

September 2013

Mindful Meditation for Online Learning: Lighting the Fire by Dimming the Lights: Helping college Students Relax and Focus to Prepare for Online Learning

Brenda Freshman

Carol Molinari

Follow this and additional works at: <http://digitalcommons.apus.edu/internetlearning>



Part of the [Online and Distance Education Commons](#)

Recommended Citation

Freshman, Brenda and Molinari, Carol (2013) "Mindful Meditation for Online Learning: Lighting the Fire by Dimming the Lights: Helping college Students Relax and Focus to Prepare for Online Learning," *Internet Learning*: Vol. 2: Iss. 2, Article 8.
Available at: <http://digitalcommons.apus.edu/internetlearning/vol2/iss2/8>

This Article is brought to you for free and open access by the ePress Journals at DigitalCommons@APUS. It has been accepted for inclusion in Internet Learning by an authorized administrator of DigitalCommons@APUS. For more information, please contact digitalcommons@apus.edu.

Volume 2, Number 2 • Autumn 2013
©2013 Policy Studies Organization

**Mindful Meditation for Online Learning: Lighting the fire by
dimming the lights: Helping college students relax and focus to
prepare for online learning**

Brenda Freshman & Carol Molinari



Mindful Meditation for Online Learning: Lighting the fire by dimming the lights: Helping college students relax and focus to prepare for online learning

Brenda Freshman, Carol A. Molinari

As more college courses are delivered online to adapt to students' busy schedules, instructors are challenged to find creative ways to promote online learning. This paper explores the use of meditation to prepare college students for online learning by examining whether and how meditation increases students' focus and concentration. A structured meditation exercise was administered to an undergraduate and graduate online course at a public university. Student reflections and comments suggest personal and cognitive benefits of meditation for online instruction. Ways to integrate meditation into online courses are discussed to encourage instructors to include meditation in their instruction methodology. This pilot intends to inspire future study and debate regarding the value of meditation for promoting online learning.

Key words: student focus, stress reduction, pedagogy, self-directed learning, self-awareness.

Introduction

As more college students work while they take courses, college educators are increasingly challenged to design courses that meet the demands of school and work. Not surprisingly, more and more courses are being offered online and in hybrid formats (Allen & Seaman, 2010). These delivery changes require instructors to re-think ways to design and manage their courses to promote learning, especially in the online environment. Today's thoughtful educator asks, "How can I help students mentally prepare themselves so that they are ready for online learning?"

This paper examines the use of meditation as a way to prepare busy college students for online learning. Meditation was selected for two main reasons. First, meditation promotes cognitive activities that include concentration, focus, understanding, and recall (Jenson, Vangkilde, Frokjaer,

& Hasselbalch, 2012; Koraza et al., 2012; Hussain & Bhushan, 2010; Van den Hurk, Giommi, Gielen, Speckens, & Barendregt, 2010). Second, meditation is also a personal relaxation activity that helps clear away other external stimuli while it increases attention and improves clarity and quality of thought (Sears, Kraus, Carlogh, & Treat, 2011). This paper will discuss the rationale, methods, preliminary results, and recommendations of this meditation pilot study to help prepare the student cognitively and emotionally for online learning.

Literature Survey

Online Learning and Meditation

Helping students focus, interact, and engage with each other are effective ways to promote learning. These are activities which require intellectual and

personal growth (Bain, 2004). Most higher education faculty understand ways to develop students' thinking through reasoning, analysis of evidence, use of abstract ideas, and applied problem solving. However, the promotion of self-awareness and personal responsibility is less understood and evident in higher education. Yet such personal development appears to be critical in online learning. In an overview of student abilities necessary for effective distance learning, Cunningham (2010) states that "self-directed learning is key to successful on-line distance education" (p.1). He also highlights the value of self-awareness and self-discipline. The literature base in this area further supports the importance of self-regulation (Allen et al., 2004; Fahme, 2011; Radovan, 2011; Sutton & Nora, 2008), active participation (Conaway, Easton, & Schmidt, 2005; Hacker & Niederhouse, 2000), and cognitive development (Sutton & Nora, 2008; Yang, Huna-Yuan, & Lin, 2009) in online education. Conversely, impediments such as anxiety and stress have been shown to constrict task performance (Eysenck, Payne, & Derakshan, 2005) and to reduce satisfaction and learning in online courses (Sun, Tsai, Finger, Chen & Yeh, 2008).

Meditation was selected as an activity to promote online learning based on evidence that the practice reduces stress and increases self-efficacy. Previous studies have consistently found meditation to be effective in anxiety and stress reduction (Chu, 2010; Davis & Hayes, 2011; Jenson et al., 2012), improving focus and attention (Koraza et al., 2012; Ray, Baker, & Plowman, 2011; Tang et al., 2007), and developing emotional regulation (Holzel et al., 2011; Zautra et al., 2008). While these benefits of meditation relate to family, work, and personal settings, there was little evidence in the literature of its benefits in academic settings. Therefore, this qualitative analysis

of online students' meditation experience is proffered as a preliminary thread of new inquiry.

Meditation: Variations and Descriptions

A consistent meditation practice as part of one's daily routine has documented benefits both for the mind and body. Although there are many varieties of meditation practice, three specific types appear to be most prevalent in the academic literature: 1) visualization; 2) transcendental; and 3) mindfulness. While there might be some overlap to the practice and impact of each of these meditation styles, there are clear distinctions of method and focus which will be very briefly outlined. With visualization or guided imagery, an individual will be guided either by suggested visual cues (recorded, in person or written) or mental ones (i.e. take a journey in the mind's eye).

Transcendental meditation (TM) has roots in the ancient Vedic traditions of India. About 50 years ago, the Maharishi promoted and taught the TM technique to US audiences and other peoples throughout the globe (www.tm.org). This practice involves sitting comfortably in a chair and practicing a technique of mantra-based mental relaxation. Teachers of TM adhere to sacred and proven traditions; in turn, individuals learn this technique by becoming a student of a trained TM instructor.

According to Dwividi (2000), the construct of "mindfulness" dates back to the 6th century Buddhist term in the Pali language "Sati." In this context Sati (as described in the Satipathan Sutta) is comprised of 4 aspects: 1) awareness of functions and parts of the body, 2) awareness of feelings and sensations, 3) awareness of cognitions, and 4) awareness of mental impediments. Recently, Holzel et al.

(2011) reviewed the literature that related to the effects of mindfulness meditation. The categories of: a) attention regulation, b) body awareness, c) emotional regulation, and d) change in perceptions of self are strikingly similar to early Buddhist principles. The goal of mindfulness meditation "is to maintain attention to current internal and external experiences with a nonjudgmental stance, manifesting acceptance, curiosity and openness." (p.549).

Jon Kabat-Zinn (1990) developed the meditation technique termed mindfulness-based stress reduction (MBSR). This MBSR intervention is comprised of three elements, 1) video presentation of didactic information on mindfulness, stress and pain management and everyday implementation of the MBSR technique to alleviate these challenges, 2) mindfulness exercises, and 3) reflective discussion and sharing. Kabat-Zinn's video and exercises served as the online meditation activity used in this study and will be discussed in the methods section.

Meditation: Evidence of Benefits

Although much of the current research on mindfulness meditation has occurred in clinical settings for patients with anxiety or pain, some research has taken place in work and school environments. Ho's (2011) investigation of meditation experience and relationships with self-directed learning (SDL), organizational innovation (OI), and organizational performance (OP) has particular relevance to this study. Survey results of Taiwanese technology managers found that meditation experience promoted the openness to challenge, inquisitive nature, and self-understanding factors of SDL. Other studies that involved non-clinical populations such as college students, administrators, employees, and

mediators have indicated improved attention (Ray et al., 2011; Shapiro, Schwartz, & Bonner, 1998; Tang et al., 2007; Van den Hurk et al., 2010), stress reduction, and emotional regulation (Aftanas & Golosheykin, 2005; Chu, 2010; Jenson et al., 2012).

