

Effective Strategies for Incorporating
Mobile Learning into Distance Education (DE)

Mary L. Fortier

University of Maryland University College

OMDE 670 Capstone Research Project

November 26, 2011

Abstract

Globalization has led to increased consumerism of mobile technologies impacting when, where and how individuals in today's information and knowledge-based society access and process information for formal and informal learning purposes. These advancements represent external factors influencing distance education which organizational leaders need to acknowledge to develop effective strategies for holistically adopting and sustaining mobile learning in distance education organizations. This paper is based on a literature review discussing mobile learning best practices and common issues using a systems approach followed managing and leading change in distance education. The paper concludes by presenting a framework for distance education leaders to use for incorporating mobile learning into distance education.

Introduction

Distance education (DE) has benefitted from advancements in technology to not only deliver education but enhance teaching and learning (Bates, 2006; Moore and Kearsley, 2005). Today's globalized economy has produced technological capabilities allowing people to connect, access and interact with information and each other in a mobile fashion in various contexts regardless of time, space, location and situation. Learning has also changed enabling learners to utilize technology as a tool to manage their studies, interact in new ways with content, instructor and peers, and construct knowledge in both formal and informal contexts, all of which has led to the creation of the mobile learning field. This paper is a literature review identifying trends impacting education, difficulties in defining mobile learning, the intersection of technology and learning, and relationship between mobile and distance learning in terms of philosophy, pedagogy, and technology. It uses a methodology of a systems approach to strategize how to incorporate mobile learning into distance education provision following by a discussion of leading and managing distance organizations and change initiatives. The paper concludes by presenting a strategic structure of important elements for leaders to consider when implementing mobile learning into distance education organizations.

Trends Impacting Education

According to a 2009 Horizon Report there are two significant trends affecting education, the first of which is increased globalization and technological advancements and their impact on how people work, collaborate and interact (Johnson, Levine & Smith, 2009). Engle and Tinto (2008) emphasize that in the United States especially the relationship between globalization and continuous increased workforce skill development compels higher education to meet increased

educational demands through effective provision and innovation by organizations, employers and individuals.

The second major trend identified in the Horizon Report is the fact that a billion cell phones are produced each year “benefitting from unprecedented innovation, driven by global competition” (Johnson, Levin & Smith, 2009, p. 5). Motlik (2008) proposes Asia outnumbers the United States in use of mobile phones even though by June 2011 it was estimated there were almost 328 million wireless service subscribers in the United States (CTIA, 2011). What these trends represent is how technology in the form of cell phones and other portable (mobile) wireless devices have become globally adopted for use by people in a “ubiquitous fashion” on a daily basis (Brown & Metcalf, 2008).

These changes have produced what Prensky (2001) calls “digital natives,” children raised since birth in a technical world with the ability to use multiple media (internet, television, radio, telephone) in a multi-tasking manner for various purposes in various contexts (p.1). Laurillard (2007) calls these learners Generation C while Brown and Diaz (2010) refer to them as the Net Generation. Prensky (2001) advocates educators lack the technological capabilities to teach these digital natives and it is critical for educators to become trained and skilled in how to effectively use technology for teaching and learning purposes. He further advises “unless we want to just forget about educating digital natives until they grow up and do it themselves, we had better confront this issue” (p. 3).

Comparatively on a global level when it comes to incorporating mobile learning, US educators are following rather than leading the way (Brown & Metcalf, 2008). Pollara and Broussard (2011) add that even most of the research is being conducted outside the United States. Wagner (2005) concurs in that:

When it comes to mobile adoption, the United States is relatively behind the curve. The broadband, multimedia connectedness now taken for granted by the typical Korean or Nordic citizen is something that most U.S. citizens are not likely to see for some time. As a result, U.S. educators are finding themselves in the awkward position of knowing that the mobile revolution is coming, without really being able to imagine what it's going to look like or what the possibilities for mobile learning may be" (p. 44).

Leaders of mobile learning research (Ally, 2010; Kukulske-Hulme (2007); Traxler, 2005; Traxler and Wishart (2011) note how changes in the political, social and economic climates are requiring educational institutions to address learner needs and provide informal learning in conjunction with formally structured programs all while increasing student enrollments using existing financial resources. Howell, Williams and Lindsay (2003) advocate distance education leaders need to be well-informed of trends such as mobile learning to effectively incorporate it into organizational strategic planning.

For over one hundred and fifty years distance education has played an important role in leading educational innovation not just for distance education, but for higher education as a whole and "distance teaching institutions are therefore at a clear advantage in the development and application of new ICTs for teaching and learning" (Zawacki-Richter, Brown and Delpont, 2009, p. 2). Rumble (1992) suggests technological advancements and maximization of economies of scale are going to put single-mode distance education institutions in a "vulnerable" position (p. 1). He argues that as traditional organizations increasingly adopt technology to deliver hybrid traditional and distance education programs they will compete to serve the same learners as distance education providers. For this reason he argues that single-mode providers should consider adopting hybrid models to remain competitive.

At that time hybrid meant offering traditional and distance education but in today's context hybrid could mean offering traditional distance education in combination with mobile learning as a competitive advantage to attract and retain students. Daniel (2007) argues it is important for distance education practitioners to understand current trends regarding mobile learning and its impact on DE. He stresses that "practitioners of distance learning should follow closely the research on e-learning, m-learning (mobile learning) and other new technologies so that they can use them for maximum benefit to students" (p. 107). To begin the discussion about how distance education leaders can integrate mobile learning into organizations the paper begins with the initial challenge of finding a common definition of mobile learning.

Defining Mobile Learning: Not So Easy

Approaches to defining mobile learning can be categorized as emphasizing mobility, ubiquity, software/hardware usability, pedagogy and teaching, learning and support (Winters, p. 4). A common theme from the literature review reveals lack of consensus for a working definition which others have also noted (Laouris & Eteokleos, 2005; Traxler, 2010). Park (2011) defines mobile learning as using mobile or handheld devices for learning "while on the move" emphasizing portability (p. 1). Brown and Metcalf (2008) refer to it as "knowledge in the hand" (p. 3). The Commonwealth of Learning (2011) defines it as "a personal, unobtrusive, spontaneous, 'anytime, anywhere' way to learn and to access educational tools and material . . . offering them flexibility in how, when and where they learn" (p. 1). NKI Distance Education has adopted "Flexible and individual distance teaching with the student group as social and academic support for learning" (Rekkedal, Dye, Fagerberg, Bredal, Midtsveen & Russell, 2002, p. 69). Sharples (2006) offers mobile learning is "an intervention in terms of guiding what the learner is constructing" (p. 5).

An even broader term is ubiquitous learning as meaning the environment in which a computer device is inconspicuously used on a daily basis (Park, 2011; Wagner, 2005). Zawacki-Richter, Brown and Delpont (2009) distinguish between mobile and e-learning in that “the all-inclusive umbrella term for media-based learning and teaching is distance education or distance learning” of which mobile learning (micro) is a subset of e-learning (macro) (p. 3).

Traxler (2010) suggests Keegan’s (1980) definition of distance education serves as a useful model for developing definition of mobile learning because it not only identifies common attributes but remains flexible enough so it can be nationally and culturally self “determined.” Kukulska-Hulme and Traxler (2005) suggest there are seven attributes of mobile learning including the ability to be personal, spontaneous, informal, contextual, portable, ubiquitous and pervasive. Barker, Krull and Mallinson (2005) suggest successful mobile learning experiences revolve around learner interaction, coordination, communication and negotiation, material organization, device mobility, learner motivation, and collaboration.

Kurubacak (2007) and Brown and Diaz (2010) use the term “mobile learning technologies” to describe the phenomenon which will be used in this paper to represent the various technological, pedagogical, teaching, learning, portability, and other aspects of mobile learning. This is apt as Traxler (2007) stresses it is important for researchers and practitioners to remain aware that:

the concept of mobile education or mobile learning is still emerging and still unclear.

How it is eventually conceptualized will determine perceptions and expectations, and will determine its evolution and future. There are different stakeholders and factors at work in this process of conceptualizing mobile education and the outcome is uncertain (p. 3)

Despite differences in definition there is agreement the real challenge for educators is to explore and better understand how to utilize mobile learning technologies in education. The next section explores the intersection of technology, teaching and learning serving as the educational impetus for utilizing mobile learning technologies.

Technology, Teaching and Learning

Many believe mobile learning is the next generation of information and telecommunication-based learning (Brown & Metcalf, 2008; Rekkedal et al., 2005). Wagner (2005) promotes mobile learning as the next long-term sustainable form of technology-mediated learning requiring new “strategies, practices, tools, applications and resources to realize the promise of ubiquitous, pervasive, personal, and connected learning” (p. 1). She further characterizes it as meeting the “on-demand” learning needs of “information-centric connected citizens” (p. 1). She highlights mobile learning is the intersection of formal education (class, workshop, training) and informal learning or “spontaneous” learning (p. 1). Naismith et al. (2005) reiterate for educators “The challenge will be to discover how to use mobile technologies to transform learning into a seamless part of a daily life to the point where it is not recognised as learning at all” (p. 5).

Others strongly advocate mobile learning necessitates its own learning theory (Traxler, 2007; Sharples, Taylor & Vavoula, 2005). Nanjappa and Grant (2003) propose “A complementary relationship exists between technology and constructivism, the implementation of each one benefiting the other. Constructivism is a doctrine stating that learning takes place in contexts, while technology refers to the designs and environments that engage learners” (p. 1).

Dede (2004) explains “higher education institutions can prosper by basing their strategic investments on using these emerging educational technologies to match the increasingly

“millennial” learning styles of their students (p. 1). These learning styles now consist of communal learning; use of multi-media; virtual simulation; situated, experiential and contextual learning; development and distribution of knowledge; guided mentoring; collective reflection; personal expression; and accommodating various learning preferences and styles (p. 1).

Uskov (2010) describes the correlation between distance education learning, delivery of instruction via multimedia and learner ability to retain content. On a primary level, print-based media (online papers, self-study guides, written lecture notes) allows learning to occur only by passively reading thereby enabling about 20-40% content retention. This is followed by visual technology allowing learners to see content presented in graphic and/or pictorial form allowing for approximately 40-50% content retention. The next stage of audio, video and animation enables learning through seeing and hearing all types of content enabling 50-65% retention. The subsequent stage allows learners to talk and write using interactive asynchronous video/audio conferencing aiding in 65-80% of content retention. Uskov (2010) argues the highest percentage of retention ranges between 75-95% as a result of active learning in online communities (p. 14).

Uskov (2010) suggests Internet access and capability also plays an important role in learning especially when considering “Web.0” technologies. Agarwal (2009) explains Web 1.0 allows users to passively access and read web content and information mostly delivered by organizations for business purposes via directories (taxonomy); in 1996 there were about 45 million global users. Web 2.0 capabilities enable users to not only access and read content via tagging (folksonomy) but to create and share their own personal content (blogs), join a community (Facebook) or contribute to “mass intellect” information sharing (Wikipedia). In 2006 there were over one billion users according to Agarwal (2009). These also allow down/uploading of multimedia formats (print, audio, and video) via various devices (mobile and

static). The advancement of Web 3.0 changes the landscape in enabling individuals to personalize use of a sophisticated “semantic” web which not only helps them access, develop and manage content but functionality and usability of content as well. Web 3.0 is characterized mostly as driven by user behavior what Agarwal calls the “me-onomy” rather than platform-driven (5/30/2009).

