

# UNDERSTANDING AND APPLYING TECHNOLOGY IN FACULTY DEVELOPMENT PROGRAMS

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## ABSTRACT

Being aware of what is absent in faculty development programs is important for practitioners and researchers so that they can create and advance programs, and support the development of knowledge, skills, and abilities for distance education instructors. Requests for distance education courses persist to grow at the college and university levels, as students and corporations push for more flexibility in education. Administrators emphasize the return on investment, while faculty members develop distance education courses. More and more faculty members are being prompted to facilitate in the distance education and online arena. This paper focuses on the current state of knowledge needed by facilitators to teach and deliver education using androgogical techniques and technologies. Additionally it emphasizes the need to understand the different types of available technologies and understand their applicability to facilitate learning. These technologies are becoming more and more important to facilitators and administrators as the Internet continues to energize educational deliveries.

## KEYWORDS

Distance Education, Performance, Technology, Andragogy

## 1. INTRODUCTION

Distance education and exploding technological progressions are reforming the way instructors, administrators, and students conduct educational actions and use technologies. These reformations of actions are driven by students' and corporations' push for flexibility in education, administrators' focus on these demands and their return on investments, and faculty members' being nudged to instruct in the distance education arena. This learning can be synchronous or asynchronous. Before moving forward lets define distance education.

Defining a field of study is substantial as definitions indicate practice in that field and places information in proper context (Seels and Richey, 1994). Distance education is defined and termed in many ways. Defined by Yacci, "distance education is the practical subset of education that deals with instruction in which distance and time are the criterial [sic] attributes; that is, student and teacher (and other students) are separated by distance and/or time" (2000, p.1). "Online learning overlaps with the broader category of distance learning, which encompasses earlier technologies such as correspondence courses, educational television and videoconferencing" (U. S. Department of Education, 2010, p. xi). For the purposes of this paper distance education will be the term used to refer to for distance learning, elearning, ilearning, online learning, and co-learning.

Wrapped in distance education and online learning is technological advancement. Facilitators must become comfortable in understanding the different types of technology and the best way to employ technologies in the learning environment. Technology not only helps develop learning, it bridges gaps in distances. January 2008 the University of Illinois Urbana Champaign implemented "the University of Illinois Global Campus - an integrated online programme [sic] created in collaboration with the colleges and academic departments at the university's residential campuses" (Economist Intelligence Unit, 2008, p. 8). This implementation is an instance of the way distance education professionals located in the United States can connect with colleagues in different countries as if they are located in the same room. This connection is by using collaborative software applications that support the desktop view of a host computer to shared applications, voice, and video with numerous computers during conferencing.

Even though technology continues to electrify the educational arena, "...we are cognisant [sic] of the need to be critically selective and thoughtful about what technology is used and how it is used. (Latham and Carr, 2012, p. 41)

The question here is, *What is the present tactic to deliver facilitation training for faculty who teach online?* According to Allen and Seaman "There is no single approach being taken by institutions in providing training for their teaching faculty. Most institutions use a combination of mentoring and training options," (2011, p. 6). The subsequent question is *What technologies should facilitators understand and employ when teaching online?* The answers to these questions will be uncovered throughout this document.

This paper contains foundational information needed to examine, illuminate, and comprehend the current state of problems (i.e., lack of understanding how to teach in the distance education environment), and the types of technologies (i.e., learning management systems, blogs, wikis, collaboration rooms, etc.). The need to better understand the needed educational model and which technologies offer facilitators advantages in delivering instruction through distance education will be explored.

## **2. BACKGROUND OF THE PROBLEM**

As learning offered through distance education via the Internet is exploding, so is the directive for university/college faculty members who will facilitate these courses. Traditional academic expectations remain unchanged. The perceived notions of online education course deliveries taking more time than face-to-face endure to circulate (Drago, Peltier & Sorensen, 2002; Hinson & LaPrairie, 2005; Allen & Seaman, 2011). These perceptions of more time being needed to teach online than face-to-face is noted in survey and qualitative interview studies (Van De Dord, Korolyn, 2012; Bolliger & Waslik, 2009; Conciecao, 2006; Haber & Mills, 2008).