Many studies have been conducted in clinical settings with patients suffering from mental and physical maladies. These investigations demonstrated stress reduction effects (Carlson, Speca, Faris, & Patel, 2007) and emotion and pain regulation (Zautra et al., 2008) as positive correlates to meditation practice. Other studies reported the following benefits of meditation: increases in well-being (Carmody & Baer, 2008; Chiesa & Serretti, 2009) and improved cognitive functioning (Sears et al., 2011). While not all studies support the advantages of the practice—for example, King and Coney (2006) found no significant differences in cognitive function between experienced meditators and non-meditators—nonetheless, the growing research supports the positive value of meditation in a variety of settings.

Methods

A structured meditation exercise was piloted in two online courses at the undergraduate and graduate levels offered in a Healthcare Management program during Fall 2011. The purpose of the exercise was to assess whether and how meditation influenced students' learning and personal growth. Students responses and reflections about the activity provided the data used in this qualitative analysis.

The meditation exercise included viewing the You Tube video of a talk by Jon Kabat-Zinn (1990) from the University of Massachusetts Medical School that was sponsored by Google. It discusses the scientific evidence of mindfulness practices and

behaviors as they relate to stress reduction and healing. Students were given instructions to guide them in a brief meditation followed by several open-ended questions that related to their personal experience of meditation and any perceived benefits. The following describes the instructions given to students:

You will review two web sites that will provide background and research the effects of meditation on health, stress reduction, and healing.

<http://www.4mindfulnessmeditation.com/> will provide a brief overview of mindfulness meditation.

<http://www.youtube.com/watch?v=r-SU8ftmmhmw>

This is a 1 hour and 14 minute You Tube video of a talk by Jon Kabat-Zinn from the University of Massachusetts Medical School that was sponsored by Google.

Practice and Reflection:

In a quiet place where you will not be interrupted, sit comfortably, up right in a chair with legs uncrossed, or in a yoga lotus position on the floor. Make sure your back can remain straight. Have a watch or clock nearby and practice just breathing and watching your thoughts for 3-5 minutes. Before you begin, notice how your body and mind feel. Try to go as long as possible. Then respond to the following questions - keep responses to each 200-250 words:

1. Did you notice a change in how your body and mind felt after the meditation was complete? If so, describe this change.
2. Discuss two benefits you experienced after meditating.
3. Discuss two potential problems of meditation.

Student Sample

This meditation exercise was conducted in two online professional courses in Healthcare Management: one undergraduate and one graduate. There were 31 students in each course with 19 women and 12 men in the graduate course; and 29 women and 2 men in the undergraduate course. Both classes were racially and ethnically diverse and reflective of the racial and ethnic characteristics of the selected public university and academic program. Two thirds of the graduate and undergraduate students were non-white; with an estimated 25% international students from Africa, Asia, and Middle East.

Plan of Analysis

The open-ended questions were systematically analyzed to identify common student responses related to their meditation experience. Responses were listed and categorized to reflect common themes. A count of responses for each category was tallied and sorted by class (undergraduate vs. graduate) and for graduate students by gender. Initially, gender was examined among graduate students only as undergraduates were overwhelmingly female; however, no significant differences were found between male and female graduate responses and thus findings are reported only by class. Due to the small number of students in this pilot, significant tests were not performed. However, the following tables describe their responses.

Results

The following tables summarize responses for graduate and undergraduate students regarding their meditation experience and perceived benefits and problems.

Table 1. Did you notice a change in how your body and mind felt after the meditation was complete? If so describe.

	Clear-minded	Relaxed/Cal m	Better Memory	Aware of physical environment
Graduates (n=31)	52%	36%	26%	20%
Undergraduates (n=31)	33%	34%	48%	25%

Table 2. Discuss two benefits of meditation.

	Lower stress	Clear focus	More emotional stability	Improved concentration	Helped to process information
Graduates (n=31)	43%	35%	40%	33%	24%
Undergraduates (n=31)	40%	37%	10%	23%	15%

Table 3. Discuss two potential problems of meditation.

	Time	Managin g self-awareness	Acceptan ce by others	Less productivity	Clash with cultural/religious beliefs
Graduates (n=31)	47%	35%	25%	28%	15%
Undergraduates (n=31)	45%	24%	14%	21%	7%

Discussion

Patterns or re-occurring themes observed after meditation.

Graduate students were most likely to report being clear-minded and undergraduates were most likely to report better memory following meditation. Both groups reported feeling relaxed and peaceful and aware of their physical environment.

Perceived benefits derived from meditation.

Lower stress and gaining a clear focus were consistently reported in both classes as a benefit of meditation. Graduates were more likely than undergraduates to report gaining emotional stability, improved concentration, and information processing as benefits. Perceived potential problems from meditation.

Time required to meditate was consistently reported as a potential problem by all students. This relates to the lower productivity reported by graduate students and undergraduate women. Graduate students were more likely to report problems related to managing difficult feelings that emerge from heightened self-awareness than undergraduates. Several graduate and undergraduate students noted that meditation could clash with an individual's cultural and religious beliefs and thus lead to some level of intrapersonal conflict. Given the racial and ethnic diversity of both classes this is an important point to consider.

General Comments

The following are examples of general comments from students related to the meditation

Graduate students

- This is my first semester in grad school and my first online class ever. As you can imagine, I was nervous and somewhat intimidated, especially since I did not know what to expect. That is the main reason why I started meditating.
- Have to practice it, do it more than once to get the benefit there is a learning curve to mindfulness meditation.
- During the exercise, I felt my muscles relax and my head felt lighter, as if everything was warm and melting away. In my mind, I felt in tune with my body. I was able to focus and think more clearly in daily situations. I even noticed I was more able to pick up on smaller details. Also, my thoughts were, how can I express this, like an early 1920's silent movie where everything is moving fast, and the words are showing the next slide. What I am trying to say is that even though, my thoughts were racing, I was able to clearly process and interpret the content of each thought.

Undergraduate students

- There is a feeling of inspiration, health of the body, and circles of empowerment. In general, the aftermath of meditation presents the body with some form of awareness concerning your soul and energy.
- There is more responsibility to direct ourselves in online courses. Meditation can greatly benefit us in these online courses by clearing our minds to gain a mental focus.
- Online learning is time consuming and very demanding but can be very interesting and become a learning opportunity if one is able to take things one at a time and become very discipline to time management. That is the strength of meditation.

Recommendations to Apply Lessons Learned

Students' feedback and reflections indicate that meditation promotes relaxation, reduces stress, and thus fosters readiness to learn. With these benefits in mind, the following are suggested ways to integrate meditation into an online course:

1. Start an online course with a meditation exercise. This can provide the opportunity for students to relax and mentally focus on the course content and instruction. The meditation exercise can also serve as an ice-breaker to help learners focus and share personal experiences. Some ways to set up this exercise include posting student responses to a discussion board or conference to help students to get acquainted with each other in a non-threatening and personal way.
2. Place the meditation exercise at the middle or end of the course as a stress reducer to help students relax and focus, especially before tests or other busy times in the course.
3. Be clear with students regarding the purpose of meditation to online learning. It is important to explain how meditation promotes relaxation and attention, otherwise the students may feel distracted or confused by the meditation exercise, which may impede learning.
4. Offer credit for completion of the assignment to increase student participation in the meditation exercise. Linking a reward for this activity will encourage students to seriously consider and complete the meditation exercise.

Review student comments and reflections about the meditation; check for feedback especially related to perceived benefits,

problems, and ways to improve the exercise. These can provide insightful feedback in terms of whether and how the meditation exercise helped students relax, focus, manage their time, and engage with others in the online learning environment.

Limitations and Future Studies

There were several limitations to this pilot investigation and these will be discussed together with suggestions for further study. First, the study was limited to one program in a single university. It is important to examine a broad sample of online students from undergraduate and graduate programs in a variety of universities to assess whether perceived benefits of meditation are similar, different, or not present among other students. Another point to consider is to select programs with culturally diverse students since perceptions about meditation are likely to be influenced by cultural beliefs and values. Thus, examining meditation across a broad array of online programs with diverse students would provide a student sample that can be examined across key demographic factors to assess their effects on perceptions and benefits of meditation.

