & Lee, 2009).

The e-learning market in the Middle East is projected to grow to US$560M in 2016, at an annual growth rate of 8.2 % (Docebo, 2014). While the UAE (and the region) scores well on e-readiness (i.e., adoption of digital technologies) (UNESCO, 2013), the adoption of e-learning has not been as widespread: currently, the UAE boasts only one fully online university (Hamdan Bin Mohammed Smart University). In line with the global trend, the costs of higher education in the UAE have been rising. On the other hand, e-learning provides many opportunities for media-based, student-centered, and interactive learning environments that support active learning and critical thinking (Huffaker & Calvert, 2003), skills that are perceived to be largely missing yet critical for the UAE students to be able to participate in the knowledge economy, locally, and globally (Hvidt, 2015). As reputable institutions enter the UAE market with fully online or blended deliveries in increasing numbers, the future of traditional local universities may be in serious jeopardy.

The overall purpose of our multistage research project is to understand the barriers to the adoption of e-learning in the UAE despite the benefits of online education, such as lower costs (reflected in the prices paid by students) and pedagogical benefits. More specifically, the objectives are to:

1. Propose a preliminary conceptual framework explaining the students' attitudes and intention to adopt e-learning;
2. Refine and test the conceptual framework from students' perspective; and
3. Provide guidelines for higher education institutions and policymakers on institutional change and support for e-learning initiatives.

The paper proceeds as follows. We start with the section "Literature Review" which has informed our preliminary conceptual model (section "Preliminary Conceptual Framework"). Our research design is explained in the section "Research Design," and references are provided in the last section of the paper.

Literature Review

As stated in the introductory part of the paper, barriers to e-learning in the UAE, a country with high level of ICT penetration, and an extensive offering of online courses are of great concern to educational institutions and policymakers. A large number of studies investigated the learner's acceptance of e-learning, the instructor's acceptance of e-learning, and organizational and strategic factors that affect the adoption and delivery of e-learning. Prior literature has identified several factors as barriers to, and drivers of, e-learning from a student perspective. For example, Law,

Lee, and Yu (2010) find that extrinsic motivational factors such as social pressures and competition have a considerable impact on student learning, and that both intrinsic (such as individual's attitude and expectation) and extrinsic motivators (such as rewards and recognition) significantly influence students' self-efficacy. Hernandez, Montaner, Sese, and Urquizu (2011) propose the use of extrinsic motivators (i.e., doing an activity for specific reasons) in order to improve the learning outcomes and experiences of online learners. Students can be motivated if they are able to gain recognition from their instructors. This will improve the students' attitude to learning because a positive attitude enables learners to use more ICT interactive tools to prove to the instructor that they deserve high grades. When students adopt online learning components, Smart and Cappel (2006) found that the senior students have more technological experience than the freshman and junior students. This is because these fourth year students are better independent learners than the younger students.

Instructor performance also impacts the e-learner satisfaction. According to Bolliger and Martindale (2004), online learners will find satisfaction when they can easily access technology. This satisfaction has positive correlation with the performance of online instructors: the online instructors must be perceived as available at all time, be a motivator to the student, and communicate with students on a regular basis (Sun, Tsai, Finger, Chen, & Yeh, 2008). However, the absence of interaction based on a face-to-face context is a major concern in online teaching and learning (So & Brush, 2008). Students are often in isolation and unsupported during the learning process (Cereijo, 2006); moreover, they are expected to be motivated and self-disciplined to work as independent learners without getting much assistance from instructors. Students who are more confident in their ability to use e-learning on their own are more likely to become good users of e-learning (Abbad, Morris, & De Nahlik, 2009).

Another stream of research has demonstrated that the Internet and technology quality affect satisfaction with e-learning (e.g., Piccoli, Ahmad, & Ives, 2001) and that e-learning course quality has a large positive effect on e-learners' satisfaction (Sun et al., 2008). In order to ensure the delivery of high quality e-learning courses at universities, Ehlers (2009) recommends that a set of standards be adopted to evaluate learning content and processes, and certifying and accrediting programs and institutions. A combination of factors like retention rate, academic outcomes, and success in online student and faculty support are considered as important to make a quality online course (Shelton & Saltsman, 2004). To influence students' learning performance, there should be well-designed courses, curricula, and learning materials, which will facilitate meaningful educational experiences. Institutions who offer e-learning courses must therefore attain curriculum quality certification from accreditation sources to enhance and improve teaching excellence (Bhuasiri, Xaymoungkhoun, Zo, Rho, & Ciganek, 2012).

