# The Pedagogical And Institutional Impact Of Disruptive Innovations In Distance Business Education

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## ABSTRACT

*The use of distance learning methods by universities has experienced significant growth over the past two decades. While this growth has been witnessed nearly equally across the various academic disciplines, it represents unique opportunities in business education. In this article we will profile how technological innovations in distance learning have historically caused disruptive changes in business education. The article then profiles three specific distance learning technologies that are emerging as revolutionary forces in changing business education. The impact of these technologies will be examined from both a pedagogical perspective and an institutional perspective. The influence of these educational technologies in addressing the unique needs of business students will also be discussed.*

**Keywords:** Distance Education; Educational Technology; Pedagogy

## INTRODUCTION

*D*istance learning is becoming one of the most widely adopted forms of course and program delivery for many business schools. For example, in the United States, it is estimated that nearly 6 million individuals took at least one online course in 2015 (Allen & Seaman, 2015). The study of business has been one of the main contributors to the large volume of online course delivery in the United States and abroad. There has been a steady growth, over the years, in the number of business students taking distance courses in the United States. The trends are equally strong in other parts of the world, and in some regions surpass US trends in terms of the adoption rate and public acceptance of distance business education (Visser & Visser, 2012).

Given the unique characteristics of business as a profession, and business education as a pedagogical practice, there is a need to closely examine the future potential of distance learning in the specific context of business schools. This is because business education draws from many different academic disciplines and relates to many different areas of study (Woodward & Rodwell, 2013). Therefore, business educators have the unique opportunity to benefit from the diverse range of pedagogical innovations utilized in other fields of study.

The objective of this article is to examine the role of disruptive innovations in distance learning and their impact on business education. We will first identify some of the unique features that differentiate business education from education in other fields of study. The growing use of distance learning methods in both business and non-business fields will be discussed, and a historical account of how distance learning has been used to train business professionals will be presented. We will then focus on three specific disruptive technologies. The technologies profiled include computer-assisted business simulations, computer-assisted student assessments, and web-based synchronous instruction. These technologies are chosen as the focus of attention in this article due to their growing use by business educators (Allen & Seaman, 2015; Roberts, Russell & Perry, 2012). The potential that these innovations have in revolutionizing business education will be examined from two perspectives – namely the influence on the learner, and the influence on business educators. The article will conclude with a discussion of the potentials that lie ahead in the utilization of these distance learning tools among business schools.

97            *The Clute Institute*

## EARLY HISTORY OF DISTANCE EDUCATION IN BUSINESS

While the use of distance learning methods by business schools has contributed a great deal to the recent emergence of new distance business programs around the world, distance learning methods have been in use for nearly two centuries. In the 1800s, distance education was primarily delivered in the form of correspondence courses in a range of professional fields. The earliest cited use of distance learning methods in business dates back to the early part of the 19th century, at which time, a small number of European educational institutions offered correspondence courses related to topics such as shorthand writing, visual design, mathematics, home economics, and other practical fields of study (Edelson & Pittman, 2008). The pioneering role of these European institutions in demonstrating the effectiveness of distance learning methods, in the form of correspondence courses, eventually crossed the Atlantic Ocean and influenced educational philosophies and perspectives in the United States. The changing perspective and the embracing of distance methods was more evident in certain regions of the US challenged by the wide geographical dispersion of the population (Bramble & Panda, 2008).

**Use of Radio and Television**

The initial use of distance learning methods in the United States was especially evident in the early part of the 20th century, as the US population not only dramatically grew in numbers but also became more geographically disbursed (Banas & Emory, 1998). As a result, it was essential to identify methods for delivering educational content that would overcome the barriers that geographic distance between the educator and the student had created. This need was best addressed by educational institutions located in Midwestern United States, where the geographical distribution of the population made it infeasible to deliver educational services using traditional face-to-face teaching methods (Simonson, Smaldino, Albright & Zvacek, 2009).

As a result, during the first half of the 20th century, pioneering educational institutions in states such as Illinois, Ohio, Indiana, and Iowa began utilizing distance education tools to address the needs of a widely dispersed student population. The emergence of radio broadcasting technology at that time made it possible for these institutions to utilize radio waves to broadcast course material to distant populations of students. The result was that the typical boundaries of the university, defined by the gates of its campus, no longer constrained the reach of these institutions. During the second half of the 20th century television replaced radio as a favored mass medium (Edelson & Pittman, 2008).

*Effects of Radio and TV on Student Learning*

The multi-sensory characteristics of radio and especially TV, and their use of visual and audio communications, made them uniquely relevant for distance education purposes. Multi-sensory informational input presents pedagogical benefits to learners as it enables them to observe their instructors, and examine visual and auditory content central to instruction. This was a leapfrogging improvement over the earlier generation of distance learning methods which were purely text-based correspondence courses (Barakzai, 2003; Christensen & Eyring, 2011). Research in cognitive psychology and education has established that audio and visual communications can be processed more quickly by learners compared to reading tasks (Sorrell, Bell & McCallum, 2007; Majidi & Aydinlu, 2016), and that it can generate stronger memory traces which enable future recall and more effective learning outcomes (Chen, 2010). The use of radio and TV also enabled content delivery to learners with physical disabilities (Chien-Chuan, Chun-Han, Yun-Lung, Ming-Chung, 2011) and those with poor reading skills (Kwiatkowska-White, Kirby & Lee, 2015). As a result, the ability of these distance learning technologies to appeal to the needs of the masses was recognized by many educational institutions, both within and outside the domain of business education.