Second, this pilot used subjective responses to open-ended questions following the meditation without any pre-assessment. A pre- and post-design to evaluate the effects of meditation such as mindfulness, self-awareness, self-regulation, and stress can strengthen the validity of these preliminary results. Additionally, using established quantitative tools vs. the qualitative ones used in this pilot can also minimize some internal validity threats. For example, using the Kentucky Inventory of Mindfulness Skills (Baer, Smith, & Allen, 2004) or the Langer Mindfulness/Mindlessness Scale (Haigh, Moore, Kashdan, & Fresco, 2011), as

well as validated emotional intelligence inventories or stress assessments can provide appropriate tools for this type of inquiry.

Third, this study did not look at the impact of meditation on learning of course content. Future investigations may examine the relationships between meditation and student grades for online courses to assess if meditation can improve student online learning and grades. It is important to apply some or all of these for future studies to enhance their rigor and validity.

Conclusion

This study sought to promote dialogue and initiate inquiry focused on the function and benefits of meditation to prepare students for online instruction and learning. As more college courses are being delivered online, it is increasingly important for the academic community to assess student learning processes related to online instruction. This pilot used meditation as an innovative process to prepare online learners by helping them to relax, focus, and engage with fellow learners and the instructor in course activities. The current investigators want to encourage others to build on these preliminary steps by using pre- and post-evaluation designs, established quantitative measures, and larger sample sizes with the intent to build a student data base that can inform future dialogue and study regarding the value of meditation for online learning.

References

Aftanas, L., & Golosheykin, S. (2005). Impact of regular mediation practice on EEG Activity and During Evoked Negative Emotions. *International Journal Of Neuroscience*, 115(6), 893-909.

doi:10.1080/00207450590897969

Allen, M., Mabry, E., Mattrey, M., Bourhis, J., Titsworth, S., & Burrell, N. (2004). Evaluating the effectiveness of distance learning: A comparison using meta-analysis. *Journal of Communication*, 54(3), 402-420.

Allen, I. E., & Seaman, J. S. (2007). Changing the landscape: more institutions pursue online offerings. *On The Horizon*, 15(3), 130-138.

Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness Skills. *Assessment*, 11(3), 191-206.

Bain, K. (2004). *What the best college teachers do*. Cambridge, MA: Harvard University Press.

Carlson, L. E., Speca, M., Faris, P., & Patel, K.D. (2007). One year pre-post intervention follow-up of psychological, immune, endocrine and blood pressure outcomes of mindfulness-based stress reduction (MBSR) in breast and prostate cancer outpatients. *Brain, Behavior, and Immunity*, 21(8), 1038-1049.

Carmody, J., & Baer, R. A. (2009). How long does a mindfulness-based stress reduction program need to be? A review of class contact hours and effect sizes for psychological distress. *Journal of Clinical Psychology*, 65, 627-638. doi: 10.1002/jclp.20555

Chiesa, A., & Serretti, A. (2009). Mindfulness-Based Stress Reduction for stress management in healthy people: A review and meta-analysis. *Journal Of Alternative & Complementary Medicine*, 15(5), 593-600. doi:10.1089/acm.2008.0495

- Chu, L. (2010). The benefits of meditation vis-à-vis emotional intelligence, perceived stress and negative mental health. *Journal of the International Society for the Investigation of Stress*, 26(2), 169-180.
- Conaway, R. N., Easton, S. S., & Schmidt, W. V. (2005). Strategies for enhancing student interaction and immediacy in online courses. *Business Communication Quarterly*, 68(1), 25-35.
- Cunningham, J. (2010). Self-direction: A critical tool in distance learning. *Common Ground Journal*, 7(2), 89-100.
- Davis, D., & Hayes, J. (2011) What are the benefits of mindfulness? A practice review of psychotherapy-related research. *Psychotherapy*, 48(2), 198-208.
- Dwivedi, K. N. (2000). Mindfulness in mental health. *Psychiatry Online*. Retrieved from www.priory.com/psych/mindfulness.htm
- Eysenck, M., Payne, S., & Derakshan, N. (2005). Trait anxiety, visuospatial processing and working memory. *Cognition & Emotion*, 19(8), 1214-1228.
- Fahme, D. (2011). Analysis of communication barriers to distance education. *Online Journal of Communication and Media Technologies*, 1(1), 1-15.
- Hacker, D. J., & Niederhauser, D. S. (2000). Promoting deep and durable learning in the online classroom. *New Directions for Teaching and Learning*, 2000(84), 53-63.
- Haigh, E. A. P., Moore, M. T., Kashdan, T. B., & Fresco, D. M. (2011). Examination of the factor structure and concurrent validity of the Langer Mindfulness/Mindlessness Scale. *Assessment*, 18(1), 11-26.
- Ho, L. (2011). Meditation, learning, organizational innovation and performance. *Industrial Management & Data Systems*, 111(1), 113-131.
- Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives On Psychological Science*, 6(6), 537-559. doi:10.1177/1745691611419671
- Hussain, D., & Bhushan, B. (2010). Psychology of meditation and health: Present status and future directions. *International Journal of Psychology & Psychological Therapy*, 10(3), 439-451.
- Jensen, C. G., Vangkilde, S., Frokjaer, V., & Hasselbalch, S. G. (2012). Mindfulness training affects attention—Or is it attentional effort? *Journal of Experimental Psychology*, 141(1), 106-123.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York: Bantam.
- King, G., & Coney, J. (2006). Short term effects of meditation versus relaxation on cognitive functioning. *Journal Of Transpersonal Psychology*, 38(2), 200-215.
- Koraza, E. H., Sato, J. R., Lacerda, S. S., Barreiros, M. A., Radvany, J., Russell, T. A., Sanches, L. G., Mello, L. E., & Amaro, E. (2012). Meditation training increases brain efficiency in an attention task. *NeuroImage*, 59(1), 745-749.

- Radovan (2011). The relation between distance students' motivation, their use of learning strategies, and academic success, *Turkish Online Journal of Educational Technology*, 10(1), 21-222.
- Ray, J. L., Baker, L. T., & Plowman, D. A. (2011). Organizational mindfulness in business schools. *Academy of Management Learning and Education*, 10(2), 188-203.
- Sears, S. R., Kraus, S., Carlough, K., & Treat, E. (2011). Perceived benefits and doubts of participants in a weekly meditation study. *Mindfulness*, 2(3), 167-174.
- Shapiro, S. L., Schwartz, G. E., & Bonner, G. (1998). Effects of Mindfulness-Based Stress Reduction on medical and premedical students. *Journal of Behavioral Medicine*, 21(6), 581-599.
- Sun, P., Tsai, R. J., Finger, G. Chen, Y., & Yeh, D. (2008). What drives a successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, 50, 1183-1202.
- Sutton, S. C., & Nora, A. (2008). An exploration of college persistence for students enrolled in web-enhanced courses: A multivariate analytic approach. *Journal of College Student Retention*, 10(1), 21-37.
- Tang, Y., Ma, Y., Wang, J., Fan, Y., Feng, S., Lu, Q., Yu, Q., Sui, D., Rothbart, M. K., Fan, M., & Posner, M. (2007). Short-term meditation training improves attention and self-regulation. *Proceedings of the National Academy of Sciences of the United States of America*, 104(43), 17152-17156.
- Van den Hurk, P. A., Giommi, F., Gielen, S. C., Speckens, A. E., & Barendregt, H. P. (2010). Greater efficiency in attention processing related to mindfulness meditation. *The Quarterly Journal of Experimental Psychology*, 63(6), 1168-1180.
- Yang, J. F., Huna-Yuan, L., & Lin, N. C. (2009). Modes of delivery and learning objectives in distance education. *International Journal of Instructional Media*, 36(1), 55-71.
- Zautra, A. J., Davis, M. C., Reich, J. W., Nicassario, P., Tennen, H., Finan, P., & Irwin, M. R. (2008). Comparison of cognitive behavioral and mindfulness meditation interventions on adaptation to rheumatoid arthritis for patients with and without history of recurrent depression. *Journal Of Consulting And Clinical Psychology*, 76(3), 408-421.