A number of studies have investigated the benefits of e-learning to students and instructors, such as the flexibility of the online delivery format (Chakraborty & Nafukho, 2015). E-learning allows students to study in a self-paced mode as compared to traditional classroom learning. Students consider online learning as both place- and time-independent, permitting them to continue their conversations with instructors without any interruptions (Arbaugh, 2002). This model of delivery is of particular

benefit to students who want to balance their studies, family, and work-related activities if they take an online course (Sun et al., 2008). Likewise, Maki, Maki, Patterson, and Whittaker (2000) find that students perceive the convenience of the online course as a benefit and enjoy the flexibility of the online learning environment. The online classroom setting encourages more student participation, and provides students with a better chance to reflect and research before discussing the issues in classes (Ni, 2013).

Contextual factors have been found to influence e-learning. Specifically, culture appears to have a major impact on learning preferences and information processing capacity of individuals (Samovar, Porter, & McDaniel, 2009). The cultures of the Middle Eastern cluster of countries have high preferences for avoiding uncertainty (House et al., 1999; Ronen & Shenkar, 1985). According to Hofstede (2011), people in these cultures feel threatened when faced with ambiguous or unknown situations. states that the introduction of e-learning will pose a considerable challenge to Arab students. A study by the World Bank in 2007 stated that students in this region are passive learners and do not apply their learning through critical thinking (Galal, 2007). Many of these students are highly dependable on their teachers when they want to acquire new knowledge (Lansari, Tubaishat, & Al-Rawi, 2010). A recent report by the Dubai School of Government's Governance and Innovation Program reveals that many students who are enrolled in universities are still lacking problem-solving, critical thinking, and communication skills (Salem, Mourtada, & Alshaer, 2013). This lack of skills will thus be a big obstacle in the e-learning environment for the young Arab students who are more accustomed to rote learning during their early schooling. Clearly, if online learning is integrated with face-to-face learning, the sociocultural environment may affect students' perceptions (Alebaikan & Troudi, 2010). Alebaikan and Troudi (2010) state that students in Saudi universities are finding the new way of learning confronting, as they have been used to the traditional classroom-based lecture. Yet in another study by Al-Jarf (2005), freshman students were not taking online classes seriously because they were not used by existing instructors at the college. Further, the low public esteem for online learning in the workplace is another important reason to reject e-learning by many universities, academics, and students (Mirza & Al-Abdulkareem, 2011). According to Dirani and Yoon (2009), the online degree is seen to give access to fewer job opportunities and is not perceived as comparable to traditional degrees. Additionally, the learner's attitude and lack of prior knowledge of IT use are major factors that affect the acceptance of e-learning by students (Selim, 2007; Ozkan & Koseler, 2009). Finally, language is a barrier to adoption as online repositories that contain educational material in the Arabic language are lacking (Al-Khalifa, 2008).

Preliminary Conceptual Framework

Based on the literature review, a preliminary conceptual framework (Fig. 28.1) is proposed. This conceptual model identifies three major categories—offer characteristics, individual and psychological characteristics, and sociocultural factors—that influence learner' attitudes, which in turn will affect his/her intention to adopt e-learning.

