The e-adult Learner: the Definitive Classic in e-workplace Development

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Abstract—The growth of E-learning is profoundly influencing major developments that are not only changing the way knowledge is imparted to the widest audience inside and outside the workplace, but may even be fundamentally altering the conceptualization of education. Taking full advantage of the opportunities of E-learning implies significant shifts in thinking about educating the workforce, which in turn provides the opportunity to rethink how knowledge is acquired. Even with a plethora of literature on electronically delivered education, there is an absence of attention on the electronic adult learner (e-adult) and the demanding set of e-learning needs in the workplace. Creating synergy between the understanding of the e-adult and the application of workplace solutions to problems will not only expand the knowledge base in this field of study but will provide insight into ensuring there is rigor in the development of the communities of practice within the workplace. Technology is one factor in the implications of E-learning but there is a need to intentionally focus closer attention at additional factors that influence e-adults. As ambiguous as E-learning currently is, this paper provides an integrative view and an understanding of the complexity of the E-learning landscape for the e-adult.

Index Terms—e-adults, e-learning in the e-workplace, implications of e-learning, e-workplace development.

I. INTRODUCTION

E-learning is a term which is commonly used, but does not have a common definition. Most frequently it seems to be used for web-based distance education, with no face-to-face interaction. Broader definitions are also common. For example, it may include all types of technology enhanced learning (TEL), where technology is used to support the learning process. The exact meaning of E-learning is difficult to pinpoint since the meaning can vary according to the people involved and the learning context. In addition, it is often used interchangeably with various other related terms, such as distance learning, distributed learning, and electronic learning.

A. Historical perspective of E-Learning

Originally this type of education was developed to be a catalyst for learning through a series of print-based, teacher-made materials sent via the mail service to students in remote locations. Correspondence courses were recorded in Europe in the mid 1800s and in the United States in the late 1800s (e.g., Boston’s Society to Encourage Studies at Home, 1873; Chautauqua Movement programs, late 1800s; Pennsylvania State College Correspondence Program for students in agriculture, 1890s; and, University of Chicago’s academic programs, 1890s). The learners in those settings would complete their various assignments and mail their work back to their facilitator. In select situations, exams were proctored by instructors hired to go to centralized remote sites. For the most part the learning was: 1) completed independently by the student with minimum interaction student-to-student or student-to-instructor; 2) there were extended time delays between the completion of the learning activities and the assessment results; and, 3) little to no meaningful learning interaction or “teachable moments.” Technology enhancements via courses by radio (1920s), broadcast and cable television (1950s; 1970s), computers and other technologies of today have created a more robust distance teaching and learning environment that has eventually moved into the e-workplace landscape.

Today’s distance education is the process of extending learning or delivering instructional resource-sharing opportunities to locations away from brick and mortar classrooms by using video, audio, computers, multimedia, communications, or some combination of these with other traditional delivery methods (Instructional Technology Council, 2007 [6]. Interactive telecommunication systems provide opportunities to learn in nontraditional asynchronous and synchronous methods and to quickly apply the learning into the workplace. E-learning offers a flexible approach to “just in time” and “just anywhere” e-training to address emerging workplace situations.

B. Design considerations

E-learning offers workers a means to meet the knowledge and skill demands of the global work environment. E-learning curriculum must be designed to address both the needs of the learner and the industry the learner is a member of or will enter. Therefore, educators and industry leaders are challenged to design training that is attainable by today’s e-adults. Unlike face-to-face classroom design, E-learning requires a more comprehensive review of the fluctuating infrastructure needs of e-learner as well as curriculum reform using enhanced technologies, advanced course and web design, and professional development services required for an array of knowledge workers at several points along a technology continuum with varied technological skills.
Today’s Generation Y (Millennial born between 1978 and 1990) and the Generation Z learners (born after 1990) are viewed as digital natives due to a lifetime of exposure to computers, cell phones, the internet, podcasts, instant and text messaging systems, video games, and other technologies. These digital natives often see the E-learning courses with the various multi-media techno tools as an enticing and less stressful learning environment due to their prior exposure to the technologies. Meanwhile the Silent Generation, or commonly referred to as digital aliens (born between 1925 and 1945), the Baby Boomers known as digital immigrants (born between 1946 and 1964), and the Generation X known as digital adaptives (born between 1965 and 1979) may see the E-learning experience with high fear and high stress due to the lack of exposure to technology in their developmental years.