Curriculum design for flexible delivery: an assessment of e-learning approaches

Jayanath Ananda¹

Technological advancements have pushed the boundaries of tertiary education design and delivery across the globe. Flexible teaching and learning delivery approaches have proliferated in recent times without much attention to pedagogically-driven learning designs. This paper reviews various pedagogical designs used as part of e-learning and blended learning models in business education. It also maps the tenets of learning theories to selected e-learning designs. Tertiary educators face several challenges when implementing e-learning designs in business education. They include a traditional structured approach to learning, difficulties in catering to diverse student cohorts equitably, and choosing effective technologies that underpin a particular e-learning pedagogy.

Keywords: learning theories, business education, online pedagogies, e-learning, conversational framework, web 2.0, flexible learning

1. Introduction

Curriculum design for flexible delivery is at the forefront of a teaching and learning renewal of tertiary education, particularly in business education. Flexible delivery of teaching and learning covers a wide array of approaches including online teaching and e-learning, block-mode teaching delivery and distance education. Hunter et al. (2010) stress that if continuous improvements have not been made to business education, the society will lose significant economic contributions made by business graduates. On the one hand, there is a growing awareness in business education that the traditional approach to teaching and learning fails to meet industry demands (van Over & Stover, 1994; Westerbeek, 2004) and lags behind in equipping business students with skills to leverage the use of networks, optimal links and information (Hughes, 2006). The most common pitfalls include the strong emphasis on

technical content, inadequate application of knowledge and generic skills such as group work, communication, problem-solving, critical thinking and leadership (Albrecht & Sach, 2001; Carr & Mathews, 2002). On the other hand, today, tertiary education institutions offering business programmes face increased competition and chronic funding challenges (Hunter et al., 2010) forcing them to introduce flexible and innovative courses as a marketing strategy to bolster student enrolment.

Technological advancements have pushed the boundaries of tertiary education institutions towards new forms of knowledge construction and social interaction. The emergence of Web 2.0 based learning tools, which can augment superior computational and communication capabilities and foster collaboration and social interaction, have provided an impetus for a growing body of work on curriculum design for e-learning (Bower et al., 2009). Web 2.0 can be broadly defined as a second generation

¹ School of Economics, La Trobe University

or more personalised communicative form of the World Wide Web that emphasises active participation, connectivity, collaboration and sharing of knowledge and ideas among users (Lee & McLoughlin, 2011). Web 2.0 is often associated with the use and practice of social software where multiple users can collaborate with one another, micro-contents such as blog posts, text-chats, video-clips, open web tools and other sophisticated web interfaces (Bower et al., 2009; Dabbagh & Reo, 2011). Tapscott and Williams (2010) state that “universities are losing their grip on higher learning as the internet is, inexorably, becoming the dominant infrastructure for knowledge—both as a container and as a global platform for knowledge exchange between people” (p.18).

The rapid spread of globalization and enormous developments in information technology (IT) have also led to dramatic changes in the business environment and business courses need to be responsive to these changes (Mohamed, 2009). Burdett (2003) highlights the importance of incorporating strategies such as group work into business teaching pedagogy² to ensure deep learning outcomes. It is also envisaged that a blend of technical and interpersonal skills are required to navigate and succeed in the modern working place (Hunter et al., 2010). New models and novel approaches to business education have been called for, which include the interests of industry, students and academia (Anderson and Rask, 2008). One of the approaches that has received attention in business education reforms is the use of e-learning and blended learning approaches.

² Although the term pedagogy is often regarded as the art and science of teaching, it is not without critics (Beetham & Sharpe, 2007).

The Joint Information Systems Committee (JISC) defines e-learning³ as ‘learning facilitated and supported through the use of information and communication technologies’ (Beetham, 2004, p.1). E-learning has also been presented as a continuum of face-to-face learning, which contains no e-learning, to distance education which can be fully e-learning (Bates & Poole, 2003). Blended learning which combines both face-to-face learning and forms of e-learning is placed in the middle of this continuum. Commonly cited reasons for incorporating e-learning into curricula include increased flexibility of learning environments, improvement of quality by increased access to information, reduced cognition load and authentic learning, ability to tap into the global market, widening access, competition and strategic reasons (Normand & Littlejohn, 2006).

Despite the initial enthusiasm, e-learning has not lived up to its expectations in both the university and corporate sectors (Driscoll, 2008; Granić et al., 2009). Past evidence of technology introduction to teaching and learning indicates that often such technology has been embraced with naïve enthusiasm only to be later discarded (Lowerison et al., 2008). It is also clear that the predicted decline in face-to-face teaching, due to the introduction of online teaching technologies, has not occurred (Beetham, 2004). However, the potential of online technologies has not yet been fully harnessed for learning.

Pedagogical problems, organizational barriers, technical issues and financial problems have been cited as the main impediments of e-learning development (Driscoll, 2008). A diverse array of

³ Although the meaning is relatively uncontested, there is no universally accepted definition for e-learning. Online learning is regarded as more narrow in scope than e-learning (Beetham, 2004).

theoretical perspectives which is alien and overwhelming to academics outside the field of education is another factor contributing to the lack of applications in pedagogically-driven e-learning designs (McNaught, 2003). The mere presentation of subject matter using multimedia does not, of itself, lead to better learning (Mayes & Freitas, 2004). Central to the issue is the mapping of sound pedagogical principles as outlined by Biggs (2000) into the e-learning curriculum design. Biggs (1996) emphasised that learners use their own activities to construct knowledge and the teaching design should specify the desired levels of understanding and activities that they need perform. There is little evidence of various learning theories being applied to effective pedagogically driven e-learning (Beetham et al., 2001; Clegg et al., 2003; Conole et al., 2004). There is also a need for studies that examine the extent to which the emergent technologies such as Web 2.0 support the educational process and to identify ways in which they can enhance student learning (Oskoz & Elola, 2011).

This paper focuses on e-learning in business education and how it can be adapted to diverse contexts including multi-campus teaching delivery. The paper reviews the specific pedagogical principles that can be used in designing business subjects for flexible delivery predominantly based on online technologies. The remainder of this paper is organised as follows. An overview of learning theory is presented in the next section. Then the tenets of learning theory are mapped to e-learning pedagogy. In the next section, some challenges and potential applications of e-learning to business education are discussed with special reference to multi-campus and flexible delivery. Some concluding comments are provided in the final section.

2. Overview of learning theories

Theories of learning outline three broad traditions to learning: behaviourism, cognitivism and constructivism (Mayer, 2003). These traditions are derived from broader fields, not just education, and are regarded as historical stages of enquiry into knowledge. The behavioural approach to learning posits that knowing is the result of objective experience whereas the cognitive approach purports knowing as the mental processing of information. The behavioural approach places a high emphasis on prescriptive instructions on well-defined learning objectives and rewarding learners as they progress incrementally toward larger learning goals (Lowerison et al., 2008). The constructivist approach subscribes to the view that learning is a subjective construction of knowledge. The basic premise is that meaning is not imposed or transmitted by direct instruction, but is created by students' learning activities (Biggs & Tang, 2007).

Anderson and Krathwohl (2001) provide a taxonomy of learning which incorporates a knowledge dimension and a cognitive process dimension. The knowledge dimension relates to the subject matter contents and incorporates factual knowledge (discrete pieces of elementary information), conceptual knowledge (interrelated representations of more complex knowledge forms), procedural knowledge (the skills to perform processes) and metacognitive knowledge which is the knowledge and awareness of one's cognition as well as that of others. The cognitive process dimension includes remembering, understanding, applying, analysing, evaluating and creating. These levels represent a continuum from lower order thinking skills to higher order thinking skills (Anderson & Krathwohl, 2001).