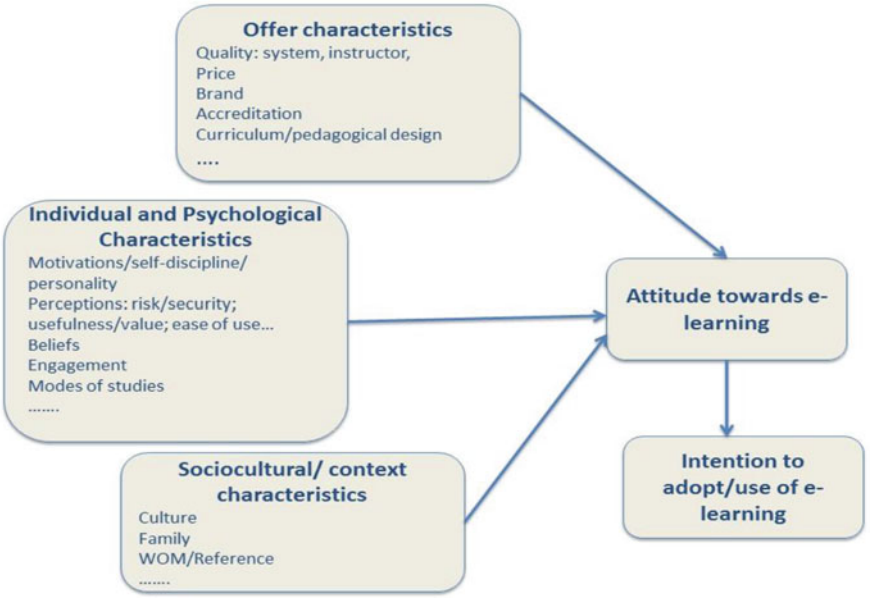

Fig. 28.1 Preliminary conceptual framework

Research Design

In order to understand the issues associated with the perceptions of e-learning and barriers to adoption in the UAE context, a mixed-method design will be used comprising two stages. A qualitative approach will be used in stage 1 with the purpose to capture the different barriers to the adoption of e-learning by the UAE students. Stage 1 will result in a clearer understanding of the UAE context-specific constructs that will emerge from respondents' answers. The outcome will be a refined theoretical framework (with added and/or removed constructs) based on the findings in stage 1, which will provide richness and a thorough understanding of the topic. A series of in-depth interviews will be conducted with university students who did not complete an online course offered by a higher education institution in the UAE or abroad. According to the Ministry of Higher Education and Scientific Research, in 2014 the offering of online courses and e-learning program is extensive, with 105 online foreign universities have been accredited by the UAE. Of those universities, 46 are in the United Kingdom, 34 in the USA, and five in New Zealand (The National, 2014)

The number of interviews is not fixed in advance. Sample size should generally follow the principle of saturation (Glaser & Strauss, 1967), whereby data collection stops when new data do not shed any further light on the issue under investigation. Following Miles and Huberman (1994), a purposeful sampling technique will be used to identify and target the specific individuals representing the spectrum of knowledge and experience relevant to this study.

Stage 2 will focus on the quantitative data collection via an online structured questionnaire that includes the constructs identified through the literature review and refined in stage 1. Data will be collected from a sample of BA and MBA students in the UAE. Questionnaires will be revised by experts (mainly academics) with significant understanding of e-learning to evaluate the length and appropriateness of the questions. Then, a quantitative pretest to ensure the reliability and the validity of the measurement instruments will be conducted on a pilot sample of 30 students with no prior e-learning experience. After refining the scales, an online survey instrument (via Survey Monkey) will be administered. An email invitation will be sent to students from universities across the UAE to participate in the study including the site link. We have identified four universities through professional networks, with academic colleagues showing interest in assisting with the data collection. Moreover, to secure a high response rate, the questionnaire will also be administered to students face to face by visiting classes and asking students to complete the questionnaire. The criterion to qualify a respondent for the surveys is that the student has never been enrolled in an online course or program before. We aim at a sample size of at least 500 students, as it is recommended for studies with descriptive and explanatory purposes (Malhotra, 2010).

For consistency, measures will be adopted or derived from previous studies on online education and student perceptions. A seven-point Likert scale ranging from 1 (strongly disagree) to 7 as (strongly agree) will be used.

Descriptive statistics using SPSS software will be used to describe the profile of the sample as well as the constructs of the study. Then, confirmatory factor analysis will be conducted to evaluate the adequacy of the model using EQS 6.1. Convergent and discriminant validity of the scales will be assessed consistent with the Fornell and Larcker (1981) guidelines. Finally, structural equation modeling will be performed. The hypothesized relationships in the proposed research model will simultaneously be tested via path analysis. The results of the structural equation model will be interpreted and guidelines for higher education institutions and policymakers will be proposed.