*Effects of Radio and TV on Business Schools*

The positive impact of radio and TV as means for delivering distance course offerings helped boost their use among institutions of higher education. Starting from the 1960s up until the early 1990s, educational institutions utilized the benefits of these technologies, to deliver both specialized courses targeting small segments of the student population, and popular courses targeting the mass population of learners (Allen & Seaman, 2008; Christensen & Eyring. 2011). Most importantly, the use of these technologies enabled educational institutions to widen their reach to a

           98           

geographically broad base of students.  As a result the conventional reach of many institutions, which was previously limited to geographically dense population centers, expanded to suburban and rural student populations.  The use of radio and TV for distance education delivery also influenced European thinking on distance education and resulted in the adoption of these methods of distance learning by European schools in the second part of the previous century (Abaci, 2013).

**Distance Learning Enabled by the Internet**

Although the Internet was originally developed in the 1970s by the U.S. military for purposes of military communications, its civilian and mass market applications were realized in the 1990s.  As a result, Internet's use in both business and educational contexts grew significantly in the 1990s (Ryan, 2010).  The use of distance education methods, utilizing the capabilities facilitated by the Internet grew significantly in the final decade of the 20th century.  Both for-profit and non-profit institutions of higher education capitalized on the mass access to the Internet to enable the delivery of their educational content to geographically dispersed populations.  However, unlike radio and television modes of delivery which were limited to a finite radius from the point of signal origination, the Internet's range for accessing student populations was global, representing a disruptive and leapfrogging opportunity for delivery of distance education services (Curran, 2008).

*Effects of the Internet on Student Learning*

Compared to radio, TV and correspondence courses, the Internet enabled a much richer learning environment for online learners (Christensen & Eyring 2011; Krentler & Willis-Flurry 2005).  This is because as a medium it would facilitate the distribution of educational material in the form of text, auditory, and visual content.  The multi-sensory means of communications helped increase student engagement with the learning process (da Silva, Leal, Pereira, de Oliveria Neto, 2015) and enabled students with a wide range of learning preferences to participate in the learning process (Obizoba, 2015).  For example, students who may have had difficulties absorbing content delivered in text format could consult video lectures (Al-Jarf, 2011), and those with physical handicaps and logistical challenges in reaching the classroom could engage with the course content (Chien-Chuan et al. 2011).  Furthermore, the learning process for students became more enriched since unlike radio and TV based distance education programs which typically would have pre-scheduled content delivery plans, the Internet would be able to deliver educational content on demand, at a time and place most convenient for the student.  This feature opened the door for students with time constraints, career obligations and family responsibilities to engage in the learning process (Murdock, Williams, Becker, Bruce & Young, 2012) – a task which may have had been beyond their reach through traditional classroom learning or earlier modes of distance learning.  Furthermore, in contrast to earlier forms of media used for distance education, the use of the Internet as a distance learning venue made it possible for students to experience timely two-way communications with their instructors.  This increased interactivity has been shown to help improve student learning, lower attrition rates and resolve student learning barriers that can be removed through instructor intervention (Rovai, Ponton & Baker, 2008; Simonson et al. 2009).

*Effects of the Internet on Business Schools*

The explosive public use of the Internet since the mid-1990s made it economically and pedagogically possible to deliver online business programs (Jung, 2008).  The entry of schools in the distance education space helped expand the geographic reach for business education, and enabled populations of students who may have otherwise not been able to access quality business education, to complete their business degrees and earn career credentials needed to succeed professionally (Wood, Tapsall & Soutar, 2005).  Reliance on rich forms of media such as video and audio became achievable as the bandwidth capacity of the Internet and the quality of telecommunications services improved.  As a result, during the first decade of the 21st century student enrollment in online business programs grew dramatically, and it is estimated that in 2015 a total of 6 million students had completed at least one online course in the United States, half of whom had completed their entire coursework online (Allen & Seaman, 2015).

## LEAPFROGGING PROSPECTS FOR DISTANCE BUSINESS EDUCATION

Christensen, Johnson and Horn's (2008) classic work on disruptive innovations has helped industry practitioners in many different fields recognize the opportunities that radical change in underlying technologies can generate in their respective industries. In recent years, there has been a growing recognition among business educators for the need to embrace emerging distance learning technologies (Christensen & Eyring, 2011; Gandhi, 2014). This recognition is driven by both environmental changes and technological opportunities that are now available to educators in every field. However, the potential that emerging technological innovations in distance learning have on changing the landscape for distance business education is unique and notable.