Various interpretations of the three learning theory traditions described above have been discussed in the literature. For example, Greeno et al. (1996) highlight three broad perspectives which make vastly different assumptions about what is crucial for understanding learning – the associationist perspective (learning as an activity); the cognitive perspective (learning as achieving understanding); and the situative perspective (learning as social practice). These three perspective (associationsist, cognitive, and situative) correspond to behaviourism, cognitivism, and constructivism in learning theory traditions, respectively. The associationist perspective, which encompasses the research traditions behavioural theory and neural networks⁴ (Mayes & de Freitas, 2004), contends that knowledge is organised accumulation of associations and skill components. Moreover, not only are the formation, strengthening and adjustment of association pivotal to learning but so is the reinforcement of connections through feedback. Albeit controversial, the associationist view also assumes that knowledge and skills need to be taught from the bottom up where smaller units are mastered as a prerequisite for more complex units. The cognitive perspective emphasises underlying processes of interpreting and constructing meaning and focuses on schema theory, information processing theories, the level of processing in memory, mental models and metacognitive processes. In sharp contrast to the associationist perspective, the cognitive perspective places a strong emphasis on the structures of understanding when acquiring new knowledge. The situative perspective advocates that learning must be personally meaningful and always subject to influences from the social and cultural

setting in which the learning occurs. One branch of situative learning emphasises the importance of context-dependent learning⁵ where every effort is made to make the learning activity authentic to the social context (Mayes & de Freitas, 2004).

Biggs (1999) emphasised the importance of consistency between the curriculum, teaching methods, the learning environment and the assessment procedures when designing curricula. Accordingly, a good pedagogical design is one with complete consistency of the above elements. The logical process should align the intended learning outcomes with learning and teaching activities and then design assessment tasks which will genuinely test whether the outcomes have been reached (Mayes & de Freitas, 2004). Albeit simple in theory, the application of Biggs' approach to curriculum design is not straightforward. Biggs (2009) advocates a constructivist approach prompting the designer to always focus on what the learner is actually doing. Hence, the guiding assumption about learning upon which various teaching methods and learning activities are built is constructivist theory.

Given the numerous interpretations of learning traditions and online pedagogies, applying learning theories to curriculum design becomes a non-trivial task. The core question for the curriculum designer is which learning theory and which perspective is useful for a specific teaching and learning context. Essentially, the task involves unpacking various online pedagogies so that their learning tradition roots can be uncovered. The next section applies these learning theories to selected online pedagogies.

⁴ Neural networks posit knowledge states as patterns of activation in a network of elementary units (Mayes and de Freitas, 2004).

⁵ For example, Problem-based Learning (PBL).

3. Applying learning theories to online pedagogies

The core research question addressed in this paper concerns the pedagogical approaches to e-learning design in business courses with diverse student cohorts. The focus is on what questions practitioners should ask when making e-learning design decisions. This invariably involves reflecting on the intended learning outcomes, the assumptions about the role of technology, the learning context and teaching modes. Contextual elements (Kember, 1997), in particular, appear to have different levels of influence on teaching and learning (Gonzalez, 2009). Salmon (2002) contends that “there are no e-learning models per se but only e-enhancements where technology is used to achieve better learning outcomes,” or a more cost-efficient way of bringing the learning environment to learners (Mayes & de Freitas, 2004). When applying theory to online pedagogies, it is also important to take into consideration the contextual factors including diverse student cohorts and teaching delivery modes and how they enable non-specialists to engage in effective e-learning curriculum design. Therefore, mapping learning theory onto various pedagogical approaches is the logical precursor to any attempt to identify pedagogies that are best suited for a particular teaching and learning context.

Table 1 summarises selected online pedagogies, their learning theory foundations and the relevance to flexible curriculum design. My intention here is to apply learning theory to a few chosen pedagogies that are relevant to diverse student needs or cohorts. The diverse needs include consideration of academic year (whether undergraduate or postgraduate), learning context (type of group, relationship) and the

nature of the task. Online pedagogies that subscribe to a behavioural tradition include most current e-learning tools, e-training modules and some intelligent tutoring models. Certain business courses by nature are interdisciplinary and thus pedagogical approaches that enhance learning through association and reinforcement, whilst building advanced complex tasks in a step-by-step manner, are useful. When catering to student groups with differing backgrounds and circumstances (e.g. full-time student versus part-time student who is employed), pedagogies that subscribe to cognitive traditions can be highly relevant. Under this learning theory tradition, several online pedagogies including Laurillard’s conversational model and Salomon’s distributed cognition model are described. Among the plethora of pedagogies that draw from constructivism, several relevant to business courses are discussed.

Pedagogies based on a behavioural perspective include instruction-based e-training models through which simulation of a process is carried out and problems or routines that have been carefully sorted according to the difficulty level are presented. These pedagogies are based on the premise that behavioural modifications are possible via stimulus-response pairs and trial and error learning. Instructional approaches are considered to be more appropriate when students have not yet formed an understanding about a particular topic (Magliaro et al., 2005). Most current e-learning development models which use digital media such as podcasting, Lectopia, lecture presentation, quizzes and web-based self-assessment subscribe to behaviourism. Intelligent Tutoring Systems (ITS) (Anderson & Reiser, 1985) and learning objects models (Wiley, 2000) also align with the behavioural theory as they essentially follow an instructivist approach (Mayes & de Freitas, 2004). Howev-

Table 1: Selected e-learning pedagogies and their learning theory traditions

Learning theory (primary)	Learning theory (secondary)	Main features	e-learning pedagogy/tools	Possible application to research question	References	
Constructivism	Cognitive/Constructivist	Learning is understood as achieving understanding through dialogue and collaboration. New knowledge must be built on the foundations of already existing frameworks, through problem-solving activity and feedback	Laurillard's Conversational Model	Highly relevant in catering to different student groups and group-specific tasks (abstract or concrete) as learner groups may differ in their understanding and application of concepts.	Laurillard (2002)	
		Learning as transformation in internal cognitive structures with a pedagogical focus on processing and transmission of information through communication, inference and problem solving	Salomon's distributed cognition Intelligent Learning Systems		Mayes & de Freitas (2004) Bower et al. (2009)	
Constructivism	Constructivist	Learning as subjective construction of knowledge with a task-oriented pedagogical focus. Favours hands-on, self-directed activities oriented towards design and discovery. Focuses on a	Toolkits and other support systems that enable constructivist principles	The use of toolkit is largely driven by the subject content	Papert (1986; 1991); Conole et al. (2004)	
		Behaviourism	Associationist/ Instructional Systems Design (ISD)	The competence in advanced and complex tasks is built step by step from simpler units of knowledge and skill, finally adding coordination to the whole structure.	E-training; learning objects, some intelligent tutoring models	Most current e-learning development; Lecture presentations, Podcasting, Lectopia, library resources, quizzes, self-assessment

Table 1(Cont'd)

Community of Practice/Situative perspective/ Socially situated learning Co-constructivist	Learning as developing social practice Learning as social participation emphasising interpersonal relationships involving imitation and modelling	CSALT networked learning model Peer-assisted dialogic pedagogies	The emphasis on organisational context and educational setting has a greater relevance to curriculum design	Goodyear (2001); Greeno et al. (2000); Mayes & de Freitas (2004) Vygotsky (1978)
Activity-based	Influenced by activity theory and focuses on an activity system and structures of activities. The Zone of Proximal Development (ZPD) - Allows students to extend beyond what they could have achieved in isolation	Dialogic pedagogy Students on a networked learning course collaborating on a project (e.g. A Wiki project)	Collaborative group activities and projects can embed generic skills such as team work	Jonassen (2000) Vygotsky (1978)
Experiential	Learning as the transformation of experience into knowledge, skills and attitudes. Reflection as a means of transforming experience	Asynchronous communication which is not time-bound and communication archives offer increased opportunities for reflection	Asynchronous communication tools such as Discussion forums	Kolb (1984)
Socially-mediated/Constructivist	A stimulus is given in the form of an online activity where individuals post contributions. Interactions among participants take place through cross posting and responding to other's contributions. A summary, feedback or critique is offered by a moderator.	Salmon's e-tivities or Salmon e-moderation model	Useful in framing the course designing process as it provides five logical steps of student engagement process.	Salmon (2002) Salmon (2004)

er, pedagogies of behavioural origins often do not take advantage of the benefits derived from more socio-constructivist learning designs where the active engagement of students and socially constructed meanings are sought (Bower et al., 2009).