Uskov (2010) suggests the next anticipated level of Web 4.0 or “intelligent virtual web” allows for enhanced self-learning, virtual simulations and application in a real-world context. It is these advancements in hardware and software technological capabilities and potential impact on learning the mobile learning field is committed to studying in order to incorporate and sustain it in existing education systems, including distance education. The next section explains how mobile learning and distance education intersect through common objectives and synergies.

Mobile Learning and Distance Education

Mobile learning has the potential to offer many benefits to both traditional and distance education in unleashing learners and instructors who up until now have been “tethered” to either a classroom or computer (Corbeil & Valdes-Corbeil, 2007, p. 1). Traxler (2010) suggests it is timely to make the connection between “the small but growing mobile learning research community” mostly working on isolated projects to “the more established and mature distance education community” (p. 1). A compelling synergy for this is how distance education research, theory and practice provide a solid foundation for understanding how technology enhances teaching and learning. Peters (2004) stresses pedagogically and organizationally distance education differs from traditional education and must use “an entirely difference approach, with different student objectives, methods, media, strategies and above all different goals in

educational policy” (p. 38). This same logic applies to that of mobile learning, especially if it is accepted that mobile learning is an extension of distance education provision.

Another parallel between mobile and distance learning are the philosophical and social aspects of providing equitable, cost-effective education to those who may have no other means by which to access educational opportunities. Distance education has traditionally played an important role in meeting economic and political needs and has taken into account social sensitivities, economic drivers, national policy, cultural backgrounds, current teaching and learning paradigms and appropriate delivery methods as part of its strategic mission (Moore and Kearsley, 2005). Moore and Kearsley (2005) reiterate distance education has often been selected by policy-makers to meet economic, political and social agendas for several reasons. It enables educational access and provides training for updating workforce skills; it is cost-effective and provides a high quality of education; it helps grow infrastructure capacity; it can target specific populations and groups; it helps equalize learner age differences; it can easily develop and incorporate timely and innovative subject areas; it supports learners in balancing competing priorities such as work and family; and it can facilitate bringing an international element to the learning environment (p. 8).

Adoption of mobile learning by The Commonwealth of Learning (COL) promotes the philosophical and social similarities between mobile and distance learning. Mobile learning technologies, specifically cell phones, are being integrated into learning initiatives in developing nations as a way to improve educational access and training. The goal is for mobile learning to promote learner’s sense of ownership of the learning process while enabling flexibility in where, when and how learning takes place. From an organizational perspective mobile learning enables meeting its open and blended learning initiatives in a cost-effective manner (www.col.org).

Corbeil and Valdes-Corbeil (2007) highlight benefits of mobile learning include convenience of portability, information access anytime/anywhere, real-world training and application, reinforcement of student-centered learning and enhanced timely feedback and interaction (p. 5). For distance learners mobile learning could improve sense of community, student-student, student-instructor and student-content interaction while personalizing and contextualizing learning more than distance education currently accommodates. It is for this reason distance education theorists are currently debating whether mobile learning represents the fifth generation of distance education (Lee & Chan, 2007; Zawacki-Richter, Brown & Delport, 2009).

Koole, McQuilkin, and Ally, M. (2010) remind us the end goal of incorporating mobile learning into distance education is to remain focused on what is to be learned regardless of how or where. Other educators (Bates, 2010; Ally, 2010) advocate it is important for distance education leaders and practitioners to consider how mobile learning technologies can reduce the “distant” factor of time and space by challenging the context in which learning occurs and how knowledge can be constructively applied. As a way for distance education organizations to remain focused on the task of delivering quality education using mobile learning technologies the next section presents how to incorporate mobile learning into organizations using a systems approach.

Systems Approach for Incorporating and Managing Mobile Learning

Zawacki-Richter, Brown and Delport (2009) argue mobile learning is an extension of distance education and e-learning and it is within this context that a systems approach will be used to strategically incorporate mobile learning into distance education. The discussion begins by describing systems theory followed by an example of how it applies to distance education.

Ludwig von Bertalanffy (1968) first introduced the concept of systems theory with hard systems first followed by what are referred to as soft systems theory. Soft systems theory analyzes situations (organizations) using a holistic structure framework to establish internal boundaries in relationship to the external environment in which they operate. Rumble (2006) describes soft systems as focusing on “people and perceptions, values, beliefs and interests” categorized by modes; specifically Mode 2 research focuses on real-world problems which may require more than one disciplinary approach (transdisciplinary) to solving it (p. 2). Jackson (2000) suggests soft systems theory deals with “tackling issues of real concern” and that “Mode 2 researchers are also much more accountable to the public” whereby “the quality of research must be judged on a wider set of criteria than simply contribution to the development of a discipline” (p. 14).

An example of how to organizationally integrate a systems approach is Rio Salado Community College which strategically adopted Ackoff’s (2004) system model based on its tenet that quality learning is dependent on quality teaching and support on all levels of the organization (Scarafiotti, 2003). Its holistic institutional-wide systems approach aligns with its mission of a “student-centered learning environment” where “the system depends not only on the performance of each part but on how successfully each part interacts with other parts” as a whole (Scarafiotti, 2003, p. 52). Its flexible process requires sharing important data and information in order to effectively support students with personal, academic, financial and life obstacles ensuring academic success. Based on timely feedback from faculty, staff and students allows the institution to adapt and improve its course content and design, delivery methods, interaction and support services to learners, while also promoting ongoing faculty institutional research resulting in publication of best practices.

The next section presents fundamental systems components of an effective distance education supported by theory and best practices. This is followed by a discussion of what it means for incorporating mobile learning into each area of a distance education system.

Overview

Moore and Kearsley's (2005) systems approach is widely accepted within the distance education field as the theoretical foundation upon which organizations holistically deliver quality distance education. They define five essential system components as sources, course design, delivery, interaction and learning environment. It is within this operating framework distance education organizations are capable of effectively integrating mobile learning enabling them to evaluate its impact not only on each component but the system as a whole.

Sources

Moore and Kearsley (2005) offer it is important for organizations to rely on internal and external sources as they provide valuable information which guide organizations in identifying educational needs and demands in order to meet them. Sources can include but are not limited to other external organizations, faculty/staff, and current students whose feedback benefits organizations on many levels. They help organizations create priorities, mission, values and (re)align program offerings, course design and learner support services which are communicated to constituencies externally in the form of marketing and internally via policies and procedures. Sources also aid faculty in setting research agendas, seek potential funding and collaboration; they enable staff to improve and expand learning support services.

Both internal and external sources are critical for leaders to utilize when considering incorporating mobile learning it into distance education provision. In the case of NKI Distance Education it was specifically source information in the form of learner feedback via student

evaluations which led it to experiment with mobile technologies and develop more flexible learning solutions to meet student learning needs (Rekkedal et al., 2005).

The literature review uncovers a flurry of activity not only taking place within academia, but in industry and public/private partnerships as well. There are comprehensive literature reviews (Naismith et al., 2005; Trifonova, 2003) of which Cobcroft's (2006) is the most extensive and serves as a useful baseline for distance education leaders to explore the field. Other research focuses on proposed learning theories, pedagogy or paradigm shifts (Koole, 2005; Laurillard, 2007; Traxler, 2007), on teaching and learning (Naismith et al., 2005), its potential impact on student retention (Fozdar and Kumar, 2007) and use in developing countries (Barker, Krull, and Mallinson, 2005).

Publications have been produced by various sources including practitioner workshops (The Kaleidoscope Institute), professional bodies such as The International Association for Mobile Learning or peer-reviewed academic journals as the *International Journal of Mobile and Blended Learning*. Ongoing discourse occurs via online communities of Handheld Learning and global international conferences.

Pilot programs from both traditional and distance education providers, such as Abilene Christian University (Rankin, 2011), NKI Norway (Rekkedal & Dye, 2007); University of Maryland College Park (Higgins, 2011) and high profile global projects identified by Cobcroft (2006) currently underway or completed. From these distance education organizations can glean lessons learned and identify best practices from which important organizational details can be obtained on many levels.

Traxler (2010) cautions, however, the field of mobile learning has only emerged within the last ten years and lacks consensus on many levels. Distance education leaders should also

note within the literature terminologies or concepts used to describe mobile learning may not have the same meaning or application as in distance education. This is important to distinguish in order to determine how concepts and ideas are relevant and to which areas of distance education systems and organizations they apply. For example in her extensive mobile learning literature review Cobcroft (2006) cites Barker, Krull and Malinson's (2005) "holistic" mobile learning critical factors success model based on the work of Zurita, Nussbaum and Sharples (2003, p. 64). Yet when viewed from a system perspective holistic does not mean a whole organization rather it relates to only some components of the mobile learning sub-system.

Ally (2009) emphasizes as the mobile learning field progresses it is imperative for "educators, researchers, and practitioners to share what works and what does not work in mobile learning so that the field of mobile learning can be implemented in a more timely and efficient manner" (p. 280). This means distance education leaders need to remain well-informed in order to capitalize on utilizing mobile learning technologies for offering programs and designing, delivering and support courses on all levels of the organization.

Course Design

Based on feedback from external sources, such as mobile learning literature, and internal sources, such as learner evaluations, organizations determine which programs to strategically offer, sustain and improve on a long-term basis. This establishes organizational direction for course design, the second critical element of an effective distance education system. This component engages in aligning pedagogical methods, such as behaviorist, (social) constructivist, situated, or collaborative, with defined learning objectives and outcomes. Most importantly, it considers the needs of the learners taking into account varying cultures, languages, backgrounds, learning preferences and styles. By understanding learners' needs allows the organization to

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

align appropriate selection of course content, learning materials, activities, and assessment methods as part of the course design process.

Ally (2004) suggests effective distance education course design consists of four essential elements: learner preparation, activities, interaction and knowledge transfer. Learner preparation is addressed via prerequisites, advanced organizers, content maps and learning outcomes; activities include journaling, researching, reading, listening, viewing, summarizing, applying and practicing; collaboration and sense of community is encouraged through various student, content and instructor interaction. All these develop “construction” of knowledge resulting in personal meaning and ability to apply in real-life contexts (p. 37).

Peters (2004) predicts for future distance education course design “new approaches will have to be sought” to allow for two additive and integrative learning, which mobile learning technologies afford. Additive learning will be driven by circumstantial situations enabling learning in a variety of contexts while integrative will allow students to select activities from various modes to personalize courses to suit their learning preferences and styles (p. 207). As mobile learning is in its infancy stage course design is one area distance education practitioners will need to remain well-informed in order to align mobile learning goals with course design.