The innovations that will be examined below are chosen because they represent the key characteristics than Christensen et al. (2008) consider as disruptive to an industry. These innovations challenge traditional models of how an industry operates, introduce significant cost advantages to the producers (e.g, business schools) and can expand the market (e.g., student base) by orders of magnitude. The three innovations studied – namely, Computer Assisted Business Simulations (CABS), Computer Assisted Assessment Software (CAAS) and Web-Based Synchronous Instruction (WSI) – are chosen since they represent these critical innovation characteristics, in addition to which they are heavily utilized in facilitating distance education in other fields of study such as medicine, military science, and air transport (Keh et al. 2008; Ko & Rossen, 2011; Olson, Stedman-Smith & Fredrickson, 2005). It is however important to note that other distance learning innovations may also be examined in this light, and due to space limitations focus has been given to three aforementioned innovations.

### Computer Assisted Business Simulations (CABS)

In many professional fields, the use of computer assisted simulations to develop and enhance the decision making abilities of learners has been central to delivering effective training programs (Galanis, Sottilare & Best, 2011). For example, the training of air pilots heavily relies upon the use of flight simulators (Foye & Looey, 2007). The simulators place the training pilot in both conventional and unconventional circumstances in order to establish good habits, and rehearse routines that may prevent disasters. Similar forms of simulation-based exercises are utilized in the training of security professionals, those in the field of public security, as well as other lines of work which involve high-risk environments that demand sound decision-making (Archer, Brockett, Christ, McDermott & Warwick, 2006). The effective pedagogical use of simulations has also been demonstrated in intensive decision environments for students of legal studies (e.g., through mock court cases) and medicine (e.g., training surgeons practicing on cadavers) where high-risk environments demand sound decision making (Baker, Cimini & Cleveland, 2011; Fauquet-Alekhine & Pehuet, 2015). In these disciplines, it is essential for the training program to encompass a simulation environment to help the decision maker recognize his or her flaws in decision-making, learn to avoid instinctive responses which may be suboptimal and in some cases catastrophic (Foye & Looey, 2007; Galanis et al. 2011). It is therefore no surprise that in the domain of business education, the need for using computer assisted simulations to enhance student training has resulted in the development of simulation platforms for a range of business sub-disciplines, such as marketing, finance and management.

### *Effects of CABS on Student Learning*

Decision research has shown that a manager's decision quality is often correlated with previous decision making experience and prior exposure to the relevant decision environment (Spetzler, Winter & Meyer, 2016). The experiential nature of business decision making implies that theory-based training may be insufficient in preparing business students for positions beyond graduation. This has helped business educators recognize the importance of intensive experiential training in developing the career skills of their students (Kosnik, Tingle & Blanton, 2013).

The use of computer simulations in education has been shown to help increase student engagement and learning (Borstorff & Lowe, 2007). This is because the dynamic environment and the feedback provided by a computer-based simulated environment constantly challenge the student, inspire thinking, and require action. As a result, business courses that utilize simulations often generate higher learning outcomes and greater levels of student satisfaction when compared to courses that do not utilize computer simulations (Fitzpatrick & Ayaz, 2013; Routledge, 2015). The use of computer simulations to educate students is also uniquely relevant to the younger and emerging population of

students who have grown up playing video games and interacting in virtual worlds (Al-Azawi, Al-Faliti &Al-Blushi, 2016).

Research has shown that simulation-based training can benefit students in many different ways (Hall 2014; Krentler & Willis-Flurry, 2005). For example, the ability of the instructor to control the characteristics of the decision environment helps students distinguish impulsive from optimal decision-making (Israel & Nath, 2013). Students are also able to observe the harmful effects that may result from impulsive decisions, and the need to rely on their formal training as well as theory-based concepts covered in their prior course work, to arrive at decisions that will result in good outcomes. This process not only results in more refined graduating practitioners, but also helps students gain a better appreciation for the theoretical concepts covered in prior courses (Fauquet-Alekhine & Pehuet 2015). In addition to the ability of simulation-based training to help students learn to control impulsive decision making tendencies, simulation-based training has been shown to boost manager confidence. Managers that are exposed to simulation-based training tend to exhibit higher levels of decision confidence when facing decision environments similar to that of the simulation, and are more effective in communicating their strategies to their peers (Fawcett, 1996; Routledge, 2015).

*Effects of CABS on Business Schools*

When business managers are hired, it is assumed that they are able to make good decisions on behalf of the company, and will represent the company's best interests as they manage its activities. Prior practical experience and the ability to be a good decision maker is therefore a valuable asset that recruiters seek in graduating business students being considering for hiring (Whitmore, 2014). While the accumulation of practical experience by the students is a fundamental element of successful business programs, the reality of the economics associated with providing experiential learning opportunities to a large population business students has been challenging for many schools (Juergens, 2012). For most business schools, offering experiential learning opportunities to large populations of students represents a logistical and resource-depleting challenge. For example, it is practically difficult, if not impossible, to supervise individual student internships on a mass scale to all students in a business school, with the degree of quality and individual attention that would be needed to provide adequate supervision. The need for the development of experience-based learning has made it necessary for distance business educators to consider alternative forms of experiential learning, and CABS are an emerging mode for facilitating this. Given the potential that CABS present for improving student learning and decision quality, their use is likely to take on a more central role in distance business education in the coming years.