An approach which draws on both constructivist and cognitive theories is Laurillard's (2002) conversational framework. The conversational framework emphasises the importance of discursive or conversational flows to enable higher learning. It has been very influential in the development of e-learning in the UK. In this model, learning is understood as achieving understanding through dialogue and collaboration. The framework contends that learners form thorough understanding by apprehending the structure of discourse, interpreting forms of representation, acting on descriptions of the world, applying feedback, and reflecting upon the goal-action-feedback cycle (Bower et al., 2009). The conversational framework highlights five different media types to guide course designs: narrative; productive; interactive; communicative; productive, and adaptive (Laurillard, 2002). Table 2 describes these media types and related e-learning tools.

One of the main criticisms of the Laurillard framework is whether it is able to sustain the individual/group dialogue to enhance generic skills (Goodyear, 2002; Mayes & de Freitas, 2004). From a learning context point of view, narrative media types have the advantage of allowing the learner to access information at a time and in a place suitable for the learner. Since information is presented in more than one medium, the framework can overcome physical/sensory access problems. However, information overload and the need for a wider repertoire of information skills can be potential downsides. In communicative media types, learners have to communicate and take turns more explic-

itly drawing on different skills from spoken communication. The ability to record these dialogues for later reflection is an added advantage. However, demand for prompt responses in synchronous communicative tasks can be a burden for the learner.

A third approach that draws on both constructivist and Communities of Practice principles (Mayes & de Freitas, 2004) is the CSALT (Centre for Studies in Advanced Learning Technology) networked learning model (Goodyear, 2001). It emphasises the distinction between the tasks designed by the tutor and the activities carried out by the learner. The model disaggregates the implied pedagogy into a hierarchy comprising four levels: pedagogical tactics (the lowest level), pedagogical strategy, high level pedagogy, and philosophy (the highest level). The upper levels of pedagogy are considered conceptual while the lower levels are regarded as procedural or operational. Interestingly, the CSALT model, whilst integrating an element of the systems approach, places an emphasis on the organisational context and asserts its importance, particularly in the education setting. The pedagogical framework and the educational setting are contained within the organisational context. An educational setting is comprised of educator-designed tasks, student activities, and the 'learning environment'⁶ including educational technology. With a strong footing in collaborative learning, the CSALT model demonstrates that learning outcomes can be linked with specific learner groups and their activities (Mayes & de Freitas, 2004). Goodyear (2001) also emphasises the transformational and personal development aspects of networked learning (Mayes & de Freitas, 2004). Considering the merits

⁶ This can include the Personal Learning Environment (PLE) which can be a knowledge network, a cognitive space or technology associated with individual learning.

Table 2: Laurillard media type and e-learning tools

Media type	Description	e-learning tools
<i>Narrative</i>	Since formal learning depends more on interaction with representations than with the 'real world,' learners should produce representations of their own (notes, mind maps, class presentations and answers to comprehension questions)	On-screen text, image, video files, PowerPoint slides, DVDs, web pages, animations Multimedia authoring tools, word and image processing tools Electronic whiteboards, wikis, blogs, shared write/draw systems
<i>Productive</i>	Supports skills of analysis and application allowing learners to manipulate data consciously and explicitly, using their own parameters and protocols	Spreadsheets and other statistical tools, databases, qualitative analysis tools, online calculators
<i>Interactive</i>	Supports developing information skills and supporting research tasks. A special category of interactive tools are quizzes with feedback.	Quizzes, search engines, gateways and portals, interactive maps
<i>Communicative</i>	Asynchronous communication between individuals and groups can be used to promote reflective learning and allow ideas to be built collaboratively whereas synchronous communication has the benefits of immediacy and high motivation.	<u>Asynchronous</u> : Email, text, discussion forums, mailing lists, wikis, video and audio messages <u>Synchronous</u> : Online chat, video conferencing, instant messaging, mobile phones
<i>Adaptive</i>	Supports tasks that depend on continuous adaptation to user input where learners receive intrinsic feedback to their actions. Valuable in embedding experimental learning and higher order learning skills (e.g. problem solving, evaluation, research, etc.)	Simulations, virtual worlds, models, computer games, interactive tutorials

Source: Modified from Sharpe and Oliver (2007).

of each learning stage and activity, Bower et al. (2009) developed an online pedagogy framework that focuses on four general learning design principles: transmissive; dialogic; co-constructive; and collaborative. This framework allows the learning design to be driven by the cognitive and collaborative requirements rather than the ever-changing technology (Bower et al., 2009).

Salmon's (2004) e-moderating model of course design splits student engagement into five stages: access and motivation, online socialisation, information exchange, knowledge construction, and development. This model describes the stages of progressing towards successful online learning both for students and e-moderators (Mayes & de Freitas, 2004). The model has been widely used as a way of sequencing activities in courses that rely on collaborative computer-mediated discussions (Sharpe & Oliver, 2007). Although the model does not align with a learning theory directly, it implies a commitment to constructivist tasks and the greatest possible degree of dialogue.

Whilst descriptions of forms of learning settings that support quality learning outcomes are common in the literature, detailed descriptions about learning processes in forms that can be easily applied by teachers are less available (Oliver et al., 2007). In this section, an attempt was made to examine the learning theory traditions of selected e-learning pedagogies. The intention here was not to provide an exhaustive discussion of various online pedagogies but to hand pick a few online pedagogies that may be relevant to business curriculum design targeted at diverse student cohorts. The next section discusses some of the main challenges of applying e-learning pedagogies to curriculum design from a business education perspective.

4. Challenges, contextual influences and potential applications to business education

Traditional approaches to business education often fail to harness the full power of information technology and they support the notion that the individual is 'a lone seeker of knowledge' (Kilpatrick et al., 2003). Often, technology is a simple 'add on' to the course. This idea stems from the notion that teaching is a highly structured and prescriptive form of instruction whereby learning objectives and activities are defined in a more concrete format. Such traditional didactic approaches tend to result in surface learning (Ramsden, 2002) where the emphasis is on coverage of content and the assessment system which tests and rewards low-level outcomes in the classroom (Hunter et al., 2010). Such surface learning approaches fail to meet the general market expectations for business graduates (Jackson, 2009).

To address some of these pressing issues, universities are exploring ways in which information and communication technologies can: (a) enhance students' learning, (b) address issues of multi-campus and flexible delivery, and (c) implement pedagogically-sound methods (Design for Learning, La Trobe University, 2009). Today, most business subjects offered in Australian universities have an online component delivered through various Learning Management Systems (LMS) such as Moodle and Blackboard. These subjects can be regarded as web-supplemented rather than e-learning which is fully online. Currently, many universities are moving towards blended learning approaches where a combination of face-to-face learning and forms of e-learning is used. The majority of subject offerings with a web presence follow

an instructional design pedagogy and behavioural theory. Providing lecture presentations, tutorial material, podcasting, audio lectures using Lectopia and library resources are common elements of web-supplemented business subjects. What is less clear in current offerings is how web-supplemented elements enshrine and support such stated graduate capabilities as writing skills, creative problem-solving skills, and critical thinking skills.

There is evidence that much of the technology incorporation into curricula is prompted by practical challenges such as catering to large classes (Davies et al., 2005). However, different types of problems are inherent to the concurrent delivery of a subject in several campuses⁷. The concurrent delivery or multi-campus delivery of subjects is not uncommon in most business courses in Australia. In such circumstances, all students must have satisfactory access to subject resources whether they are metropolitan or regional, full-time or part-time. Blended learning approaches such as block-mode delivery have become popular in recent times as they cater to different learning styles and time challenges faced by part-time students. The main advantage of such an approach is the accessibility of material for part-time students who are unable to make a time commitment during normal teaching hours. Block-mode delivery tends to contain intensive sessions with a heavy content focus. The obvious downside of such an approach is there is little time for classroom discussion and reflection due to intense time pressures. Block-mode delivery combined with e-learning or online learning can bring about new possibilities of extended interaction (Bretag & Hannon, 2007).

⁷ Ocak (2010) highlights the practical problems and impediments of blended learning from a faculty point of view.

To incorporate technology successfully into the curriculum requires the purpose of the course to be negotiated and made explicit (Sharpe & Oliver, 2007). According to this premise, 'one off' rational course design processes have been problematic. Integrating technology into curriculum requires careful consideration on what it attempts to support. For example, it is the type of activity or collaborative task and thinking processes in which students engage that determines the quality of learning and technology is simply the mediator for the task or collaboration (Bower et al., 2009). Laurillard (2009) asks the question: how do we ensure that pedagogy exploits the technology and not vice versa? Without a strong theoretical understanding about the nature of formal learning, technology is at risk of being merely used to enhance conventional learning designs.