A best practice in course design is the ADDIE Model which Molenda (2003) offers is a “colloquial term used to describe a systematic approach to instructional development” (p. 1). It is an interdependent systematic process starting with a needs analysis (A) to determine institutional, instructional and learner readiness ((Morrison, Ross, Kalman & Kemp, 2007, p. 14). The design phase (D) isolates learning objectives, followed by the actual development (D) of the course. This is followed by implementation (I) and course evaluation (E). Each

component is completed in sequential order impacting the next process phase ensuring a holistic approach in that a change on one level could require a change in other areas of the design.

Sharples (2006) and his colleagues “re-conceptualise mobile learning” based on lessons learned and implications for mobile learning course design. They offer the focus should be on “mediated” rather than “mobile” learning, much in the same way distance education is facilitated and guided learning (p. 6). They identified important attributes of mediated learning to account for in course design include contexts, curricula, cultures, ethics, tools, learning activity, access to information and people, communication, community building and appropriate (pp. 6-7). In this respect technology plays a “secondary role” the way in which it does for distance education. As they confirm “What is important is to get the nature of the tool (application) right, based on social factors (such as communication and appropriation) and learning activities” (Sharples, 2006, p. 7).

Park (2007) proposes for mobile learning “instructional designers and teachers need a solid theoretical model” and offers a pedagogical framework based on Moore’s (1972) transactional distance theory (p.1) It consists of four “types” of mobile learning experiences based on low versus high transactional distance in combination with individual (personal) and socialized aspects of learning (p. 7). It is an inter-dependent relationship in when one variable changes so does another impacting how much guidance and interaction is required by the instructor during the learning process.

Naismith et al. (2005) recommend scaffolding mobile learning tasks so learners can gain confidence in using both software and hardware, especially when performing difficult tasks. It is believed this advances their ability to use mobile technologies to personalize their learning, manage their studies and time. Several organizations such as University of Maryland College

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

Park, Abilene Christian University and NKI Distance Education have even incorporated developing mobile applications as part of course assignments. This approach is not only innovative and cost-effective but has led to a library of institutional mobile applications.

Moore and Kearsley (2005) also highlight “Because so many skills are needed to design a distance education course, the best courses are designed by course teams in which many specialists work together, their work coordinated by a team manager” (p. 15). Sharples (2006) adds in using a team approach “new learning applications emerge through interaction and communication between key participants in the development cycle (researchers, teachers, learners, software developers), rather than educationalists only having the opportunity to appropriate existing technologies for their purposes” (p. 7).

Dede (2004) believes it is important to include faculty in mobile learning course design initiatives as a way to professionally develop their skills, as in the case of University of Maryland College Park’s Mobile Learning Initiative (Higgins, 2011). By participating in course design faculty not only gain technical competencies but important pedagogical ones as well. Dede (2004) states that in knowing how to apply (social) constructivism and “situated learning pedagogies” faculty can create other methods for learning assessment (peer feedback) and encourage students to personalize, develop and share knowledge (p. 2).

Course Delivery

Course design teams are also tasked with evaluating various technologies (print media, audio/video conferencing, cassettes, satellite, TV/radio, CD-ROMs) for course delivery which enable optimal interaction between learners, peer, content and faculty. As Moore and Kearsley (2005) emphasize “There are several basic principles in using technology, one of which is to

recognize that no single technology is optimal for delivery of every kind of message to all learners in all locations” (p. 15).

Corbeil and Valdes-Corbeil (2007) observe simply because the technology industry is ready to promote mobile learning, others industries such as education, are not necessarily prepared or ready to incorporate and utilize it. While there are many consumers of mobile technologies for private use does not mean those individuals who represent faculty, students, and students are ready to use them for educational purposes. Cobcroft (2006) suggests one major reason for this is it may be seen as “encroaching” on their personal/private space.

As mobile learning technologies are portable and fairly novel the literature review reveals researchers such as at NKI Distance Education and MOBILearn are determining whether devices with small screens (cell phones) make it difficult for learners to see important content, particularly graphics, which have researchers questioning at this time on what type of portable devices courses can be delivered which are both cost-effective for organization to integrate while satisfying students’ needs for flexible learning with no additional financial burden passed on to them.

Cobcroft (2006) cautions it is critical not to “bolt-on” mobile learning technologies to current courses rather it is important to determine how to integrate them using proven and existing methods. Ludwig and Schone (2008) offers for distance education organizations to first consider how to integrate mobile learning into existing (distance education) learning management systems. Cobcroft (2006) also recommends investigating existing costs models for mobile learning technology, services and infrastructure. Traxler and Wishart (2011) suggest organizations buy pilot programs to test for cost, reliability, connectivity, device efficacy and related services.

Distance education theory (Bates, 200x; Moore and Kearsley, 2005) Zawacki-Richter, Brown and Delpont, 2009) reiterate advancements in technology should not determine how courses are delivered and a best practice model to assess this is the SECTIONS model developed by Bates and Poole (2003). SECTIONS stands for students, ease of use, costs, teaching and learning, interactivity, organizational issues, novelty and speed. It provides an analytical framework by which to ask pertinent questions for matching technology with learning needs.

Peters (2004) sagely reminds us the various DE models of exam preparation, correspondence, multi mass media, group, autonomous learning, network-based teaching and technically extended classrooms do not merely represent the historical evolution of distance education but remain feasible options by which to provide distance education alone or in combination with one another to create hybrid formats of delivery, such as with mobile learning technologies, in order to enhance the learning experience especially for effective interaction.

Interaction

Interaction is key to successful distance education and it is this fourth element of a distance education system which may benefit the most from mobile learning technologies as indicated by the literature review. Interaction is defined as the relationships between learner and instructor, learner and content and between learners. It is twofold in that it allows faculty to assess learner construction of knowledge, develop a sense of community, while at the same time reduces learner isolation, increases types of learner support and access to information (Moore and Kearsley, 2005). Gunawardena and LaPointe (2003) highlight it is critical to identifying required interaction in advance as part of course design to avoid inconsistencies in learning objectives, assessment, and required interaction. Moore and Kearsley (2005) offer “The nature and extent of the interaction that is deemed appropriate varies according to the organizational

and designers' teaching philosophy, the nature of the subject matter, the maturity of the student, their location, and the technology used in the course" (p. 16).

Koole (2006) describes mobile learning as a "mode" of learning and offers it is the various aspects of this mode which need to be evaluated in order to effectively design and deliver learning materials, teaching and learning strategies and appropriate mobile device selection. To facilitate this she developed the constructivist Framework for the Rationale Analysis of Mobile Education (FRAME) Model with practitioner checklists to encompass the various aspects of technical, social and personal interaction in mobile learning.

Tait (2003) comments on how even one's perceived status as student, staff and (adjunct) faculty within an organization can positively or negatively impact interaction. He stresses "While tutors and students represent only one element within understanding across the institution as a whole, their contributions should be seen as integral and necessary" (p. 167). Therefore, it is also important to consider how incorporating mobile learning can change perceived status, and therefore, overall interaction of the learner with organization, instructor, content and other learners.

Learning Environment

The fifth system component of distance education is the learning environment, another area in which mobile learning benefits distance education by expanding the current learning environment beyond the computer. Moore and Kearsley (2005) explain "The student's learning environment is also part of the distance education system, having considerable impact on the effectiveness of those parts of the system controlled by the educational agency" (p. 17).

The distance education learning environment has always been different to that of traditional as it has always been based on the idea that learning can occur anytime and anywhere

- workplace, home, library, study center. The combination of networking infrastructure connectivity capability (wifi, hotspot) and portable devices, such as laptops and other handheld devices, allow for new learning environments or contexts as learners may be mobile rather than stationary while learning. This progression further reduces time and distance for distance learners in affording immediate, spontaneous or transitory access to content, instructor and other learners enabling synchronous interaction and timely feedback.

It is important to note from distance education theory and practice the educational organization has limited control over the learning environment necessitating more dependency on quality design and structure to ensure effective learning. The learning environment can produce unforeseen circumstances to which distance education organizations need to respond in a timely and appropriate manner and especially requires flexibility on the part of instructors.

It is within this context mobile learning technologies has the potential to change the “distance education” gap by improving organizational responsiveness time and methods to enhance learner instructional, administrative and technical support. In order to do so effectively, however, requires knowledge of managing and leading change whichS mobile learning technologies afford.

Managing and Leading Change in Distance Education

Bellis (2007) notes “change is endemic in the education sector. The pressures for change come from all sides: globalization, government initiatives, doing more with less, improving the quality of student learning and the learning experience, and the pace of change is ever increasing” (p. 24). Beaudoin (2003) states distance education practitioners are now “witnessing” changes in course design and delivery, such as with mobile learning technologies,

which not only has enormous potential to radically change the learning landscape but will require effective organizational change management to implement and support it on all levels (p. 1).

Beaudoin (2007) also contends distance education theory and practice lacks an effective management framework to guide organizations during educational transitions and opportunistic times, as in the case of mobile learning. In a 2009 survey of distance education experts Zawacki-Richter's Delphi study found distance education experts citing a major research area lacking is that of organizational leadership and strategy. Beaudoin (2003) offers when it comes to change in the field distance education "we have not yet paid adequate attention to new roles required of leaders within those institutions" (p.1).

Powley (2011) highlights during the course of their career distance education professionals most likely will be in some management and/or leadership role. Both Kotter (2006) and Beaudoin (2003) stress there is a difference between leadership and management in that management focuses on organizational processes (the present) whereas leadership concentrates on the future and "processes that creates organizations in the first place or adapts them to significantly changing circumstances" (Kotter, 2006, p. 25). Beaudoin (2003) defines leadership as "a set of attitudes and behaviors that create conditions for innovative change, that enable individuals and organizations to share a vision and move in its direction, and that contribute to the management and operationalization of ideas" (p. 1). At the same time he adds it is possible for people to be effective leaders without being an expert in the field itself (p. 1).

This is significant in that many mobile learning researchers are serving important roles within their organizations and the mobile learning field. At the same time mobile learning literature reveals many initiatives managed on a small scale basis rather than on a holistic organizational leadership level. If mobile learning represents major potential change for the

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

future of education as many mobile learning pioneers like Traxler (2007) contend, the literature review indicates many organizations are not strategically capitalizing on mobile learning technologies for organizational gain, the way in which University of Maryland College Park strategized incorporating mobile learning to “promote the university’s world-class status through innovation and technology” (p. 1).

Mobile learning has the potential to change education in many ways impacting organizations on many levels: how courses are designed and delivered, the role of instructors and interaction with learners, the learners’ learning environments and learning process and the required organizational academic, non-academic and technological support to effectively provide and sustain it. For learners, faculty, staff it could mean a performance shift in terms of workloads, availability and roles and responsibilities; for learners it could mean ongoing change in expectations and educational demands.