Distance business programs can especially benefit from computer simulations since the geographically dispersed population of students would make it highly challenging for educators to supervise alternative forms of experiential learning (Colby, Ehrlich, Sullivan & Dolle, 2011). For example, supervising student projects or internships at companies is logistically challenging when the student population is geographically distributed in ways that do not enable an instructor to be involved and physically available, in attentively supervising such experiential learning activities. In contrast, CABS allow students from anywhere in the world to engage in the experience of managing simulated business operations, gain detailed feedback from the computer simulation platform, and obtain individualized coaching from their instructor who can access their decision history and simulation results remotely (Fauquet-Alekhine & Pehuet, 2015; Hall, 2014). The leapfrogging impact of computer assisted business simulations in preparing business students can therefore be a revolutionary force in distance business education, and likely to affect the content and form of distance business programs in the coming years.

**Computer Assisted Assessment Software (CAAS)**

Assessment of student performance is a central requirement in any educational system, and helps verify learning outcomes of the education process, for the instructor and the student. Pedagogical approaches that do not rely on formal assessment of student learning often are associated with inferior results (King & Alperstein, 2013). Student assessment enables an educator to identify students that are falling behind in their learning, provide corrective directions for those students, and to equitably issue student grades. For this reason, the presence of reliable and formal student assessment methods has been a defining characteristic of the accreditation processes used by major

　　　　　　　　**101**

accreditation organizations for business schools, such as AACSB (Association to Advance Collegiate Schools of Business) and Middle States (Colby et al. 2011; Shelton & Saltsman, 2015).

In the context of distance education, reliance on formal and frequent student assessments is an important element of instruction. This is because in distance modes of delivery, educators have less of an opportunity to meet students on a personal basis, and to form qualitative assessments of each student based on class presence and participation (Rovai, Polton & Baker, 2009). As a result, in the distance learning domain, more formal processes are needed to accurately measure student engagement, for example by assessing timely submission of assignments, demonstrating knowledge of learned course material through completion of assignments, and successful completion of quizzes and papers. Reliance on such measures of student engagement mandates a higher frequency of student assessment through online means (Matthews, Janicki, He & Patterson, 2012).

In addition to the greater degree of reliance of distance education methods on formal student assessment when compared to face-to-face teaching, the growth of distance education itself has helped increase the volume of student assessment tasks that faculty may have to manage on a regular basis (Allen & Seaman, 2015; Mupinga & Maughan, 2008). As a result, it is necessary for business faculty to find the means to more efficiently process the mass of student assignments that are associated with online courses. The challenge of evaluating large volumes of assessments has long been addressed in the field of educational testing. For example, standardized college/university entrance tests utilize computer-assisted grading software to accelerate the scoring of student tests (Crossley & McNamara, 2016; Shermis & Burstein, 2011). Computer-assisted assessment software (CAAS), utilize carefully designed algorithms to score a range of assessment types. For example in the simplest form such algorithms can be used to score multiple choice questions, and in more advanced forms algorithms are used in order to evaluate complex assessment forms such as student essays and exams (Chen, Xu & He, 2014; Fitzgerlad, 2013).

*Effects of CAAS on Student Learning*

The use of computer-assisted assessment software brings out the potential to provide each individual student with detailed personalized evaluation and feedback. This helps overcome the tendency for many instructors, who in order to be able to teach large classes may assemble their course scoring rubrics such that students work in teams and not independently (Backhaus & Heiner, 2014; Curran 2008). Team-based grading significantly reduces the volume of assignments that a given instructor would have to score. While team-based projects help students learn the dynamics of team work, such an approach can fail to provide each student with individual feedback on his/her own performance (Rafferty, 2012), and reduces the instructor's ability to identify individual students who are falling behind in the learning process (Hansen, 2006). This is an important consideration since the objective of many business schools is to train future managers who can independently and individually take on leadership roles and apply their acquired skills.

The ability to assure individual-level quality controls for each student is of vital importance in enhancing the learning outcomes of students. This is especially relevant in the context of business education, the outcome of which often translates into the application of learned knowledge to solve business problems and in many cases the resulting optimal solutions can be objectively identified and assessed. For example, the financial assessment of a investment proposition can often be associated with a correct objective response, given specific assumptions about the underlying business characteristics. The dichotomy of possible responses makes algorithmic processing and scoring of assessments for many business courses a likely prospect. Computer-assisted assessment software can be used for example, to assess student responses to numeric business problems, their analyses of cases, and their business recommendations – both qualitative and quantitative –for specific business scenarios (Crossley & McNamara, 2016; Shermis & Burstein, 2011). Such assessments can be essential to the learning experience of distance learners in business programs.