Conclusion

The research project will result in a conceptually grounded and empirically verified model of e-learning adoption, which will contribute to a detailed understanding of the barriers and enablers of e-learning adoption in the UAE context, which is currently lacking.

The expected results will help decision markers in higher education institutions to face these barriers, strengthen the implementation of e-learning, and build strategies to improve the learner satisfaction. The results may provide an opportunity to better understand the media-based, leaner-centered, and interactive environments that support active learning and critical thinking. Additionally, results will help prac-

titioners and especially students and managers with full-time jobs to continue pursuing education and degrees with more flexibility and satisfaction. Furthermore, by understanding the e-learning environment, its drivers, and barriers, system administrators will be able to ensure all system functionalities and system performance for a better learning. When assessing learners' perceptions of the quality and enthusiasm of instructors, school administrators will have guidelines in selecting and training instructors for e-learning courses. Higher education institutions will be provided by guidelines on institutional change and support for e-learning initiatives.

References

Abbad, M. M., Morris, D., & De Nahlik, C. (2009). Looking under the bonnet: Factors affecting student adoption of e-learning systems in Jordan. *The International Review of Research in Open and Distributed Learning, 10*(2).

Alebaikan, R., & Troudi, S. (2010). Blended learning in Saudi universities: Challenges and perspectives. *Research in Learning Technology, 18*(1).

Al-Jarf, R. S. (2005). The effects of online grammar instruction on low proficiency EFL college students' achievement. *Asian EFL Journal, 7*(4), 166–190.

Al-Khalifa, H. (2008). Building an Arabic learning object repository with an ad hoc recommendation engine. In *Proceedings of iiWAS2008*, November 24–26, 2008, Linz, Austria, pp. 390–394.

Arbaugh, J. B. (2002). Managing the on-line classroom: A study of technological and behavioral characteristics of web-based MBA courses. *The Journal of High Technology Management Research, 13*(2), 203–223.

Barber, M., Donnely, K., & Rizvi, S. (2013). *The avalanche is coming*. London: Institute for Public Policy Research.

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.

Bolliger, D. U., & Martindale, T. (2004). Key factors for determining student satisfaction in online courses. *International Journal on E-learning, 3*(1), 61–67.

Bowen, W. C. (2012). *The 'cost disease' in higher education: Is technology the answer?* The Tanner Lectures, Stanford University, October. http://ithaka.org/sites/default/files/files/ITHAKA-TheCostDiseaseinHigherEducation.pdf. Accessed 20 January 2012.

Cereijo, P. M. V. (2006). Attitude as predictor of success in online training. *International Journal on E-Learning, 5*(4), 623–663.

Chakraborty, M., & Nafukho, F. M. (2015). Strategies for virtual learning environments: Focusing on teaching presence and teaching immediacy. *Internet Learning, 4*(1), 2.

Christensen, C., & Eyring, H. (2011). *The innovative university: Changing the DNA of higher education from the inside out*. San Francisco, CA: Jossey-Bass.

Dirani, K. M., & Yoon, S. W. (2009). Exploring open distance learning at a Jordanian university: A case study. *The International Review of Research in Open and Distributed Learning, 10*(2).

Docebo. (2014). *e-Learning market trends and forecast 2014—2016.* https://www.docebo.com/whitepaper-elearning-market-trends-and-forecast-2014-2016/?CP. Accessed 10 January 2016.

Ehlers, U. D. (2009). Web 2.0-e-learning 2.0-quality 2.0? Quality for new learning cultures. *Quality Assurance in Education, 17*(3), 296–314.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.

Galal, A. (2007). *The road not traveled: Education reform in the MENA region*. Washington, DC: World Bank.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory*. London: Weidenfeld and Nicolson.

Hernandez, B., Montaner, T., Sese, F. J., & Urquizu, P. (2011). The role of social motivations in e-learning: How do they affect usage and success of ICT interactive tools? *Computers in Human Behavior, 27*(6), 2224–2232.

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture, 2*(1), 8.