Zawacki-Richter’s (2005) case study of the University of Pretoria in South Africa serves as a useful model for demonstrating how an organization’s leadership can holistically design and implement effective change management throughout an organization. Its leadership developed a strategic plan using its vision of adopting online learning along with required resources, key stakeholders, early adopters and aligning its organizational structure, roles/responsibilities, rewards and incentives to its vision. Its strategy utilizes faculty as change agents who would train and collaborate with other faculty to adopt online learning as a form of “education innovation” (p. 1). Key stakeholders serve as institutional facilitators assigned disciplines and departments to support as part of the change. Implementation and timing is based on each department’s need and not mandated by the organization, allowing it to organically develop.

This approach is similar to Kotter's Eight Step Change Management Model described in the next section.

Kotter's Eight Step Change Model

When considering change within an organization it is important as Nash offers (2006) to develop a strategic change management plan as in the case of University of Pretoria. An effective tool for incorporating mobile learning technologies into distance education is Kotter's Eight Step Process of Creating Major Change (2006). The first step of the process requires leaders to create a sense of urgency by identifying potential organizational threats and future scenarios and new opportunities by examining the current market, competitive realities, current/potential crises and new opportunities mobile learning affords. Pollara and Broussard emphasize (2011) "The need for ubiquitous learning is immediate. And, it seems as if education is falling behind" and it is this sense of urgency to which distance education leaders need to respond (p. 8).

Step two requires aligning sense of urgency with feedback from key stakeholders to incite informative and honest discussions to create a "guiding coalition" with "power" to lead the change by working collaboratively as a team. Distance education leader Sir John Daniel (2007) offers practitioner input in that "practitioners of distance learning should follow closely the research on e-learning, m-learning (mobile learning) and other new technologies so that they can use them for maximum benefit to students" (p. 107).

The third and very important step of Kotter's (2006) change management process requires developing a vision and strategies for achieving it. Nash (2006) offers an e-learning organization's vision should be flexible and attainable, one with which individuals can identify through expected behaviors, establish a connection between leadership and individuals,

encourage persistence, supports failures, develops sense of community, allows creative contribution through various means, promotes team collaboration and contributions.

It is not enough to develop a vision and plan as it is even more critical to continuously communicate it throughout all levels of the organization in order to obtain buy-in and change behavior as modeled by the guiding coalition. The mobile field represents the change vision for education communicating valuable lessons learned, best practices and current obstacles in mobile learning.

The fifth step is to remove obstacles in the way of necessary change, such as (re)structuring the organization so change can be achieved in an environment where risk-taking is encouraged and not punished. The mobile learning literature reveals there are still many software/hardware obstacles organizations face in using mobile learning technologies and researchers are currently trying to figure out how to overcome them. Other potential obstacles organizations may face are faculty/staff correlating mobile teaching with increased time demand (thereby reducing research availability), requiring new technical skill development, and additional training and support (p. 4).

It is then critical to celebrate short-term wins and recognize faculty/staff as arbiters of change, which in the mobile learning literature is evidenced by the various case studies and pilot programs. The seventh step involves (re)structuring the organization's systems, structures and policies to not only align with the vision but also develop and promote faculty and staff capable of reaching the vision. The final step, which many assume is the first, is to incorporate changes into the culture by equating new required behaviors with achieved success and creating an infrastructure for ongoing leadership development and sustainability. University of Maryland College Park's Mobility Initiative (Higgins, 2011) represents this through its Mobile Learning

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

Fellows Institute offering funding, training and support to support faculty in incorporating mobile learning into curriculum, course delivery, instruction and research. They in turn use these new behaviors to publish and promote their success and incite other faculty to do the same.

It is important for distance education leaders to be aware of the fact that not all faculty, staff and even learners may embrace mobile learning technologies and could resist change, which the next section discusses.

Resisting Change

Dede (2004) warns when it comes to incorporating networked learning “many faculty will find these shifts difficult” (p. 1). Mobile learning may be considered intimidating by faculty and staff for legitimate reasons but it is essential for organizations to recognize faculty and staff as key stakeholders in delivering quality distance education. McLeod (2011) cautions organizations which experience resistance may be a result of exclusionary rather than inclusionary practices. He suggests it is important for faculty and staff to be informed of upcoming changes well in advance of them taking place and to include them in the decision-making process. This will help employees understand how impending changes may impact daily routines. It is also important to communicate to faculty, staff and students that change is not representative of things not working well -- rather a new way of doing things. This is because for individuals change may make them feel incompetent in learning new skills or fear of increased workloads, which may be the case in mobile learning.

Rockwell, Shauer, Fritz and Marx (1999) offer organizations “need to capitalize on the incentives that encourage faculty to teach via distance and minimize the obstacles that discourage or impede faculty” (p. 6). In their survey of both faculty and administrators they identified two basic incentives for faculty to engage in distance teaching as expanding

educational access and its convenience to students. They also identified what they call “intrinsic” (personal) rewards for faculty which include innovative instruction, using new teaching methods, desire to teach, personal satisfaction and organizational recognition of work and peer recognition. Shea, Pickett and Li (2005) found that faculty satisfaction in online teaching relates to “interaction, technical support, opportunities for learning, and discipline-specific factors” (p. 15).

Distance education and mobile learning literature (UMCP, 2010; Zawacki-Richter, 2005) reiterate the importance of incorporating faculty and staff into not only into development of mobile learning initiatives but also policy-making process. To accommodate this may require organizations to (re)align faculty/staff workload, compensation, and contracts. Furthermore organizations can incentivize faculty and staff to participate in mobile learning through leadership institutes, awards for education innovation, recognition for enhancing teaching and learning, internal research grant funding, and ongoing required training and support identified by faculty and staff. They in turn can help change the mobile learning culture within an organization.

Kotter (2006) emphasizes organizational culture does not drive change rather it is the last and eighth step to be implemented in any successful change management initiative. Culture reflects and represents the vision, mission and organizational values by which employees conduct their work through daily behaviors reinforced through standardized policies and procedures. McLeod (2011) reiterate whether organizations are trying to “lead to large scale change or simply trying to encourage mobile learning in teaching and learning, the change agents need to always remember that schools are not run by one person and those that involved in the change need to be supported and feel that they are part of the decision making” (p. 1). Part of the

decision making process is developing an organization's strategic plan (framework) for incorporating mobile learning, which the next section explores.

Strategic Framework for Implementing Mobile Learning

As Bates and Poole (2003) note: "If technology is the answer, what is the question?" (p. xiii). Ally (2007) suggests the question organizationally will evolve around the idea that "Because of the increasing use of mobile technologies in society and by the younger generation, learners will demand course materials be delivered on mobile technologies to be accessed from anywhere and at anytime" (p. 1). This trend not only requires distance education leaders to know what the question is but requires them to remain well-informed to strategically plan how to answer it as it relates to mobile learning and their organization. Mobile learning not only has the potential to add value to distance education provision by enhancing the learner experience but can add organizational value in terms of market share, organizational reputation, delivery of cost-effective quality education, and expand research areas, funding, and publications.

Mitleton-Kelly emphasizes "A learning organization is one that is able to change its behaviors and mind-sets as a result of experience" (p. 1). Elloumi (2004) highlights "Strategic planning questions about the use of information and communication technologies (ICTs) in education must work in a context of constant and accelerating change that demands flexibility in the online learning institution's structure and course and program offerings" (p. 61). Many distance education organizations currently operate with well-established sustainable resources, learners, staff and infrastructure enabling them to relatively easily incorporate mobile learning (Traxler, 2010). In fact many distance education global providers are leading mobile learning initiatives, such as Open University (United Kingdom), Athabasca University (Canada),

University of South Africa, and Indira Gandhi National Open University (India) (Traxler, 2010, p. 132).

In the case of recent mobile learning trends it is only natural, therefore, for distance education leaders to question not only what motivated these organizations to take this direction, but how they incorporated and manage mobile learning in their organizations. The Joint Information Systems Committee on information and digital technologies for teaching research stresses that “It is helpful to have a model or a framework within which to operate as this can help ensure that most aspects of the proposed change are considered” (p. 3).

Cobcroft’s (2006) offers a ten-point implementation plan which when viewed from a systems lens falls within one of the system components of either course delivery, interaction or learning environment (pp.63-64). Traxler and Wishart (2011) provide a practitioner’s checklist categorized by common technical issues, institutional concerns and pedagogical advice but concede that: “At one level these together inform individual practice . . . but at another level, they argue for a strategic and systemic approach responding to the wider technical and social environment” (p. 43).

Rumble (2006) suggests in evaluating a situation, such as incorporating mobile learning, from a systems perspective it is important to identify and bring “together a number of elements that are related to each other in an organized whole” (p. 4). This next section introduces pertinent elements of a mobile learning system identified in the literature review and begins by first introducing a SWOT (strengths, weakness, opportunities, threats) analysis and organizational motivational factors followed by required elements of a holistic strategic framework.

SWOT Analysis

Kotter (2006) argues a major challenge leaders face is identifying and addressing continuous internal and external threats and opportunities impacting organizations. Bates (2007) offers for this reason it is useful for organizations to conduct a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis on funding, planning, students, employers, programs, instructors, and support services to determine organizational direction (p. 52).

In the case of mobile learning a major threat may be distance education leaders remaining uninformed about mobile learning technologies putting their organization in a vulnerable market position. By not remaining well-informed about mobile learning may make them fall short in meeting current and future generation learning needs and preferences. All these combined could threaten an organization's overall reputation and academic profile.

Kotter (2006) offers for these reasons it is just as important for leaders to recognize and develop a plan to seize opportunities. Traxler (2010) suggests opportunities mobile learning technologies afford organizations are enhancing distance education provision by extending the learning environment to remote communities and situated contexts, increasing personalize and authentic learning through real-world application and challenging existing learning theories and pedagogical frameworks. He notes "the claim is often made that mobile learning increases motivation, especially amongst learners who would normally be considered distant, disengaged or disenfranchised, and hence improves retention and progression, the two most problematic challenges to successful distance education" (p. 131). By recognizing potential opportunities distance education leaders can then isolate strategic motivating reasons why their organization should incorporate mobile learning.

Strategic Motivating Factors

Dede (2004) argues “higher education institutions can prosper by basing their strategic investments on using these emerging educational technologies to match the increasingly ‘neomillennial’ learning styles of their students (p. 1). Sharples (2006) adds also engaging in “research into mobile learning will bring the rewards of placing institutions at the forefront of pedagogical practice, answering student requirements for flexibility and ubiquity” (p. 5).

As mobile learning initiatives are relatively new there is evidence of its potential but no consensus on its effectiveness leading Traxler (2010) to categorize current mobile learning efforts as either educational innovation or tackling “disadvantages/deficits” of current distance education provision (p. 132). An important first place for distance education leaders to begin the process of incorporating mobile learning is asking the question of why incorporate mobile learning? Will mobile technologies be used to:

- Improve organizational competitiveness and market share
- Better understand learning theory and how people learn
- Enhance institutional pedagogical goals and objectives
- Serve as cost-effective solutions to existing infrastructure challenges
- Recruit and retain students
- Promote education innovation among faculty
- Seek organizational funding in the form of partnerships
- Advance institutional research and publications
- Enable flexible learning to meet learner demands
- Improve course delivery, interaction and learning environment
- Advance learner instructional, technical or administrative support
- Enable student management of academic tasks (assignments, group work)
- Promote institution’s reputation and profile
- Professionally develop faculty and staff
- Increase graduates workforce skills
- Allow for a combination of all the above

Lee and Chan (2007) offer it is first important for organizations to understand the “pedagogical value beyond the mere use of mobile devices to deliver e-learning content” (p. 1).