The use of computer-assisted assessment software by business educators can also help them gain a clear aggregate picture of student learning outcomes. Increased frequency of student assessments has been shown to provide instructors with the ability to identify areas of instruction that need to be enhanced, and to identify those students who may be struggling with specific aspects of the course (Belasen & Huppertz, 2009). Such course improvements would not only results in improvement in the overall delivery of a course, but also help reduce cases of student dropouts and course failure (Christensen & Eyring, 2011; Ko & Rosen, 2004).

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*Effects of CAAS on Business Schools*

Due to the expected gains in learning outcomes, as outlined above, the use of computer-assisted assessment software in distance business education is likely to grow in the coming years. One of the main hurdles in realizing this growth has been the separation of Learning Management Systems (LMSs) from the software that can assist in grading student assignments and exams (Hirumi, 2009). However, with the consolidation of LMS software providers, their growing recognition for the need to automate assessment tasks, and cooperation and partnership with software vendors to integrate their software with LMS providers, the likelihood of growth for this form of student assessment is significant. A similar partnership would also need to materialize between educators and software developers to formalize the optimal grading rubrics that need to be used for evaluating student assignments. The use of computer-assisted assessment software for distance business education is likely to result in notable gains in student learning outcomes while at the same time increasing the operational efficiency of distance business programs.

**Web-based Synchronous Instruction (WSI)**

Another educational technology with leapfrogging potential in distance business education is live web-based teaching. With the declining cost of bandwidth, it has become possible for most educational institutions to expand their reach through live webcasted courses (Cobb, 2013). This opportunity is very much in the spirit of web-based meetings and webinars with which industry executives and business practitioners are comfortable (Bell 2009; Laborie & Stone 2015) and is consistent with the learning needs of millennial learners who are acclimated with computer-based communications (Means, Bakia & Murphy, 2014; Meola, 2016).

*Effects of WSI on Student Learning*

Web-based Synchronous Instruction represents as sharp contrast to traditional modes of online teaching which rely heavily on prerecorded lecture videos, prepackaged instructional material, and the asynchronous delivery of course content. In contrast, with live web-based course delivery, the students and the instructor are present simultaneously but in different locations, and can interact and engage collaboratively using the web-meeting platform. There are many advantages to this mode of teaching. For one, synchronous web-based classes can emulate the classroom setting such that students would experience a similar feel to a live face-to-face class, but through a computer screen (Wang 2007). In addition, since instructors no longer have to pre-package pre-recorded lectures and instead deliver their content live, this mode of teaching also resembles the classroom environment for the instructor (Bell 2009; Laborie & Stone, 2015). The fact that instructors have to perform live with an active audience of students, emulates classroom teaching and may come across as more natural to many instructors, compared to the process of creating pre-recorded video lectures for which there is no live audience, or other means of lecture delivery in asynchronous online course delivery (Ke & Chavez, 2013). It has been suggested that lecture delivery in this mode can produce equal, and in some cases higher levels of instructor performance versus prerecorded forms of lecture capture (Handley & Chapman, 2012; Major, 2015).

Making full use of the features and benefits of web-based classrooms opens new opportunities that traditional face-to-face methods of teaching cannot normally offer. For example, students who may possess introverted personalities and shy away from participating through voicing questions or comments in a classroom setting, can become more participative in a web-based environment (Irani, Telg, Scherlr, Harrington, 2013). They can for example utilize the text features of the web-hosting facility to communicate their comments and questions. This allows for a more democratic exchange, reducing the dominating impact that highly vocal students may have in suppressing the opinions and views of the more reserved students (Rovai, Ponton & Baker 2008; Yoshida, Tani, Uchida, Masui & Nakayama, 2013). In addition, research has shown that this mode of lecture delivery is highly relevant to business students, many of whom have had previous work experience, and are familiar and comfortable with web-based meetings commonly used by employers (Bell 2009; Noe, 2012).

*Effects of WSI on Business Schools*

Live web-based delivery of lectures presents leapfrogging opportunities for many business schools. Business schools no longer have to limit their reach by geographic boundaries, and can attract student markets that are thousands of

miles away (Christensen & Eyring, 2011). This allows a school with unique specializations to engage business student populations that would have not otherwise considered it in their choice of schools. Web-based Synchronous Instruction also has special relevance to the new generations of millennial learners who are heavily utilize computer-based video/audio communications (Means et al. 2014; Meola, 2016). Similarly, as new generations of graduating business PhDs with greater levels of technology comfort become academicians and teachers (Hong, 2009), the prospects for the adoption and use of this approach to teaching, and the resulting quality of distance course delivery, is likely to dramatically improve over the coming years.

## CONCLUSION

While business education has for the most part been delivered in traditional face-to-face format for decades, the emerging modes of distance teaching identified in this paper, can dramatically and rapidly alter the way business students are trained. One could argue that these changes do not reflect an evolutionary prospect for business education, but are rather revolutionary in nature. It is for this reason that the rate of change resulting from the use of these educational technologies may not allow for a slow evolutionary transition for many instructors and business schools, but rather demand a rapid response to revolutionary market changes triggered by the handful of institutions that proactively adopt and utilize these emerging technologies to their advantage.