House, R. J., Hanges, P. J., Ruiz-Quintanilla, S. A., Dorfman, P. W., Javidan, M., Dickson, M., et al. (1999). Cultural influences on leadership and organizations: Project GLOBE. *Advances in Global Leadership, 1*(2), 171–233.

Huffaker, D. A., & Calvert, S. L. (2003). The new science of learning: Active learning, metacognition, and transfer of knowledge in e-learning applications. *Journal of Educational Computing Research, 29*(3), 325–334.

Hvidt, M. (2015). *Transformation of the Arab Gulf economies into knowledge economies: Motivational issues related to the tertiary educational sector*. Doha: Arab Center for Research and Policy Studies.

Lansari, A., Tubaishat, A., & Al-Rawi, A. (2010). Using a learning management system to foster independent learning in an outcome-based university: A Gulf perspective. *Issues in Informing Science & Information Technology, 7*, 7387.

Law, K. M., Lee, V. C., & Yu, Y. T. (2010). Learning motivation in e-learning facilitated computer programming courses. *Computers & Education, 55*(1), 218–228.

Lee, B. C., Yoon, J. O., & Lee, I. (2009). Learners' acceptance of e-learning in South Korea: Theories and results. *Computers & Education, 53*(4), 1320–1329.

Maki, R. H., Maki, W. S., Patterson, M., & Whittaker, P. D. (2000). Evaluation of a web-based introductory psychology course: I. Learning and satisfaction in on-line versus lecture courses. *Behavior Research Methods, Instruments, & Computers, 32*(2), 230–239.

Malhotra, N. K. (2010). *Marketing research: An applied orientation*. London: Pearson.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. London: Sage.

Mirza, A. A., & Al-Abdulkareem, M. (2011). Models of e-learning adopted in the Middle East. *Applied Computing and Informatics, 9*(2), 83–93.

Murray, S. (2016). EdTech: Mooc platforms force b-schools to embrace blended online/campus learning, *Business Because*, 20 January, http://www.businessbecause.com/news/mba-distance-learning/3729/mooc-platforms-force-bschools-to-innovate. Accessed 25 January 2016.

Ni, A. Y. (2013). Comparing the effectiveness of classroom and online learning: Teaching research methods. *Journal of Public Affairs Education, 19*(2), 199–215.

Ozkan, S., & Koseler, R. (2009). Multi-dimensional students' evaluation of e-learning systems in the higher education context: An empirical investigation. *Computers & Education, 53*, 1285–1296.

Piccoli, G., Ahmad, R., & Ives, B. (2001). Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training. *MIS Quarterly, 25*(4), 401–426.

Ronen, S., & Shenkar, O. (1985). Clustering countries on attitudinal dimensions: A review and synthesis. *Academy of Management Review, 10*(3), 435–454.

Salem, F., Mourtada, R., & Alshaer, S. (2013). Transforming education in the Arab world: Breaking barriers in the age of social learning. *Arab Social Media Report, Dubai School of Government–DSG*.

Samovar, L., Porter, R., & McDaniel, E. (2009). *Communication between cultures*. Boston, MA: Cengage Learning.

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education, 49*(2), 396–413.

Shelton, K., & Saltsman, G. (2004). The dotcom bust: A postmortem lesson for online education. *Distance Learning, 1*(1), 19–24.

Smart, K., & Cappel, J. (2006). Students' perceptions of online learning: A comparative study. *Journal of Information Technology Education: Research, 5*(1), 201–219.

So, H. J., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education, 51*(1), 318–336.

Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & education, 50*(4), 1183–1202.

The National. (2014). UAE releases list of accredited foreign online universities. http://www.thenational.ae/uae/education/uae-releases-list-of-accredited-foreign-online-universities. Accessed 10 January 2016.

UNESCO. (2013). *Information and communication technology (ICT) in education in five Arab States*. Montreal: UNESCO Institute for Statistics. http://www.uis.unesco.org/Communication/Documents/ICT-arab-states-en.pdf. Accessed 20 December 2015.

Weise, M., & Christensen, C. (2014). *Hire education*. Redwood City, CA: The Clayton Christensen Institute for Disruptive Innovation.