E-learning is emerging as a central educational platform and it is particularly important when used in the workplace to consider all of the factors that might contribute to making this a successful experience for the wide-variety of e-learners encountered in that type of setting. Although the idea is to provide an equal educational opportunity for all, the technological requirements may actually perpetuate an educational, training and workforce gap or “digital divide” (Digital Divide.org, 2008 [3].

Often someone who is participating in an e-learning experience at the workplace may not be someone who is familiar or comfortable with technology involved. Extensive pre-planning of the learning opportunity is needed prior to implementation of the non-traditional educational design. The student, and often the facilitator, may lack the skills, resources, and experience needed to be successful in the E-learning environment. To assure success, the organization providing the training must examine various technological modalities to determine those that are most effective with a diverse workforce population that strives to be prepared for an ever-changing world (Brewer, 1997) [1]. Research into what is effective in developing e-adults in an e-workplace supports similar findings in more traditional settings, such as:

- Extensive pre-planning for instruction is essential by both the facilitator and the learner to enhance the learning exchange.
- Needs assessments are required to identify the content to be offered and to identify what technological tools would be most appropriate.

- Learner characteristics such as autonomy, flexibility, and time management should be pre-assessed to ensure more successful completion in E-learning settings (Threlkeld & Brzoska, 1994) [13].
- The technologies used to deliver or augment the material being taught must be readily available to all the learners, and must be tested for levels of appropriateness for the learners involved.
- Guided help through telephone contact with facilitator, online tutorials, accompanying CDs or DVDs, allowable downloads, or frequently asked questions (FAQs) must be available to prevent frustrations with the material or technical glitches.
- Remedial courses should be offered before the actual course-work begins to students with gaps in their grasp of the technology involved as well as opportunities for faster-track students to advance at their own speed. Some form of support services should be created at a reasonable distance for the learners for those that need the “human” touch.
- Prior to the learning experience, success strategies that are age and learning style appropriate must be developed to increase the level of learner involvement, fun and adventure to compensate for the isolation and possible alienation in the E-learning environment.
- Course modules and assignments must be designed that assist the learner in applying the information gleaned from the learning experience in an immediate, meaningful, and authentic way to encourage the e-adult to apply the learning into their workplace.
- The learning delivery systems used have to be matched to the various genders, age groups, ethnicities, and socio-economic levels to assure positive results.
- Rules of conduct, standards or ethics of engagement, timelines for work completion and learning expectations must be established early in the E-learning experience to assure that the e-adult is aware of expectations.

Without face-to-face contact with an instructor and other learners, many of the “rules of the road” are lost without the advantage of non-verbal cues, classroom chit-chat, and other informal means of gaining information. Figure 1
portrays these rules of the road as a “gear mechanism” and the same process of how a gear shifting works should be understood in order to eliminate teaching and learning dilemmas.

II. E-LEARNING SUPPORTS E-WORKPLACE

A. Emphasis of E-learning supporting the e-workplace

What turns a workplace group from a collection of people to a learning community? Communities are a complex of many factors and variables, and any adequate understanding of the development of such communities needs to recognize that the development of E-learning contributes to the processes of assisting learners in developing competencies and confidence in self-regulated learning. The process includes a common space for learners to create, challenge learning while generating new ideas, create collaborative knowledge building, and provide a platform for sharing of ideas that can be fully exploited.

E-adults are inspired to construct new understandings in their learning which promotes higher level thinking. The objectives of E-learning are to empower learners through easy access to knowledge and skills, facilitating communication pathways with experts on the target subject matter. E-learning education delivery has been enhanced today with opportunities for electronic transfer of knowledge that offers flexible timing, place, and pace of the learning, as well as increased: 1) opportunities for collaborative effort rather than a competitive learning environment (threaded discussion boards, video and audio conferencing, instant text messaging, YouTube; 2) interaction with teachers and resource persons (chat rooms, podcasts, streaming video, Wikis, and blogs, all made more accessible through the use of technology; and 3) critical reflection and higher quality of learning due to access to databases and stored research (multi user domain sessions, bulletin boards and virtual libraries).