In addition to the technological advantages gained by the pedagogical tools discussed in this paper, the distance education horizon for business schools is continuously improving due to the growing acceptance of this mode of teaching by the public. While two decades ago the notion of earning a business degree from an online institution may have been frowned upon by many, research has shown improvements in the perceptions of online programs, by employers and university faculty (Allen & Seaman 2015; Metrejean & Noland, 2011).

Despite the favorable trends, embracing distance education has unfortunately been a challenge for many business faculty. As discussed earlier, the majority of faculty in business schools were themselves trained through traditional face-to-face teaching methods, and many may be unfamiliar and uncomfortable with distance modes of teaching. Faculty resistance to adopting distance education as a means for teaching is one of the leading contributor to lack of institutional participation in distance program initiatives with nearly half of university faculty questioning the legitimacy of online education (Allen & Seaman 2015). Failure by business faculty to embrace distance education opportunities would be comparable to failures by industry practitioners in many industries that no longer exist (Christensen 2016). For example in the electronics industry, the introduction of transistors in the 1960s quickly revolutionized the market and made the category of vacuum tubes irrelevant. The majority of companies that embraced the transistor technology survived, while those that did not suffered, and many vanished altogether. Similarly, players in the media space experienced significant challenges when they resisted technological innovations that disrupted the nature of competition, for example through the digital distribution of music and the use of online services for movie rentals. These changes have disrupted massive numbers of industry players – in particular those that refused to recognize the powerful and revolutionary impact that such changes would have on their respective business models.

It is no longer the case that technological barriers or lack of student access to the Internet are the primary challenges for distance education initiatives. Today, human factors related to faculty training and motivation seem to dominate the conversation. At the heart of this challenge is a cultural and technological gap that exists between teacher and student. Therefore, while the distance tools discussed in this paper are enablers, it is of vital importance that business school administrators proactively an assertively familiarize their faculty and motivate and mobilize them to recognize and embrace the learning opportunities that distance education brings to their students.

**104**

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## REFERENCES

Abaci, S. (2013). Distance education: statewide, institutional, and international applications: readings from the pages of distance learning journal. *Quarterly Review of Distance Education*, *14*(3), 169-172, 179.

Allen, E. & Seaman, J. (2015). *Online Report Card: Tracking Online Education in the United States.* Babson Survey Research Group: Babson, MA.

Al-Azawi, R., Al-Faliti, F. & Al-Blushi, M. (2016). Educational gamification vs. game based learning: comparative study *International Journal of Innovation, Management and Technology*, *7*(4), 131-136.

Al-Jarf, R. (2011). Helping medical students with online videos. *International Journal of Language Studies*, *5*(3), 99-110.

Archer, R., Brockett, A.T., Christ, R.E., McDermott, P.L & Warwick, W. (2006). *Research Report 1859: A Simulation-Based Tool to Train Rapid Decision-Making Skills for the Digital Battlefield.* U.S. Army Research Institute for the Behavioral and Social Sciences.

Backhaus, K. & Heiner, K. (2014). The Effects of group-level and individual contributors on business simulation team performance. *Organizational Management Journal*, *11*(3), 172-181.

Baker, T., Cimini, J.F. & Cleveland, C.T. (2011). The mock trial journey: an assessment. *Forensic Examiner*, *20*(3), 32-43.

Banas, E.J. & Emory, J.W. (1998). History and issues of distance learning. *Public Administration Quarterly, 22*(3), 365-383.

Barakzai, M.D. (2003). *Case Study Evaluation of Three Teaching Modalities in Physician Assistant Education: Traditional Lecture, Workbook and Videotape, and Asynchronous Learning Network.* California State University, Fresno and University of California, Davis.

Belasen, A.T & Huppertz, J.W. (2009). Designing and implementing a mission-driven, student-centered assessment program. *The Journal of Health Administration Education*, *26*(1).

Bell, A. (2009). *Exploring Web 2.0: Second Generation Interactive Tools - Blogs, Podcasts, Wikis, Networking, Virtual Words, and More.* CreateSpace.

Borstorff, P.C & Lowe, S.K. (2007). Student perceptions and opinions toward e-learning in the college environment. *Academy of Educational Leadership Journal*, *11*(2), 13-29.

Bramble, W.J. & Panda, S. (2008). *Economics of Distance and Online Learning.* New York: Routledge.

Chen, H., Xu, J. & He, H. (2014). Automated essay scoring by capturing relative writing quality. *The Computer Journal*, *57*(9), 1318-1324.

Chen, Z. (2010). Effects of multimedia annotations on l2 vocabulary and reading: a comparative study of text-picture and audio-picture annotations under incidental and intentional learning conditions. *Journal of Educational Psychology*, *16*(3), 121-139.

Ko, C., Chun-Han, C., Yun-Lung, L. & Ming-Chung, C. (2011). An individualized e-reading system developed based on multi-representations approach. *Journal of Educational Technology & Society*, *14*(4), 88-98.

Christensen, C. (2016). *The Innovative University.* San Francisco: Wiley.

Christensen, C., Johnson, C.W., & Horn, M.B. (2008). *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns.* New York: McGraw-Hill.