From the discussion presented in section 3, it is apparent that one single pedagogical approach may not satisfy both the theoretical and practical considerations in flexible delivery curriculum design in business courses. Each e-learning pedagogy contains both positive and negative features when embedding technology into curricula. Out of the e-learning pedagogies reviewed, Laurillard's (2002) conversational framework offers much promise for business curriculum design. Drawing from both constructivist and cognitive learning theory traditions, the framework offers a logical process highlighting appropriate e-learning media types to guide course designs. However, in multi-campus delivery contexts, it is important to be cognisant of the limitations imposed by the use of multiple media forms because the IT infrastructure and accessibility may not be uniform across various campuses of the same university. Salmon's (2002) e-moderation model is particularly useful in framing the course designing process as it offers logical steps of student engagement.

E-learning activities need to be integrated into assessment in order to be regularly used by students (Sharpe & Oliver, 2007). This is consistent with Biggs' (1999) constructive alignment notion. Lowerison et al. (2008) argue that learning theories have to be adjusted to the realities of online teaching. Previous reviews of e-learning models have emphasised the need to refine the methodological frameworks that position various e-learning models in the pedagogical space (Mayes & de Freitas, 2004). Conole and Oliver's (2002) approach requires practitioners to describe their own uses of technology and then formalise this to help them decide whether they are using the appropriate technology.

Emerging web technologies present new opportunities and challenges for both students and educators. They include Web 2.0 tools such as social bookmarking, Wikis, shared document creation, blogs, microblogging, presentation tools, image creation and editing, podcasting, video editing and sharing, screen recording, mindmapping and digital storytelling. Although most new technologies are not designed specifically for educational purposes, educators and students can leverage these tools to enhance the learning experience. New technologies are prompting many educators to rethink pedagogy and current teaching and learning models. Conole (2007) argues that the gap between the potential of technologies to support learning and the reality of how they are actually being used may be due to a lack of understanding about how technologies can be used to harness specific learning advantages. She presents a taxonomy that characterises components of a learning activity—context, pedagogy, and task (p. 85)—and these could be used to support practitioners to make informed choices in their designing for learning.

Implementing flexible learning approaches involves a different set of challenges. Technology issues are the most common challenge in many e-learning contexts. They include the learning infrastructure (hardware, software, delivery mechanisms, and processes that deliver and manage learning programmes), which is pivotal to e-learning success. As mentioned earlier, the learning infrastructure of all campuses of the university may not have the same quality or capacity. This is highly relevant in multi-campus delivery of subjects. Learning infrastructure contributes to the complexity of e-learning in several ways. Key factors contributing to the complexity of the technology infrastructure include technology dependencies⁸, customisation issues, integration challenges, and learner volumes (Shank et al., 2008). Multi-campus settings with differing IT capabilities exacerbate these infrastructure challenges. In fully-online delivery, certain student cohorts may not be able to access 'bandwidth-hungry' applications. Web 2.0 tools and the changing needs of the learners, especially those who have grown up with the internet and a plethora of social media networks, also provide unique challenges to educators. The abundance of choice and content creates anxiety for both students and teachers. Change from the top-down instructional approaches that have dominated business education to more flexible ones that focus on the learner is needed.

⁸ The implementation requires the full support and expertise of the IT department to ensure the chosen applications run efficiently within the organisation's existing platforms, client workstations and computer networks, disk space, and bandwidth support (Shank et al., 2008).

5. Conclusion

Technological advancements and changing student needs have transformed teaching and learning worldwide. Business courses, in particular are forced to respond to some unique challenges in the face of educational reform and curriculum renewal in the tertiary sector. This paper reviewed the literature on e-learning pedagogies that have been used as part of blended learning and flexible delivery. An attempt has been made to link the e-learning pedagogies with their underpinning learning theories. The literature on online pedagogies is voluminous. Each pedagogy emphasises a different aspect of learning and most pedagogies often draw from more than one learning theory tradition. This paper draws together and presents the key pedagogies for e-learning in business education in a coherent form.

Adapting e-learning to business education contexts requires careful consideration to what the subject wants to achieve, namely deep learning outcomes. On the one hand, new web technologies expand the opportunities to design subjects informed by sound pedagogies that will instil graduate attributes and deliver deep learning outcomes. They also prompt educators to rethink current teaching and learning pedagogies. Particularly, pedagogical principles strongly support collaborative learning that emanates from a constructivist paradigm. On the other hand, institutional context, organisational structures and infrastructure issues can hamper e-learning success. E-learning in business education is still evolving and more research is needed to better understand how technology can be used to harness specific learning advantages.

References

- Albrecht, W. S., & Sach, R. J. (2001). The perilous future of accounting education. *The CPA Journal*, 71(3), 16-23.
- Anderson, L., & Krathwohl, D. (2001). *A taxonomy for learning, teaching and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Longman.
- Andersen, P. H., & Rask, M. (2008). Taking action: new forms of student and manager involvement in business education. *Marketing Intelligence & Planning*, 26(2), 145-165.
- Anderson, J. R., & Reiser, B. J. (1985). The LISP tutor. *Byte*, 10, 159-175.
- Atkinson, R. (2006). Web 2.0: Next-g, sequel, or more of the same? *HERDSA News*, 29(2), 20-22.
- Bates, A. W., & Poole, G. (2003). *Effective teaching with technology in higher education: Foundations for success*. San Francisco: Jossey-Bass.
- Beetham, H., Jones, S., & Gornall, L. (2001). *Career development of learning technology staff: Scoping study final report*, JISC Committee for Awareness, Liaison and Training Programme. Retrieved from <http://www.jisc.ac.uk/publications/reports/2001/cdssfina1report.aspx>
- Beetham, H. (2004). *Review: Developing e-Learning models for the JISC practitioner communities*. JISC Pedagogies for e-learning programme: Initial review. Retrieved from <http://www.jisc.ac.uk/whatwedo/programmes/elearningpedagogy/outcomes>
- Beetham, H., & Sharpe, R. (2007). An introduction to rethinking pedagogy for a digital age. In H. & R. Sharpe (Eds.) *Re-*

- thinking pedagogy for a digital age: Designing and delivering e-learning (pp.1-25). London: Routledge..
- Biggs, J. B. (1996). Western misconceptions of the Confucian-heritage learning culture. In D. A. Watkins & J. B. Biggs (Eds.), *The Chinese learner: Cultural, psychological, and contextual influences* (pp. 45-68). Hong Kong; Melbourne, Australia: Comparative Education Research Centre; Australia Council for Educational Research.
- Biggs, J. (1999). *Teaching for quality learning at university: What the student does*. Buckingham: The Society for Research into Higher Education and Open University Press.
- Biggs, J. B. (2000). *Teaching for quality learning at university*, SRHE & Open University, Buckingham.
- Biggs, J. B., & Tang, C. (2007). *Teaching for quality learning at university: What the student does* (3rd ed.). Berkshire: Society for Research into Higher Education and Open University Press.
- Bower, M., Hedberg, J., & Kuswara, A. (2009). Conceptualising Web 2.0 enabled learning designs. In *Same places, different spaces. Proceedings ascilite 2009 Auckland* (pp.1153-1162). Retrieved from <http://www.ascilite.org.au/conferences/auckland09/procs/bower.pdf>
- Bretag, T., & Hannon, J. (2007). Online close and personal: Developing a community of inquiry using computer mediated communication. In M. Hellsten & A. Reid (Eds.), *Researching international pedagogies for teaching and learning*, Netherlands: Springer.
- Burdett, J. (2003). Making groups work: University students' perceptions, *International Education Journal*, 4(3),177–191.
- Carr, S., & Mathews, M. R. (2002). Accounting curriculum change: Is it a rational academic exercise? Working Paper, Charles Sturt University, Bathurst, NSW.
- Clegg, S., Hudson, A., & Steele, J. (2003). The emperor's new clothes: Globalisation and e-learning in higher education. *British Journal of Sociology of Education*, 24(1), 39-53.
- Conole, G. (2007). Describing learning activities: tools and resources to guide practice. In H. Beetham & R. Sharpe (Eds.), *Rethinking pedagogy for a digital age: Designing and delivering e-learning* (pp.81-91). Oxford: RoutledgeFalmer.
- Conole, G., Dyke, M., Oliver, M., & Seale, J. (2004). Mapping pedagogy and tools for effective learning design. *Computers & Education* 43, 17-33.
- Conole, G., & Oliver, M. (2002). Embedding theory into learning technology practice with toolkits. *Journal of Interactive Educational Media*, 8. Retrieved from <http://www.jime-open.ac.uk/>
- Dabbagh, N., & Reo, R. (2011). Back to the future: Tracing the roots and learning affordances of social software. In M.J.W. Lee & C. McLoughlin (Eds.), *Web 2.0-based e-learning: Applying social informatics for tertiary learning* (pp. 1-20). Hershey, PA: Information Science Reference.