Sharples (2006) and colleagues identified four key characteristics of mobile learning as allowing individuals to learn in different contexts, promoting learner construction of knowledge, changing pattern of learning and types of activities and reinforcing the notion that mobile learning is not simply concerned with overcoming time and space (p. 5). Corbeil and Valdes-Corbeil (2007) add it is important to pedagogically consider how mobile learning will impact learners' ability to write effectively, process deep construction of knowledge and continue to express themselves in meaningful ways, which should be accounted for in design.

The mobile literature revealed some traditional universities' motivations for incorporating mobile learning are pedagogically-driven. Abilene Christian University's goal is to guide students "to not merely consume these vast amounts of information, but to *assess* information, to synthesize thoughts, to generate new ideas, and to contribute meaningfully to conversations of global importance" (p. 1). Montclair State University (Chapel, Kahn, & Wilson, 2008) uses mobile technologies to foster social learning and promote faculty development in application for teaching and learning (p. 3).

In terms of motivating factors for distance education providers, The Indira Gandhi National Open University (IGNOU) aims to improve a "deficit" in student retention. They found students withdrawing due to distance to local study centres, ineffective academic support, inadequate counseling and lab sessions (p. 12). Their learners found mobile technologies useful in improving both learning and communication in these areas and believe mobile technology will aid the organization in providing overall better learner support (Fozdar & Kumar, 2007). In the case of NKI Distance Education, Norway's largest distance teaching institution, it was the learners themselves which identified the need for expanded flexible learning to which the organization responded by exploring mobile learning technologies (p. 68).

Develop, Communicate Vision

Nash (2006) offers for e-learning organizations vision plays an important role because even though teams are separated by time and place, they are still united by technology. Kotter defines vision as “a picture of the future with some implicit or explicit commentary on why people should strive to create that future” (p. 68). Its purpose is to motivate, align and direct people, nurture cost-effective collaboration and teamwork. A vision consists of six key attributes including description of activity, appeals to key stakeholders, consists of SMART goals (specific, measurable, attainable, realistic and tangible), is focused, flexible and easy to communicate (Kotter, 2006, p. 72). O’Connell (2006) adds mobile learning visions “allow us to critique our motives, structures and approaches to learning generally and our learners - as lifelong learners - more specifically” (p. 1). In the case of Southern Alberta Institute of Technology Polytechnic it not only created a vision on the institutional level but on the academic department and administrative levels as well (Bates, 2007, pp. 54-55).

Kotter (2006) emphasizes the importance of continuously communicating the vision and therefore it is important once a mobile learning plan is developed to communicate it throughout the organization. This requires continuous communication using simple language, citing metaphors as examples, utilizing as many formal and informal communication networks, addressing and discussing inconsistencies and promoting two-way communication (p. 90).

It is also important to externally communicate and share information as Traxler (2010) is concerned when it comes to communicating within the mobile learning field there is a “growing lack of communication and connection between the practitioner community, the policy and technology vendor communities on the one hand, and the research community on the other” (p. 133). Of immediate concern is policy-making being driven by public understanding of

technology affordances in terms of access and ease of use rather than led by educational research and practice. This reiterates the need for developing and communicating a strong mobile learning vision to direct future organizational activities from within and not by trends occurring externally to organizations.

Build Coalition

Many mobile learning initiatives involve essential key stakeholders who not only serve as important sources for strategic planning purposes, but also serve as active decision-making participants and role models. Cobcroft (2006) suggests the range of mobile learning stakeholders will vary but minimally include learners, full-time faculty, vendors, administrative support staff, instructional designers, technical and instructional help staff, and adjunct faculty. Some of the initiatives targeted certain populations, such as Honor College students at the University of Maryland College Park (Higgins, 2011) and distance learning students at NKI Distance Education (Rekkedal et al., 2005). Other initiatives recruited those with specific interest in mobile learning or were willing to volunteer to participate in pilot efforts. Higgins (2011) offers by including faculty in their coalition promoted expanded faculty interest and involvement throughout the organization. It also led to increased faculty-led research and additional mobile learning initiatives. NKI Distance Education found learner inclusion critical for providing feedback in order to improve and align mobile learning services with learner expectations (Rekkedal et al., 2005).

Traxler and Wishart (2011) suggest for organizations to explore other key stakeholders in the form of partnerships which can provide technology, conduct collaborative research and teaching. Traxler (2010) offers partnerships and institutional collaboration can advance mobile learning with organizations sharing best practices across traditional and distance education

communities. This is also true when considering partnerships between developing and developed countries, such as UNESCO's partnership with Nokia (Wheeler, 2010); and with countries leading mobile learning including Australia, Canada, China, India, Japan, Korea, South Africa, Taiwan and United States partnering with other countries (Dias, Keegan, Kismihok, Mileva and Rekkedal, 2008). Partnerships with mobile technology providers may be initially beneficial, but organizations must also consider whether or not mobile learning can sustain once external funding or supplies are no longer available.

Costs, Ethics, Ownership, Security

Dias, Keegan, Kismihok, Mileva and Rekkedal (2008) suggest one of the reasons why mobile learning is novel for education is because "Here for the first time in history is a technology that will cost government Departments of Education and taxpayers nothing because all the students possess, and use constantly in all walks of life except their education, the technology to be used" (p. 5). When considering this statement from an economy of scale, this may be true. Bacsich and Ash (1999) highlight, however, there are often hidden costs in distance education and when new technologies are adopted and processes implemented. For this reason, it is important for organizations to strategically account for this rather than customizing programs to align with certain mobile devices which may become obsolete within a short timeframe.

A major decision factor organizations face is who will provide mobile devices and therefore, be responsible for paying related costs. When organizations provide students equipment there are concerns including but not limited to organizational budgeting capital overhead expenditure, ownership policies and procedures, inventory management, and technical support.

Costs are also important in terms of what learners can afford, especially if the requirement is for the learner to provide the device rather than the institution. While learners may be attracted to the concept of mobile learning, they must fully understand the practical implications and what this may mean in terms of tuition, fees or other unexpected hidden costs. Another important aspect for US organizations to consider when requiring students to purchase mobile devices as part of learning is it may not be covered by financial aid as a qualified expense, and therefore, the cost would not be covered by grants or loans and the financial burden passed on directly to the student.

Regarding ownership Wheeler (2011) asks “Should students' personal devices become a part of the delivery strategy in higher education, or indeed elsewhere in other sectors?” (p. 1) He goes on to state that ownership can be both inclusionary and exclusionary. Furthermore, he argues there may be privacy and personal data issues as mobile devices often contain information which would require organizations to implement institutional security safeguards, policies and procedures. Cobcroft (2006) cites from lessons learned that “It is important to be aware that, when delivering or offering support services to learners’ mobile phones, one is encroaching on their personal space” (p. 62).

These questions raise ethical concerns requiring students using personal property as part of an organization’s learning requirement. Traxler and Bridges explain “the idea of ethics encompasses a spectrum from statutory issues to cultural issues, from what is defined as legally acceptable to what is defined as socially acceptable” (p.212). This spans organizational management of informed consent, participant risk and withdrawal, compensation for participating in pilot programs, confidentiality/anonymity, distinction between private and public domains, roles and responsibilities, status, power and cultural differences (pp. 213-215).

Approach and Scale

Organizationally it is important to determine whether mobile learning initiatives are to begin on a small scale basis, piloted and tested for reliability and sustainability, as many of the case studies show in the literature. Timelines are also important to attach to such projects as they may impact (re)assigning faculty and staff roles and responsibilities to develop, support and sustain mobile learning. Ally (2009) recommends organizations adopt a hybrid approach for incorporating mobile learning into distance education. NKI Distance Education used a two-prong approach by maintaining current distance learning activities in addition to an alternative mobile learning option. Students have the ability, therefore, to choose what works best for them by selecting options rather than requiring them to use methods which may not suite personal learning preferences.

As Kotter (2006) suggests it is important to celebrate quick wins within organizations in order to build organizational credibility which leads to sustainability. Therefore, any measurable gains made in mobile learning should be communicated throughout the organization (and mobile learning field) in order to demonstrate its value. This in turn reminds people the vision is attainable and that organizational change to incorporate mobile learning is succeeding. It also provides employees working on mobile learning initiatives recognition for the important work they are doing while at the same time showing resisters that change is possible. Finally, it helps realign the vision and strategy and keep leaders and management on track.

Most importantly, celebrating quick wins builds organizational momentum. What many case studies show is by starting with a small, controlled initiative led to greater interest and education innovation by faculty, staff and students throughout the organization.

Training and Support

Part of the mobile learning vision must also include resources to provide quality training to faculty, staff and learners. Tipple (2010) argues the growth in online education has led to increased dependence by organizations in hiring adjunct faculty and recommends organizations “seek new strategies to maximize institutional effectiveness through leveraging adjunct faculty’s specialized expertise, flexibility, and passion for sharing real-world perspectives” (p. 1). Of particular importance is appropriate training and development of adjunct faculty, which is important to consider when implementing mobile learning. It may be appropriate for organizations to first train full-time faculty and use Tipple’s (2010) model for then training adjunct faculty for mobile teaching and learning.

Effective mobile learning training requires standard policies and procedures for daily operations and contingency provision. For learners it requires having a backup mobile device and for organizations it requires procedures on which faculty, staff and learners are trained and are able to implement when necessary (Traxler and Wishart, 2011, p. 43). Training and support may be provided through a centralized or decentralized unit and even offered online. Ongoing training can be further enhanced with supplemental academic, administrative and technical support, through online self help documents, tutorials and even mobile applications.

Evaluate and Improve

Naismith et al. (2005) chose to review specific case studies which provided both qualitative and quantitative mobile learning evaluation results. They found in a museum case study, however, that evaluations measure attitudes about learning and not actual learning gains (p. 30). Traxler (2007) notes case studies often do not have evaluation means unique to mobile learning and suggests the reason for this is the weak theoretical foundation which currently exists

in the field. He offers a stronger base would “provide the starting point for evaluation methodologies grounded in the unique attributes of mobile learning” (p. 1)

As full courses are not yet delivered via mobile learning technologies and course evaluations are typically imbedded as part of course design, organizations need to find other means by which to collect student feedback and evaluation of provision and services. Traxler and Kukulske-Hulme (2005) found in a review programs either use focus groups, interviews and questionnaires to systematically log the feedback or simply observe the outcome.