Christensen, C., & Eyring, H.J. (2011). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail.* Cambridge, MA: Harvard Business Review Press

Cobb, J. (2013). *Leading the Learning Revolution: The Expert's Guide to Capitalizing on the Exploding Lifelong Education Market.* Indianapolis: AMACOM.

Colby, A., Ehrlich, T., Sullivan, W.M. & Dolle, J.R. (2011). *Rethinking Undergraduate Business Education.* Stanford: The Carnegie Foundation for the Advancement of Teaching.

Crossley, S.A. & McNamara, D.S. (2016). *Adaptive Educational Technologies for Literacy Instruction*.

Curran, C. (2008). Online learning and the university, in W.J. Bramble & S. Panda (eds.), *Economics of Distance and Online Learning: Theory, Practice and Research.* New York: Routledge, 26-51.

da Silva, D.M., Leal, E.A., Pereira, J.M. & de Oliveira Neto, J.D. (2015). Learning styles and academic performance in distance education: a research in specialization courses. *Revista Brasileira de Gestão de Negócios, 17*(57), 1300-1316.

Edelson, P.J. & Pittman, V.V. (2008). Historical perspectives on distance learning, in W.J. Bramble & S. Panda (eds.), *Economics of Distance and Online Learning: Theory, Practice and Research.* New York: Routledge.

Fauquet-Alekhine, P. & Pehuet, N. (2015). *Simulation Training: Fundamentals and Applications: Improving Professional Practice Through Simulation Training.* New York: Springer.

Fawcett, S.L. (1996), "Fear of Accounts: Improving Managers' Competence and Confidence Through Simulation Exercises," *Journal of European Industrial Training*, 20(2), 17-24.

Fitzgerald, M. (2013). Automated essay grading software stirs debate. *Informationweek*.

Fitzpatrick, N. & Ayvaz, U. (2013). *Training Methods and Tactical Decision-Making Simulations.* Amazon Digital Services.

Foye, D. & Looey, B. (2007). *Human Performance Modeling in Aviation.* New York: CRC Press.

Galanis, G., Sottilare, R. & Best, C. (2011). *Fundamental Issues in Defense Training and Simulation.* New York: CRC Press.

Gandhi, M.M. (2014). Emerging profile of ICT-enabled commerce and management education in india. *International Journal of Higher Education Management*, *1*(1 ), 18-29.

Hall, W. (2014). *Using Business Simulations and Serious Games: A Straightforward Guide for Corporate Training and Development.* CreateSpace.

Handley, A. & Chapman, C. (2012). *Content Rules: How to Create Killer Blogs, Podcasts, Videos, Ebooks, Webinars (and More).* New York: Wiley.

Hansen, R.S. (2006). Benefits and problems with student teams: suggestions for improving team projects. *Journal of Education for Business, 82*(1 ), 11-19.

Hirumi, A. (2009). A framework for analyzing, designing, and sequencing planned e-learning interactions, in Orellana, Hudgings & Simonson (eds.) *The Perfect Online Course: Best Practices for Designing and Teaching*. Charlotte, NC: Information Age Publishing, 201-228.

Hong, L. (2009), "On the Structure Model of Online Courses,"Journal of Beijing University of Posts and Telecommunications, 2(1), 18-29.

Irani, T., Telg, R., Scherlr, C. & Harrington, M. (2013). Personality type and its relationship to distance education students' course perceptions and performance. *Quarterly Review of Distance Education*. *4*(4), 445-453.

Israel, M.J. & Nath, A. (2013). Some issues and challenges in e-learning methodologies and e-assessment system. *Proceedings of the International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government (IEEE)*: 140-145.

Juergens, S.L. (2012). *Experiential Learning: How the Utility of Experiential Learning Within an MBA Course Enables Transfer of Learning*. Doctoral Dissertation: St. Ambrose University.

Jung, I. (2008). Costing virtual university education, in W.J. Bramble & S. Panda (eds.), *Economics of Distance and Online Learning: Theory, Practice and Research.* New York: Routledge, 148-161.

Ke, F. & Chavez, A.F. (2013). *Web-Based Teaching and Learning across Culture and Age.* New York: Springer.

Keh, H., Wang, K., Wai, S., Huang, J., Hui, L., et al. (2008). Distance-learning for advanced military education: using wargame simulation course as an example. *International Journal of Distance Education Technologies, 6*(4 ), 50-61.

King, E. & Alperstein, E. (2013). *Best Practices in Online Program Development: Teaching and Learning in Higher Education*. London: Routledge.

Ko, S. & Rosen, S. (2011). *Teaching Online: A Practical Guide.* London: Routledge.

Kosnik, R., Tingle, J.K. & Blanton, E.L. (2013). Transformational learning in business: the pivotal role of experiential learning projects. *American Journal of Business Education, 6*(6), 613-621.

Krentler, K.A, & Willis-Flurry, L.A. (2005). Does technology enhance actual student learning? *Journal of Education for Business*, *80*(6), 316-321.