- Davies, A., Ramsay, J., Lindfield, H., & Couperthwaite, J. (2005). A blended approach to learning: Added value and lesson learnt from students' use of computer-based materials for neurological analysis. *British Journal of Educational Technology*, 36(5), 839-49.
- Design for Learning (2009). *Design for learning: Curriculum review and renewal*. Melbourne: La Trobe University.
- Gonzalez, C. (2009). Conceptions of, and approaches to, teaching online: A study of lecturers teaching postgraduate distance courses. *Higher Education*, 57, 299-314.
- Goodyear, P. (2001). *Effective networked learning in higher education: Notes and guidelines (Deliverable 9)*. Bristol: Joint Information Systems Committee (JISC). Retrieved from http://csalt.lancs.ac.uk/jisc/docs/Guidelines_final.doc
- Goodyear, P. (2002). Psychological foundations for networked learning, Chapter 4. In C. Steeples & C. Jones (Eds.), *Networked learning: perspectives and issues* (pp. 49-75). Berlin: Springer Verlag.
- Granić, A., Mifsud, C., & Ćukušić, M. (2009). Design, implementation and validation of a Europe-wide pedagogical framework for e-learning. *Computers & Education*, 53, 1052-1081.
- Greeno, J. G., Collins, A. M., & Resnick, L. (1996). Cognition and learning. In D.C. Berliner & R.C. Calfee (Eds.), *Handbook of educational psychology* (pp.15-46). New York: Simon & Schuster Macmillan.
- Hughes, G. D. (2006). How business education must change. *MIT Sloan Management Review*, 47(3), 88.
- Hunter, J. D., Vickery, J., & Smyth, R. (2010). Enhancing learning outcomes through group work in an internationalised undergraduate business education context. *Journal of Management & Organization*, 16, 700-714.
- Jackson, D. (2009). Undergraduate management education: It's place, purpose and efforts to bridge the skills gap. *Journal of Management and Organization*, 1(2), 206-223.
- Kemler, D. (1997). A reconceptualisation of the research into university academics' conceptions of teaching. *Instructional Science*, 7(3), 255-275.
- Kilpatriack, S. I., Barrett, M. S., & Jones, T. (2003). *Defining learning communities*. International Education Research Conference, Auckland, New Zealand.
- Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Laurillard, D. (2002). *Rethinking university teaching: A framework for the effective use of learning technologies* (2nd ed.). Oxford: RoutledgeFalmer.
- Laurillard, D. (2009). The pedagogical challenges to collaborative technologies. *International Journal of Computer-Supported Collaborative Learning*, 4(1), 5-20.
- Lee, M. J. W., & McLoughlin, C. (2011). *Web 2.0-based e-learning: Applying social informatics to tertiary teaching*. Hershey, PA: Information Science Reference (IGI Global).

- Lowerison, G., Cote, R., Abrami, P. C., & Lavoie, M. (2008). Revisiting learning theory for e-learning. In S. Carliner & P. Shank (eds.), *The e-learning handbook: Past promises and present challenges*. San Francisco: John Wiley.
- Magliaro, S. G., Lockee, B. B., & Burton, J. K. (2005). Direct instruction revisited: A key model for instructional technology. *Educational Technology Research & Development*, 53(4), 41-55.
- Mayer, R. E. (2003). *Learning and instruction*. Upper Saddle River, NJ: Merrill Prentice-Hall.
- Mayes, T., & de Freitas, S. (2004). Stage 2: Review of e-learning theories, frameworks and models. JISC e-Learning Models Desk Study. Retrieved from <http://www.jisc.ac.uk/whatwedo/programmes/elearningpedagogy/outcomes>
- McNaught, C. (2003). Identifying the complexity of factors in the sharing and reuse of resources. In A. Littlejohn (Ed.), *Reusing online resources: A sustainable approach to e-learning* (pp. 199-211). London: Kogan Page.
- Mohamed, E. K. A. (2009). Optimizing business education: a strategic response to global challenges. *Education, Business and Society: Contemporary Middle Eastern Issues*, 2(4), 299-311.
- Normand, C., & Littlejohn, A. (2006). *Flexible delivery: A model of analysis and implementation of flexible programme delivery*. Enhancing Practice, The Quality Assurance Agency for Higher Education. Retrieved from www.enhancementthemes.ac.uk
- Ocak, M. A. (2010). Why are faculty members not teaching blended courses? Insights from faculty members. *Computers & Education*, 56(3), 689-699.
- Oliver, B., Jones, S., Ferns, S., & Tucker, B. (2007). Mapping curricula: Ensuring work-ready graduates by mapping course learning outcomes and higher order thinking skills. *Evaluations and Assessment Conference*, Brisbane.
- Oskoz, A., & Elola, I. (2011). Meeting at the wiki: The new arena for collaborative writing in foreign language courses. In M.J.W. Lee & C. McLoughlin (Eds.), *Web 2.0-based e-learning: Applying social informatics to tertiary teaching* (pp. 209-227). Hershey, PA: Information Science Reference (IGI Global).
- Papert, S. (1986). *Constructionism: A new opportunity for elementary science education*. Unpublished proposal to the National Science Foundation.
- Papert, S., & Harel, I. (1991). Situating constructionism. In S. Papert & I. Harel (Eds.), *Constructionism* (pp. 1-11). Norwood, NJ: Ablex Publishing Corporation.
- Ramsden, P. (2002). *Learning to lead in higher education*. London: Routledge.
- Salmon, G. (2002). *E-tivities: The key to active online learning*. London: Kogan Page.
- Salmon, G. (2004). *E-moderating: The key to teaching and learning online*. (2nd ed.). London: RoutledgeFarmer.

Salomon, G. (1993). No distribution without individuals' cognition. In G. Salomon (Ed.), *Distributed cognitions: Psychological and educational considerations* (pp. 111-138). New York: Cambridge University Press.

Shank, P., Precht, L. W., Singh, H., Everidge, J., & Bozarth, J. (2008). Infrastructure for learning: Options for today or screw-ups for tomorrow. In S. Carliner & P. Shank (Eds.), *The e-learning handbook: Past problems, present challenges* (pp. 109-166). San Francisco, CA: John Wiley & Sons.

Sharpe, R., & Oliver, M. (2007). Designing courses for e-learning. In H. Beetham & R. Sharpe (eds.), *Rethinking pedagogy for a digital age: Designing and delivering e-learning* (pp.41-51). London: Routledge.

Tapscott, D., & Williams, A. (2007). *Wikinomics: How mass collaboration changes everything*, Atlantic Books.

Van Over, D., & Stover, D.L. (1994). Object-oriented design: A new approach to curriculum development. *Journal of Information Systems Education*, 6, 22-26.

Vygotsky, L.S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Westerbeck, T. (2004). Brave new world, bold new b-school. *BizEd*, July/August, 36-40.

Wiley, D. A. (2000). Connecting learning objects to instructional design theory: A definition, a metaphor and a taxonomy. Retrieved from <http://www.elearning-reviews.org/topics/technology/learning-objects/2001-wiley-learning-objects-instructional-design-theory.pdf>