Traxler and Kukulske-Hulme (2007) offer quality mobile learning evaluation should be reliable, trustworthy, cost and time efficient, ethical, authentic, proportionate to learning activity, consistent across groups, time and technologies, align with learning media, built in and appropriate for learning technology (p. 2). Tait (2003) recommends distance education organizations use data management systems to collect data to handle student inquiries, capture feedback, issues and other important data, such as faculty and student evaluations. A concern with this is the costs (hardware/software, license agreements) as well as quality of data and reporting capability. Yet the growing field of data and learning analytics in relationship to mobile learning technologies may provide organizations other cost-effective means by which to capture this data. It can especially help identify and isolate mobile learning behavior and trends as a way to improve provision.

Implement Cultural Change

With the mobile learning field being relatively new there may be concern among and within organizations about incorporating mobile learning into distance education provision. As Peters (2007) questions “Mobile learning is variously viewed as a fad, a threat, and an answer to the learning needs of time-poor mobile workers, so does it have a place in delivering mainstream

learning?” (p. 1). This is one of the significant cultural changes impacting education and distance education organizations today.

As Peters (2007) declares “Informal learning using mobile technologies is already embedded in our daily lives. Millions of Web-enabled phones are being used by learners (who may not be enrolled in formal courses) to seek information” (p. 15). She goes on to comment while many educators recognize the potential benefits of mobile learning there is hesitancy to adopt it for several reasons including age and ability of teachers, associated infrastructure costs and device provision, the slow rate at which educational organizations change, and devices are not currently geared toward educational use.

The first cultural change requirement must come from distance education leaders to motivate internal cultural change. Kotter (2006) defines culture as “norms of behavior and shared values among a group of people” (p. 148). He offers there are three reasons why culture is powerful in that it selects and indoctrinates individuals, prevails through large numbers of people, and often happens without “conscious intent” (p. 151). Within an organization changing culture may require changing people which is why it should be implemented at the end rather than beginning of any organizational transformation.

Distance education leaders can empower faculty and staff to engage in “broad-based action” focusing on mobile learning activity (Kotter, 2006, p. 101). In their study of distance education learners Corbeil and Valdes-Corbeil (2005) found both students and faculty were ready for mobile learning and had basic tools to start using it. Faculty can serve as cultural change agents by providing course information and content in simple mobile formats accessible by both mobile devices and personal computers. They offer e-mail is one way to begin as it is an easy form of communication, voicemail allows students to remain informed by calling in or even

using voice e-mail (voicemail embedded in an e-mail) as another option (p. 6). Even some commercial learning management systems, such as Blackboard, now incorporate push technologies, such as texting, within their systems. Corbeil and Valdes-Corbeil (2005) also note mobile devices have audio and video capabilities allowing faculty to record lecture notes via podcasts. A challenge for faculty may be converting lecture content to the appropriate medium format that will inform students in an engaging way.

Framework

When considering integrating mobile learning technologies, there are many variables and factors for distance education leaders to deliberate. Table 1 provides an overview of important areas discussed in this paper serving as a strategic framework by which distance education leaders can begin integrating distance education into mobile learning.

Table 1

Strategic Framework for Incorporating Mobile Learning into Distance Education

Topic	Organization Considerations	Outcomes
Mobile learning Vision	Identify motivating factors Organization SWOT Analysis Obtain feedback from sources Identify financial & required resources Explore institutional partnerships Update vision, mission, values Design change management plan Accreditation/legal/security/privacy	Write vision & plan Ongoing communication Determine roles/responsibilities Secure funding Develop/market programs Publish research Develop SMART goals Model expected behavior Align infrastructure as required
Build Coalition	Identify key stakeholders <ul style="list-style-type: none"> • Advisory Board/Panel • Faculty, staff, students • Vendors • Other educational providers • Early adopters/resisters Develop partnerships Determine incentives Single vs.(de)centralized unit(s) Roles & responsibilities/status Workload/compensation	Pedagogical objectives Model leadership roles/behavior Promote innovation/research Faculty/staff Institutes Recognition/rewards Federal, state, local partnerships Training requirements Celebrate/market quick wins
Costs, Ethics, Ownership, Security	Research existing cost/other models Ownership/privacy/security Ethics Inclusionary/exclusionary practice Learner risk/withdrawal	Technical standards Policies and procedures Informed consent Public/private domains Roles/responsibilities
Approach/Scale	Academic/administrative orientation Specify measurable outcomes Course design/delivery (hybrid) Determine scale/timeline Identify audience Establish budget	Contingency/redundancy plans Evaluation methods Data management system Monitor outcomes Communicate quick wins Build momentum
Training/Support	Interaction standards Faculty, staff, learners Contingency/redundancy issues (de)Centralized training	Learning environment support Online resources Regular/contingency plans Helpdesk
Evaluate/Adjust	Identify measurable outcomes Align with technology Qualitative/quantitative methods Target audience (faculty/staff/learners)	Collection methods Timely process Data management Learning analytics
Manage Culture	Accept external influences (re)Align organization behavior/values	Empower/change employees Award model behavior

Ongoing Management Challenges

Traxler (2007) notes “learning in the mobile age” is in a state of “sustained development” (p. 1). Kukulska-Hulme (2007) reminds us “the majority of mobile learning activity continues to take place on devices that were not designed with educational applications in mind, and usability issues are often reported” (p. 1). Traxler and Wishart (2011) observe current mobile learning initiatives have neither been able to successfully “scale-up” organizationally nor have they been sustainable on a long-term basis. As Zawacki-Richter (2009) notes current research efforts “are based on quite a small numbers of students, which suggests that mobile learning is still in project status and has not yet reached the mainstream. Large scale empirical studies on the design, impact, and effectiveness of mobile learning seem to be rare still” (p. 1).

Other ongoing management challenges offered by Traxler (2010) include improving existing projects, collecting relevant information from new projects, maintaining equitable inclusivity and access, publishing consistent and reliable research allowing for further growth and development in the field (p. 132). Currently most mobile learning initiatives are project-based but Traxler (2010) advocates they need to move to a more solid foundation. This reiterates an overarching theme the literature review reveals which the end goal for integrating mobile learning is ensuring organizational system stability, reliability and redundancy with required maintenance, support and growth regardless of the latest software and hardware advancements.

On a practitioner level Traxler and Wishart (2011) cite device provision and ownership (organization versus learner) in relationship to funding as one of the major reasons as interfering with institutional sustainability. Even if organizations place the ownership on learners they argue the organizational concerns will then shift to standardization, platform stability, device uniformity, equity and control within the learning environment and organization (p. 41).

Many educators perhaps remain conservative about incorporating mobile learning due to perceived issues and challenges in delivering quality, standardized education. Corbeil and Valdes-Corbeil (2007) warn mobile learning could make it easier for learners to cheat. There is also concern about widening the digital divide between not only between learners but between developed and developing countries. Mobile learning may also make non-technically oriented learners feel technically incompetent requiring additional training in using multiple formats. It is also important that content remain current and not to use mobile learning technologies as a façade to present outdated content (p. 6).

Peters (2004) emphasizes distance education is always in a state of transition and that in today's world global, societal, technological and workforce advancements necessitates further transformation. For students it means autonomous learning in more non-traditional ways and increased responsibility for the learning process; for faculty it means changing roles from independently preparing lecture notes to working in cross-functional teams planning formal guided-learning, deliberate communication, interaction and assessment. For organizations it means adapting pedagogy, delivery and support models to enable successful non-traditional learning. Peters (2004) argues the transition to additive learning, which mobile learning technologies afford, not only could impact course design but how degree programs are offered, how students enroll and how formal learning is accredited thereby changing the organization on many levels.

While mobile learning affords organizations several possibilities for expanding educational access and enhancing learning, Kotter (1996) cautions eight common mistakes organizations make during transformation initiatives. These are allowing for complacency, inability to create guiding coalition, understanding the role vision plays and under-

communicating it when it exists, allowing obstacles to interfere with the new vision, acknowledging short-term wins or declaring success too early, and failing to incorporate changes as part of organizational culture.

Conclusion

External market forces may be one reason distance education providers incorporate mobile learning technologies into their organizations. Or perhaps they want to promote education innovation amongst their faculty. Perhaps they will even be urged by their own learners to enhance the distance education learning experience with mobile learning technologies. These are some of the motivation reasons for distance education leaders to be proactive and well-informed in understanding the intersection of mobile learning within distance education systems. On an organizational level, its impacts can be far-reaching which is why a strategic management framework is warranted and change management plan may be necessitated. What distance education research, theory and practice reiterates in incorporating mobile learning into organizations, however, is for organizations to remain student-focused and not technology-driven.

References

- Agarwal, A. (2009, May 30). Web 3.0 concepts explained in plain English [Web log presentation]. Retrieved from <http://www.labnol.org/internet/web-3-concepts-explained/8908/>
- Ally, M. (2004). Foundations of educational theory for online learning. In Anderson, T. & Elloumi, F. (Eds.), *Theory and practice for online learning* (pp. 15-44). Retrieved from http://cde.athabasca.ca/online_book/pdf/TPOL_chp01.pdf.
- Ally, M. (2009). *Mobile Learning: Transforming the Delivery of Education and Training*. Athabasca University, AB: Athabasca University Press. Retrieved from http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=2&ved=0CEEQFjAB&url=http%3A%2F%2Fwww.aupress.ca%2Fbooks%2F120155%2Fbook%2F99Z_Mohamed_Ally_2009-MobileLearning.pdf&ei=pRzITqXJNTH0AHK2JkC&usg=AFQjCNFteQdR7IGzscGYzTpaXET73H7v8g&sig2=7f4cIcdXMr7-YvUI60f6ZQ
- Ally, M., Cleveland-Innes, M., and Wiseman, C. (2010). Managing innovation distance education projects in a telework environment. *The Journal of Distance Education*, (24)1, pp. 1-20. Retrieved from <http://www.jofde.ca/index.php/jde/article/download/638/1043>
- Barker, A., Krull, G., and Mallinson, B. (2005). A proposed theoretical model for m-learning adoption in developing countries. *Proceedings of mLearn 2005*. Retrieved from http://www.google.com/url?sa=t&source=web&cd=1&ved=0CBBoQFjAA&url=http%3A%2F%2Fciteseerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.102.3956%26rep%3Drep1%26type%3Dpdf&ei=yPWJTtT0CcrE0AGRrKnvDw&usg=AFQjCNGeoJ-FYcvNmMmJxKcx0FPP_WMvXQ

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

Bates, T. (2010, September 03). Distance education and mobile learning [Web log message].

Retrieved from <http://www.tonybates.ca/2010/09/03/distance-education-and-mobile-learning/>.

Bates, T. & Poole, G (2006). *Effective teaching with technology in higher education: Foundations for success*. San Francisco: Jossey Bass.