Kwiatkowska-White, B., Kirby, J.R. & Lee, E.A. (2015). A longitudinal study of reading comprehension achievement from grades 3 to 10: investigating models of stability, cumulative growth, and compensation. *Journal of Psychoeducational Assessment, 34*(2), 153-65.

Laborie, K. & Stone, T. (2015). *Interact and Engage!: 50+ Activities for Virtual Training, Meetings and Webinars*. Alexandria, VA: Association for Talent Development.

Majidi, N. & Aydinlu, N.A. (2016). The effect of contextual visual aids on high school students' reading comprehension. *Theory and Practice in Language Studies*, *6*(9), 1827-1835.

Major, C.H. (2015). *Teaching Online: A Guide to Theory, Research, and Practice*. Johns Hopkins University Press.

Matthews, K., Janicki, T., He, H. & Patterson, L. (2012). Implementation of an automated grading system with an adaptive learning component to affect student feedback and response time. *Journal of Information Systems Education, 23*(1), 71-83.

Means, B., Bakia, M. & Murphy, R. (2014). *Learning Online: What Research Tells Us about Whether, When and How.* London: Routledge.

Meola, C.C. (2016). Address the needs of the millennial workforce through equine assisted learning. *The Journal of Management Development*, *35*(3), 294-303.

Metrejean, E. & Noland, T. (2011). An analysis of cpa firm recruiters' perceptions of online masters of accounting degrees. *Journal of Education for Business*, *86*(1), 25-30.

Mupinga, D.M. & Maughan, G.R. (2008). Web-based instruction and community college faculty workload. *College Teaching, 56*(1), 17-21.

Murdock, J., Williams, A., Becker, K., Bruce, M.A. & Young, S. (2012). Online versus on-campus: a comparison study of counseling skills courses, *The Journal of Human Resource and Adult Learning, 8*(1), 105-118.

Noe, R. (2012). *Employee Training & Development.* New York: McGraw-Hill.

Obizoba, C. (2015). Effective facilitation methods for online teaching. *The Business & Management Review, 6*(5), 1-11.

**106**          *The Clute Institute*

Olson, D., Stedman-Smith, M. & Fredrickson, A. (2005). Environmental Health and Nursing: Piloting a Technology-Enhanced Distance Learning Module. *AAOHN Journal, 53*(8), 353-359.

Rafferty, P.D (2012). The assessment and evaluation of group work: a case study of graduate student experiences and perceptions of positive group work outcomes. *International Journal of University Teaching and Faculty Development*, *3*(2), 83-94.

Roberts, S.D., Rains, R.E. & Perry, G.E. (2012). A business educator's guide to transitioning to a digital curriculum. *American Journal of Business Education* (Online), *5*(4), 483.

Routledge, H. (2015). *Why Games Are Good For Business: How to Leverage the Power of Serious Games, Gamification and Simulations.* London: Palgrave Macmillan.

Rovai, A.P., Ponton, M.K & Baker, J.D (2008). *Distance Learning in Higher Education.* New York: Teachers College Press.

Ryan, J. (2010). *A History of the Internet and the Digital Future.* Reaktion Books.

Shelton, K. & Saltsman, G. (2015). *An Administrator's Guide to Online Education.* Greenwich, CT: United States Distance Learning Association.

Shermis, M.D & Burstein, J.C (2011). *Automated Essay Scoring: A Cross-disciplinary Perspective.* New York: Routledge.

Simonson, M., Smaldino, S., Albright, M. & Zvacek, S. (2009). *Teaching and Learning at a Distance: Foundations of Distance Education.* Boston: Pearson Education.

Sorrell, C.A, Bell, S.M. & McCallum, R.S. (2007). Reading rate and comprehension as a function of computerized versus traditional presentation mode: a preliminary study. *Journal of Special Education Technology*, *22*(1), 1-12.

Spetzler, C., Winter, H. & Meyer, J. (2016). *Decision Quality: Value Creation from Better Business Decisions.* New York: Wiley.

Visser, Lya and Yusra L. Visser (2012). *Trends and Issues in Distance Education: International Perspectives*. Information Age Publishing.

Wang, J. (20066, An analysis of Automated Essay Scoring Versus Human Scoring. Doctoral Dissertation, Texas A&M University.

Whitmore, R.C. (2014). *How Senior Executives Make Poor Decisions When Selecting Senior-Level Executive Direct Reports: Conversations with Fortune 500 Leaders Reveal the Use of Heuristics*. CreateSpace.

Wood, B., Suellen, J.G., Tapsall, M. & Soutar, G.N (2005). Borderless education: some implications for management. *The International Journal of Educational Management*, *19*(4/5), 428-436.

Woodward, R. & Rodwell, I. (2013). Distance and online learning in business and management studies. *Teaching Business & Economics*, *17*(3), 17-21.

Yoshida, H., Tani, S., Uchida, T., Masui, J. & Nakayama, A. (2013). Structural analysis of anxiety in online cooperative learning. *International Journal of e-Education*, *3*(5), 381-392.

**NOTES**

        **108**         *The Clute Institute*