Learning materials should be cognitively stimulating to the e-learner. There must be access to resource materials that are time and cost-efficient as well as being up-to-date and engaging. By contrast, traditional access of resource materials rapidly become outdated and less relevant to the individual work environment and e-adult needs.

B. New development for E-learning

Business related developments using a host of technologies show great promise for the e-learners in a globally competitive workplace. Extensive interactive assessment tools and digital portfolios are currently assisting in the process of screening, hiring and placement of thousands of employees across the country. Web based modules emphasizing self-regulated learning and reflection are used to train both newly-hired and veteran employees.

A myriad of handheld data collection devices are used daily in business, civil service, health care and education. Course modules are being designed to educate the workforce of tomorrow via alternative E-learning platforms, such as:

- Surveyors, scientists, forensic examiners and medical teams are provided practical experience in collecting information and conducting assessments on innumerable handheld devices to evaluate conditions of plant and animal life, changing weather patterns, road conditions, crime environment, and bio-medical information.

- Express mail carriers, employees in drive-through restaurants and convenience stores are trained to place orders, conduct inventories, perform banking procedures, and even marketing survey information with mini-electronic whiteboards, digital signature devices, and new age scanners (e.g., Coca Cola, Fed Ex, UPS, Red Lobster, McDonalds, 7-Elevent, Medieval Times).

- School bus drivers, commercial truckers, and ship captains are trained to use Global Positioning System (GPS) cut costs and provide a more efficient service.
Medical personnel chart patient records, order prescriptions, and bill on mobile devices with voice recognition and Optical Character Recognition (OCR) software, thus reducing errors.

Police officers are trained to collect data and communicate with centralized tracking database systems to save time, money, and reduce human error.

Real-time enterprise mobility is dictating a new use of E-learning via wireless intranets and protected internets across the globe, such as:

- Medical professionals have mobile access to patients’ vital signs, clinical data and information that allows for assessment and treatment.
- Business people have first hand access to learning materials, experts and other learners via desktop conferencing and webcams (e.g., PC to Meeting, Skype), that provide virtual teaming opportunities for real-time problem solving using an inter-disciplinary approach without travel costs.
- Surgeons, aircraft pilots, commercial boat captains, athletes, military personnel, firefighters, and police officers are using virtual simulations in safe, but realistic environments that reduce the training required, enhances the hands-on aspect of the training, and reduces the need for real settings.
- Planners use Geographic Information Systems (GIS) tied to geographic, spatial data to calculate emergency response time and to locate and respond to dangerous situations.

III. PROFESSIONAL PRACTICE OF E-LEARNING

A. Elements of professional practice in E-learning

Those who determine ‘best practices’ must provide for principled and systematic variation of professional development components within the overall schema of E-learning. It is essential that within the schema there is a focus on key questions that are addressed dealing with: 1) the characteristics and quality of the professional practitioner’s experiences and the relationships among the various characteristics at the level of knowledge and learner achievement; 2) attention given to aligning the approaches to successful e-adults and workforce productivity and goals; 3) an element of discovery into the practical implication for organizations that wish to encourage the practice of E-learning; 4) a commitment of time, effort and funding to incorporate a guided mastery learning experience; and 5) provision for a seamless transition to new technologies that assist in facilitating the rapid diffusion of teaching initiatives and significant learning achievement.