Bellis, P. (2007). Getting to grips with change. *JISC Inform*, (17) p. 22. Retrieved from <http://www.jisc.ac.uk/media/documents/publications/inform17.pdf>

Bertalanffy, L. (1968). Ludwig van Bertalanffy. Retrieved October 25, 2011 from: http://en.wikipedia.org/wiki/Ludwig_von_Bertalanffy

Blaschke, L. (2003). Components of a distance education system. Retrieved from http://www.keative-komm.de/603_Assign3.html

Brown, J. & Metcalf, D. (2008). Reading of not: Mobile learning update. *Learning Consortium Perspectives*. Retrieved from <http://masieweb.com/p7/MobileLearningUpdate.pdf>

Brown, J. & Diaz, V. (2010). Mobile learning: Context and Prospects. *EDUCAUSE*. Retrieved from

<http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=5&ved=0CDsQFjAE&url=http%3A%2F%2Fwww.educase.edu%2FResources%2FMobileLearningContextandProspe%2F204894&ei=ISfITvvrFcXo0QHwpqgN&usg=AFQjCNF-ZvV5GW855JSsRLMcJ-Dbb28sNw&sig2=324rvdaLfBoVqXTtjtny-A>

Chapel, E., Kahn, P., and Wilson, L. (2008). *Academic use of cell phone technology at Montclair State University*. Retrieved from

<http://www.educase.edu/Resources/SocialLearningUsingCellPhoneTe/162525>

CTIA – The Wireless Association (2011). Semi-annual 2011 top-line survey results. Retrieved

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

from <http://www.ctia.org/media/press/body.cfm/prid/2133>

Cobcroft, R. (2006). Mobile learning in review: Opportunities and challenges for learners, teachers, and institutions. *Proceedings of the Online Learning and Teaching Conference 2006*. Queensland University of Technology. Brisbane, Australia. Retrieved from www.eprints.qut.edu.au/5399/1/5399.pdf

Commonwealth of Learning (2000). Instructional design for self-learning in distance education. Retrieved from <http://www.col.org/SiteCollectionDocuments/KS2000%20Instructionaldesign.pdf>

Corbeil, J. R. & Valdes-Corbeil, M. E. (2007). Are you ready for mobile learning? *EDUCAUSE Quarterly*, (30)2, 51-58. Retrieved from <http://www.educause.edu/ir/library/pdf/eqm0727.pdf>

Daniel, J. (2007). Some experiences of a distance educator. In E. J. Burge (Ed.) *Flexible Higher Education: Reflections from Expert Experience* (pp. 102-111). London: The Society for Research into Higher Education & Open University Press.

Dede, C. (2004). Planning for “neo-millennial” learning styles: Implications for investments in technology and faculty. Retrieved from http://www.coulthard.com/library/Files/dede_2004_neomillennial.pdf

De Lorenzo, R. (June 5, 2010). On five difficulties in mobile learning implementation [Web log message]. Retrieved from <http://themobilelearner.wordpress.com/?s=resisting+change>

De Lorenzo, R. (June 11, 2010). On five difficulties in mobile learning implementation [Web log message]. Retrieved from <http://themobilelearner.wordpress.com/2010/06/11/on-five-difficulties-in-mobile-learning-implementation/>

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

Dias, A., Keegan, D., Kismihok, G., Mileva, N. and Rekkedal, T. (2008). *Achievements of mobile learning today*. E-book retrieved from

http://www.exact.ie/ebook/achievements/Achievements_of_Mobile_learning_Today.pdf

Elloumi, F. (2004). Value chain analysis: A strategic approach to online learning. In *Theory and Practice of Online Learning*, Retrieved from http://cde.athabascau.ca/online_book/

Engle, J. and Tinto, V. (2008). *Moving Beyond Access: College Success for Low-Income, First-Generation Students*. Washington, DC: The Pell Institute for the Study of Opportunity in Higher Education. Retrieved from

<http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CB0QFjAA&url=http%3A%2F%2Ffaculty.soe.syr.edu%2Ftinto%2Ffiles%2FMoving%2520Beyond%2520Access.pdf&ei=wDDITpPmElfc0QGU4MwL&usg=AFQjCNHpLSLIY6KxUNQZq7ia0yuRy7v3SA&sig2=1xJUytG1CTIIUWpAzdGRtg>

Fozdar, B. I., and Kumar, L. S. (2007). Mobile learning and student retention. *International Review of Research in Open and Distance Learning*, (8)2, pp. 1-18. Retrieved from

<http://eric.ed.gov/PDFS/EJ800952.pdf>

Gunawardena, C. N. & LaPointe (2007). Cultural dynamics of online learning. In M. G. Moore (Ed.) *Handbook of Distance Learning* (2nd ed., pp. 593-607). Mahwah, NJ: Lawrence Erlbaum Associates.

Higgins, C. (2011, January 21). Stories of mobile learning. EDUCAUSE Brief: Spotlight on Mobile Computing Series [Presentation]. Retrieved from

<http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=2&ved=0CCwQFjAB&url=http%3A%2F%2Fnet.educause.edu%2Fir%2Flibrary%2Fpdf%2FLIV>

[E112b.pdf&ei=oDLITrPVMors0gHd2qku&usg=AFQjCNFLbHn9IXOXkDAtDqaeR-yxsP-Ygw&sig2=cyG7OtGOLiv3_uh88yZBKQ](http://www.westga.edu/~distance/ojdla/fall63/howell63.html)

Howell, S. L., Williams, P. B., & Lindsay, N. K. (xxxx). Thirty-two trends affecting distance education: An informed foundation for strategic planning. *Online Journal of Distance Learning Administration*, (6)3, 1-18. Retrieved from <http://www.westga.edu/~distance/ojdla/fall63/howell63.html>

Jackson, M. C. (2000). *System approaches to management*. Hull, UK: University of Hull.

Johnson, L., Levine, A., & Smith, R. (2009). *The 2009 Horizon Report*. Austin, Texas: The New Media Consortium. Retrieved from http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=2&ved=0CCwQFjAB&url=http%3A%2F%2Fwww.nmc.org%2Fpdf%2F2009-Horizon-Report.pdf&ei=qzbITovBNKry0gGo-Jgt&usg=AFQjCNFandpvNTv8Uk1yD-5_3pH8TZtsaA&sig2=ITHwfECa8yg5cEBtVboqNA

Keaster, R. (2005). Distance education and the academic department: The change process. *Educause Quarterly*, (3). Retrieved from <http://net.educause.edu/ir/library/pdf/eqm0537.pdf>

Keegan, D. (1980). On defining distance education. *Distance Education*, 1(1), 13-36. Retrieved From <http://tychousal1.umuc.edu/WebTycho.nsf>

Keegan, D. (2005). The incorporation of mobile learning into mainstream education and Training. *The 4th World Conference on Mlearning - Mobile Technology: The Future of Learning in Your Hands*. Banff, Alberta, Canada. Retrieved from <http://mlearning.noekaleidoscope.org/public/mlearn2005/www.mlearn.org.za/CD/papers/keegan1.pdf>

Koole, M. (2009). A model for framing mobile learning. In Ally, M. (ed). *Mobile Learning:*

Transforming the Delivery of Education and Training. AU Press: Edmonton. Retrieved from

<http://books.google.com/books?hl=en&lr=&id=Itp60WteuJsC&oi=fnd&pg=PA25&dq=mobile+a+modle+for+framing+mobile+learning&ots=5XD5M6AMqh&sig=USGA4I0XiTPNbBX0LCqiM647r6E>

Koole, M., McQuilkin, J. L. and Ally, M. (2010). Mobile learning in distance education: Utility or futility? *The Journal of Distance Education*, (24)2, pp. 59-61. Retrieved from www.auspace.athabascau.ca:8080/.../UMLAUT_M_MobiGlam_project.pdf

Kotter, J. (2006). *Leading change*. Boston, MA: Harvard Business Review Press.

Kukulske-Hulme, A. (2007). Mobile usability in educational contexts: What have we learnt?

The International Review of Research in Open and Distance Learning, (8)2. Retrieved from

http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CCgQFjAA&url=http%3A%2F%2Fwww.irrodl.org%2Findex.php%2Firrodl%2Farticle%2Fview%2F356%2F879&ei=XQzJTpLzFoPg0QH4yfQW&usq=AFQjCNH49LvLW-BbygeHEXEL_11_UNIIGA&sig2=zU4b1-xg8aSpDue8211dnA

Kukulske-Hulme, A., & Traxler, J. (Eds.) (2005). *Mobile learning: A handbook for educators and trainers*. London: Routledge.

Kurubacak, G. (2007). Identifying research priorities and needs in mobile learning technologies for distance education: A delphi study. *International Journal of Teaching and Learning in Higher Education*, (19)3, pp. 216-227. Retrieved from www.isetl.org/ijtlhe/pdf/IJTLHE178.pdf

Laouris, Y. & Eteokleous, N. (2005). We need an educationally relevant definition of mobile

learning. Retrieved from

www.mlearn.org.za/CD/papers/Laouris%20&%20Eteokleous.pdf

Laurillard, D. (2007). Pedagogical forms for mobile learning: Framing research questions. In Pachler, N. (ed). *Mobile Learning: Towards a Research Agenda*. London: WLE Centre. Retrieved from www.eprints.ioe.ac.uk/627/1/Mobile_C6_Laurillard.pdf

Lee, M. J. W., & Chan, A. (2007). Pervasive, lifestyle-integrated mobile learning for distance learners: An analysis and unexpected results from a podcasting study. *Open Learning*, 22(3), 201. Retrieved from <http://web.ebscohost.com.ezproxy.umuc.edu/ehost/viewarticle?data=dGJyMPPp44rp2%2fdV0%2bnjisk5Ie46bJKtKq3Srak63nm5Kx95uXxjL6nr0ewpq1KrqevOLewrlG4qLU4v8OkjPDX7Ivf2fKB7eTnfLujr0q0rrBltq2vSKTi34bls%2bOGpNrgVd%2bv5j7y1%2bVVv8SkeeyzsE63qrRJR6ikfu3o63nys%2b585LzzhOrK45Dy&hid=24>

Leung, C. H., and Chang, Y. Y. (2003). Mobile learning: A new paradigm in electronic learning. *Proceedings of The 3rd IEEE International Conference on Advanced Learning Technologies*. Retrieved from http://matheasy.webstarts.com/uploads/Mobile_Learning_A_New_Paradigm_in_Electronic_Learning.pdf

Ludwig, B. & Schone, B. J. (2008). Virtually anywhere: A case study of mobile learning at qualcomm. Presented at Designing and Managing Mobile Learning, November 20-21, 2008. Retrieved from <http://www.elearningguild.com/showFile.cfm?id=3130>

McLeod, S. (2011). 10 reasons your educators (or employees) are resisting your change initiative. Retrieved from <http://bigthink.com/ideas/38511>

Meyer, J. D., and Barefield, A. (2010). Infrastructure and administrative support for online

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

Naismith, L., Lonsdale, P., Vavoula, G., & Sharples, M. (2005). Report 11: Literature review in mobile technologies and Learning. *NESTA Futurelab Series*. Retrieved from

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.136.2203&rep=rep1&type=pdf>

Nanjappa, A. & Grant, M. (2003). Constructing on constructivism: The role of technology.

Electronic Journal for the Integration of Technology in Education, 2(1). Retrieved from

<http://ejite.isu.edu/volume2no1/nanjappa.htm>

Nash, S. S. (2006). *Leadership and the e-learning organization*. Guilderland, NY: Texture

Press. Retrieved from <http://www.beyondutopia.net/leadership-nash/leadership-in-elearning-nash.pdf>

O'Connell, M. (November 9, 2006). Developing a mobile learning strategy? [Weblog

comment]. Retrieved from <http://ed-design.blogspot.com/2006/11/developing-mobile-learning-strategy.html>

Park, Y. (2011). A pedagogical framework for mobile learning: Categorizing educational

applications of mobile technologies into four types. *The International Review of Research in Open and Distance Learning*, (12)2, pp. 1-13. Retrieved from

<http://www.irrodl.org/index.php/irrodl/article/view/791/1699>

Peters, K. (2007). m-Learning: Positioning educators for a mobile, connected future. *The*

International Review of Research in Open and Distance Learning, (8)2, pp. 1-17.

Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/350/894>

Peters, O. (2004). Concepts and models. In O. Peters (2004) *Distance education in transition:*

New trends and challenges (4th ed.) (pp. 203-214). Document posted in University of

Maryland University College DEPM 650 9040 online classroom, archived at:

<http://webtycho.umuc.edu>

Peters, O. (1973). *Die didaktische struktur des Fernunterrichts*. Weinheim: Beltz. Retrieved from

http://www.google.com/url?sa=t&source=web&cd=5&sqi=2&ved=0CEgQFjAE&url=http%3A%2F%2Fohi.tamu.edu%2Fdistanceed.pdf&rct=j&q=otto%20peters%20industrialize%20form%20of%20&ei=b3SbTvybG6P50gGAy-TPBA&usg=AFQjCNGdImnf0-w8CXnNSCnP3c-nDK93jg&sig2=oi2d_S9oaN7yPV_fm3HF4w

Powley, R. (2011). MDDE 605: Planning and management in distance education and teaching.

Retrieved from <http://cde.athabascau.ca/syllabi/mdde605.php>

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon* (9)5. Retrieved from

http://www.albertomattiacci.it/docs/did/Digital_Natives_Digital_Immigrants.pdf

Rankin, W. (2011). Abilene christian university: 2010-2011 mobile learning report. Retrieved

from http://www.acu.edu/technology/mobilelearning/documents/ACU_M-2010-11.pdf

Rekkedal, T., Dye, A., Faberger, T., Bredal, S., Midtsveen, B., & Russell, J. (2005). Design, Development and Evaluation of Mobile Learning at NKI Distance Education 2000-2005.

Retrieved from http://www.dye.no/articles/mlearning/m_Learning_2000_2005.pdf

Rekkedal, T. & Dye, A. (2007). Mobile distance learning with PDAs: Development and testing of pedagogical and system solutions supporting mobile distance learners. *The*

International Review of Research in Open and Distance Learning, (8)2. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/349/871>

Rockwell, S. K., Schauer, J., Fritz, S. M., & Marx, D. B. (1999). Incentives and obstacles influencing higher education faculty and administrators to teach via distance.

Online Journal of Distance Learning Administration, 2(3). Retrieved April 20, 2002, from <http://www.westga.edu/~distance/rockwell24.html>

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

Rumble, G. (1986). *The planning and management of distance education*. London: Croom Helm. Retrieved from <http://www.egyankosh.ac.in/bitstream/123456789/25030/1/Unit-9.pdf>

Rumble, G. (1992). The competitive vulnerability of distance teaching universities. *Open Learning*, (7)28, pp. 31-45.

Rumble, G. (2006). *Systems thinking and its application to distance education*. Document posted in University of Maryland University College DEPM 650 9040 online classroom, archived at: <http://webtycho.umuc.edu>

Scarafiotti, (2003). A three-prong strategic approach to successful distance learning delivery. *Journal of Asynchronous Learning Networks* 7(2), 50-55. Retrieved from http://www.google.com/url?sa=t&source=web&cd=1&sqi=2&ved=0CBYQFjAA&url=http%3A%2F%2Fsloanconsortium.org%2Fsystem%2Ffiles%2Fv7n2_scarafiotti.pdf&ei=FkaBTdOWJsHagQeU8tWOCA&usg=AFQjCNFed-rqtURTLEG_Z6w5yAcu9JYRYg

Sharples, M., (Ed). (2006). Big issues in mobile learning: Report of a workshop by the kaleidoscope network of excellence mobile learning initiative. Retrieved from <http://mlearning.noe-kaleidoscope.org/repository/BigIssues.pdf>

Sharples, M., Taylor, J. and Vavoula, G. (2005). Towards a theory of mobile learning. A theory of learning for the mobile age. In *Proceedings of Mlearn 2005 Conference*. Retrieved from <http://www.lsri.nottingham.ac.uk/msh/Papers/Towards%20a%20theory%20of%20mobile%20learning.pdf>

Shea, P., Pickett, A., & Li, C. S. (2005). Increasing access to higher education: A study of the

- diffusion of online teaching among 913 college faculty. *The International Review of Research in Open and Distance Learning*, (6)2. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/238>
- Tait, A. (2003). Management of services to students. In S. Panda (Ed.) *Planning and management in distance education* (pp. 155-169). Document posted in University of Maryland University College DEPM 650 9040 online classroom, archived at: <http://webtycho.umuc.edu>
- Taylor, J. C. Australian Department of Education, Training and Youth Affairs, Higher Education Division. (2001). *Fifth Generation Distance Education* (Report No. 40). Queensland: Communication Unit. Retrieved from www.dest.gov.au/archive/highered/hes/hes40/hes40.pdf
- Taylor, T. H., Parker, III., G. D., and Tebeaux, E. (2001). Confront cost and pricing issues in distance education. *Educause Quarterly*, (3), pp. 16-23. Retrieved from www.net.educause.edu/ir/library/pdf/eqm0131.pdf
- Ting, R. Y. L. (2005). Mobile learning: Current trend and future challenges. *Proceedings of the Fifth IEEE International Conference on Advanced Learning Technologies*.
- Tipple, R. (2010). Effective leadership of online adjunct faculty. *Online Journal of Distance Education*, (8)1. Retrieved from <http://www.westga.edu/~distance/ojdla/spring131/tipple131.html>
- Traxler, J. (2005). Defining mobile learning. In Isaias, P., Borg, C., Kommers, P., & Bonanno, P. (Eds.), *Proceedings of the IADIS International Conference on Mobile Learning* (pp. 261-266). Qwara, Malta: doi: 972-8939-02-7
- Traxler, J. (2007). Defining, discussing and evaluating mobile learning: the moving finger

- writes and having writ . . . *The International Review of Research in Open and Distance Learning*, (8)2, pp. 1-8. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/viewArticle/346/875>
- Traxler, J., ed. (2010). Distance education and mobile learning: Catching up, taking stock. *Distance Education*, (31)2, pp. 129-138. Retrieved from
- Traxler, J., & Kukulska-Hulme, A. (2005). Evaluating Mobile Learning: Reflections on Current Practice. *Proceedings of mLearn 2005*. Retrieved December 20, 2005, from <http://www.mlearn.org.za/papers-full.html>
- Traxler, J. & Wishart, J. (2011). *Making mobile learning work: Case studies of practice*. Retrieved from <http://escalate.ac.uk/downloads/8250.pdf>
- Trifonova, A. (2003). Mobile learning – review of the literature. University of Trento: Department of Information and Communication Technology, Technical Report #DIT-03-009. Retrieved from <http://eprints.biblio.unitn.it/archive/00000359/01/009.pdf>
- University of Maryland College Park (2011). *Mobility initiative*. Retrieved from <http://www.mobility.umd.edu/>
- Uskov, V. (2010). *Advanced Web-Based Education: The Next Five Years and Beyond* [PowerPoint slides]. Retrieved from <http://contentdm.umuc.edu/cgi-bin/showfile.exe?CISOROOT=/p15434coll5&CISOPTR=943&filename=944.pdf>
- Vinu, P. V., Sherimon, P. C., and Krishnan, R. (2011). Towards pervasive mobile learning – the vision of 21st century. *Procedia Social and Behavior Sciences*, (15), pp. 3067-3073. doi: 10.1016/j.sbspro.2011.04.247
- Wagner, E. (2005). Enabling mobile learning. *EDUCAUSE Review*, (40)3, pp. 40-53.

RUNNING HEAD: Effective Strategies for Incorporating Mobile Learning into DE

Retrieved from

<http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume40/EnablingMobileLearning/157976>

Wallace, L., and Young, J. (2010). Implementing blended learning: Policy implications for universities. *Online Journal of Distance Learning Administration*, (13)4, pp. 1-11.

Retrieved from

http://www.westga.edu/~distance/ojdla/winter134/wallace_young134.html

Walti, C. (2002). Peer-to-peer support and community of practice for and by MDE program participants. Retrieved from <http://info.umuc.edu/mde/Projects/Walti.htm#ch1>

Wheeler, A. (October 19, 2010). UNESCO and Nokia sign partnership to use mobile technologies to further goals of Education for All. Retrieved from

http://www.unesco.org/new/en/media-services/single-view/news/unesco_and_nokia_sign_partnership_to_use_mobile_technologies_to_further_goals_of_education_for_all/back/18256/

Wheeler, S. (May 9, 2011). Student owned devices. *Learning with e's*. Retrieved from

<http://steve-wheeler.blogspot.com/2011/05/student-owned-devices.html>

Winters, N. (2006). What is mobile learning? In *Big Issues in Mobile Learning: Report of a Workshop by the Kaleidoscope Network of Excellence Mobile Learning Initiative*. M. Sharples (ed.), pp. 4-8. Retrieved from

<http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CDgQFjAA&url=http%3A%2F%2Fmlearning.noekaleidoscope.org%2Frepository%2FBigIssues.pdf&ei=PbS2Tj0Iqzs2AW8r8DMDQ&us>

[g=AFQjCNF_JjXWsuYJb4dd_1qNfFOd8GJWeQ&sig2=VPKggeLXOVfRhw7FGVgu4](https://www.eurodl.org/index.php?p=archives&year=2005&halfyear=1&article=163)

[g](#)

Zawacki-Richter, O. (2005). Online faculty support and education innovation – a case study.

European Journal of Open, Distance and E-Learning. Retrieved from

<http://www.eurodl.org/index.php?p=archives&year=2005&halfyear=1&article=163>

Zawacki-Richter, O. (2009). Research areas in distance education: A delphi study. *The*

International Review of Research in Open and Distance Learning, (10)3. Retrieved from

<http://www.irrodl.org/index.php/irrodl/article/view/674/1260>

Zawacki-Richter, O., Brown, T., and Delport, R. (2009). Mobile learning: From single project

status into the mainstream? *European Journal of Open, Distance and E-Learning*, (2), pp.

1-19. Retrieved from

<http://www.eurodl.org/index.php?p=archives&year=2009&halfyear=1&article=357>