The practice is to be guided by:

- A commitment to scholarship in discipline and subject area;
- Utilizing and providing access to current content, materials and resources;
- Exhibiting well thought-out aims, goals, and objectives;
- Having a clear sequence of learning activities;
- Disseminating current research findings and promoting various forms of inquiry;
- Setting realistic, yet challenging expectations of learners;
- Promoting active learning, independence of thought, and problem solving;
- Integrating appropriate technology into the course learning framework;
- Providing for suitable assessment methods measuring success in accomplishment of course goals and outcomes;
- Exhibiting sensitivity to e-adults of varying ages, backgrounds, culture, and experience.
Pajo and Wallace (2001) stated, “The growth of E-learning is a major development that is changing the way knowledge is imparted to the widest audience inside and outside the workplace. These innovations are profoundly influencing practices and policies and may even be fundamentally altering the conceptualizations of education” (p.71) [11]. Traditional facilitators of training may fear the transition to E-learning and many of its innovative practices due to the lack of training, lack of time to use the technology tools, and the extensive time requirements associated with using and monitoring E-learning endeavors.

There is also an expectation that E-learning educators are to be well versed in their subject area or discipline; skilled in design and use of technology; possess high level communication skills; be proficient in learning style assessments; and possess a large variety of other talents. Rarely do instructors within the E-learning profession have the multiplicity of skills that today’s E-learning climate seems to require. However, if practitioners keep an open mind to the variety of teaching techniques available within the various teaching/learning models the options for developing a rich educational experience in the world of e-learning is limitless.

In addition to the large volume of documented characteristics of self-directed learners, Guglielmino’s study (as cited in Danaher & Duay, 2004) [2] identified additional psychological characteristics such as initiative, independence, persistence, acceptance of responsibility for learning, self-discipline, enjoyment of learning, and a high degree of curiosity (Fig 2). One of the ultimate goals in applying the characteristics of e-adults and the providers of E-learning is to not only re-invent and re-energize the practice of teaching and learning itself, but to develop lifelong learners for the e-workplace. Identifying ‘best practice’ for this field is essential for the profession of E-learning in order to influence the development and direction of e-workplace education.

IV. ISSUES AND RESEARCH

A. Current Issues in E-Learning

As technology continues to become a major part of our lives, there are strong differences in the way it is routinely used by select populations. For example, the terms ‘digital divide’ and ‘technology gap’ have been used to describe differences in the access to, as well as, use and benefit of the technology for disenfranchised minority and marginalized workers impacted such as:

- Individuals with low disposable or fixed income;
- Individuals that are place bound (e.g., the handicapped and the incarcerated);
- Individuals with lack of access to traditional education (e.g., inability to drive, lack of funds to purchase a vehicle, limited availability of mass transit, or technologies in area);
- Individuals who lack exposure to technology due to their culture, their ethnic cultural background/views, their age and their educational background.

Today’s global economy often demands a college degree for a person to earn a decent living. As the information age advances, the need for a more advanced education also increases (Huitt, 1999) [5]. It is imperative that marginalized individuals be provided opportunities to decrease the disparities in salary, promotion and prestige. E-learning combined with technologies offers a larger array of possibilities than ever before, but only if the necessary technology is available for all people. If this is not so, the advance of e-learning may end up perpetuating the social and economic barriers already existing instead of being a door to equal opportunity for all.

E-Learning allows the e-adult to have an interactive opportunity to learn at their convenience by receiving instruction through various technological media that may be accessed from various locations. Reference 4 noted in the Pew Internet and American Life Project, March 2008 survey 62% of all Americans have some experience with mobile access to digital data and tools. Accompanying this changing nature in the access to communication is a transformation in the way in which people value this new ability to communicate. Table 1 represents a sharp reversal in how people viewed certain technologies in 2002 as compared to 2007.

The virtual learning environment is very appealing to many because it is said to promote new opportunities. But regardless of the value of E-learning, problems are surfacing. In numerous research studies (Meltzer, 2006) there is evidence
that the professional development for facilitators to use technology and to engage in E-learning has been inadequate [10]. In many E-learning educational situations there is minimal time for development and even less time for reflection.

B. Current research in E-learning

The debate about the efficacy of technology integration continues, but one fact has been established and that is organizational and political realities indicate that technology-based instruction is a viable alternative whether in the educational, industry workplace, or personal environments (Kotrlik & Redmann, 2005) [8]. Despite earlier fears about the possible dehumanizing effect of E-learning, studies have determined that meta-skills such as higher order thinking, can be developed if facilitators reduce the total amount of factual information e-adults are expected to memorize, reduce the passive lecture format, and devote much more effort to helping e-adults become active, independent learners and problems solvers (Lujan & DiCarlo, 2006, p.17) [9]. Whittle & Eaton (2001) stated, “This change in teaching and learning methods will place a greater responsibility on individual learners to manage their own learning, and highlights the needs for e-adults to develop a good standard of transferable skills” (p.148) [14]. This type of non-traditional interaction is at the core of E-learning and is indicative of the skills of the self-directed learners mentioned above.

In the design of E-learning, Burbules and Callister (as cited in Rudestam & Schoenholtz-Read, 2002) contend that consideration needs to be given to what method of instruction is best for what type of learner [12]. The modality depends on the information to be learned. In the medical field for example, while traditional classroom lectures still exist, newer instructional methods such as computer-based video training for surgical skills are being used with much success (Jowett, LeBlanc, Xeroulis, MacRae, & Dubrowski, 2006) [7]. While part of the shift in mode of training may be due to technological advances, much of the impetus for these changes is due to increased knowledge on how learning best occurs. Optimal learning outcomes are being created by blending modalities to match the e-adult’s needs and capacities. Oglen (as cited in Kotrlik & Redmann, 2005) stated, “The greatest challenge is to focus not on the technology itself but on the e-adult and their learning. Technology invites a tools first emphasis, but technology is only as good as our knowledge of how to use it to enhance learning” (p.203) [8].

E-learning is broadening the predominant mode of education and emerging technologies perhaps even redefine the way workers learn and apply the relevant information into their workplace. One way for this to happen is through the use of a computer generated e-conversational agent that can encourage high level thinking by studying the patterns of the e-adult and increasing the level of questioning based on the patterns. The e-conversational agent can promote collaborative learning through assignments, such as a team building work project. By utilizing a simple learning-style assessment tool composed on a computer, the agent can quickly adapt to the learning style of each e-adult and produce the learning assignment appropriate to that style. So, each e-adult could have their own e-conversational agent that identifies with them as a specific learner and thus creates an environment in which the e-adult excels.

King (as cited in Kotrlik & Redmann, 2005) stated, “Technology is assimilated into so many aspects of our lives and work that there arises an urgent cry for it to be adopted in all workplace learning” (p.202) [8]. The ability to locate relevant information for groups of people who are separated in both time and space has become a necessity in order to successfully navigate through the e-workplace.

The opportunity to move from the realm of the traditional, and often passive learning mode into a more functional, secure, participatory and perhaps more exciting educational space of e-learning is a shift that many students and employees are being faced with everyday. Depending on their age and other characteristics, this transition can be natural and desirable or it can be daunting as well as frustrating. It is up to today’s educators, even those who find themselves also intimidated by the changes to embrace this new educational challenge using all their creativity and the vast amount of resources at their disposal. It is also incumbent on employers to promote e-friendly work environments so that their employees may take full advantage of the ever-increasing amount of information that technology makes available.

Even if there is no one clear definition of “e-learners” or even “e-learning” and even if it is an area that will always be subject to constant change due to the nature of technology itself, when efforts are made to facilitate the e-learners experience, both educationally and emotionally, the resulting e-learning community can

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### Table 1

<table>
<thead>
<tr>
<th>Mobile Population participate in Digital Activities</th>
<th>2002</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell phone</td>
<td>38%</td>
<td>43%</td>
<td>51%</td>
</tr>
<tr>
<td>Internet</td>
<td>38%</td>
<td>38%</td>
<td>45%</td>
</tr>
<tr>
<td>Email</td>
<td>35%</td>
<td>34%</td>
<td>37%</td>
</tr>
<tr>
<td>Blackberry or wireless email device</td>
<td>6%</td>
<td>22%</td>
<td>36%</td>
</tr>
</tbody>
</table>

Source: Pew Internet & American Life Project
become a dynamic and powerful place where real learning can happen and where change can originate.

REFERENCES


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