Conversely, the current medium, teaching through distance education brings a fresh environment for faculty and administrators to live, work, and balance their personal and professional lives. Consequently, faculty and administrators must sincerely sort through educational lessons learned. Next they need to then merge this new understanding into today's changing social technology driven society to preserve the online competitive edge. This can occur by faculty and administrators creating faculty development programs that are performance driven towards faculty being able to understand and use multiple technology modalities. Faculty will need to apply the usage of multiple technologies during courses. This technology tool knowledge needs to be developed into a strong distance education competency model and applied for all faculty and administrators.

### **2.1 Present Tactics to Facilitate through Distance Education**

Marginal numbers of facilitators are experienced teaching online. When reviewing facilitators with experience teaching online, numerous changes were documented regarding their experiences. Some changes comprise: Revising projects to drill down to their key points; these are examples of how assignments normally given in face-to-face settings need to be changed. Remaining in the face-to-face setting will not produce the same results online. (2) Next is to determine the fostering of collaboration between geographically dispersed individuals (Chronicle of Higher Education, 2010). "Collaboration may range from asynchronous, where an interactive activity is separated by long periods of time (e.g., e-mail, discussion groups), to synchronous, where an interactive activity is simultaneous (e.g., video conferencing)" (Lafifi, & Touil, 2010, p. 113-114). (3) Another change is paradigm shifting towards a positive direction regarding distance education facilitation and time commitment (Chronicle of Higher Education). The attitude and tactics of the instructor will affect the attitude of the learners. For example when an instructor talks so fast that students do not have time to think through a question before a facilitator goes to the next question, and neither party cannot see each other. (4) Further, understanding how to utilize the many technologies in order to multitask during class is important (Chronicle of Higher Education, 2010). The ability to handle several things at once leads to a smoother delivery, one without disturbances. (5) Finally is the need to adjust the amount of time required to prepare and then teach via distance education. Facilitators need to be cognizant of the direct impacts of on line education to positive learning. Moreover, learners will need to be able to apply the lessons to their specific understandings.

Facilitating in the distance learning arena is here to stay. To remain competitive and effective faculty will need to understand how to facilitate in the on line arena as well as teach face-to-face. Equally, administrators need to understand teaching through the distance education. They will need to view faculty development in several ways. First, for new instructors, administrators will need to develop a knowledge, skills, abilities, and competencies list. Next administrators need to establish on line teaching measurements for existing faculty. As faculty need to remain educated to the changes, so must administrators to meet the educational demands of the 21<sup>st</sup> century.

## 2.2 Understanding Technologies for Facilitating Online

Understanding technology tools is important when researching and establishing an online faculty development program. Information Technology (IT) is met by facilitators' slow acceptance of education technology. According to Duggan this "creates individualistic silos of technology" (Duggan, 2010, p. 3). "Effective incorporation and use of the technologies outlined in this paper will create an engaging environment that promotes joint learning in online courses" (Singh, Managalaras, & Taneja, 2006). Administrators and facilitators need to understand that simply housing technological tools and stating they are in-house is not the answer to promote success for distance learning professionals. Professionals need to comprehend the general use of educational tools, and then pin point specific tools for use. Additionally, they should understand tools for communication usage and tools for educational use. Attempting to know all of the education tools can engulf users; therefore; an educational development plan must be in place. Tools are delineated as educational and/or communication categories in table 1.

Table 1. Communication and Educational Technologies

Category	Example	Explanation
Educational	Interactive White Boards	Connects to a computer; A projector projects information on the board. Information is controlled by the finger, a pen, a stylus, or the like.
Educational/Communication	Web Conferencing – Audio/PowerPoint	Tools that allow conferencing in remote places, through computers, tablets and smart phones/blackberries.
Educational/Communication	Web Training – Screen Sharing	Tools that allow screen sharing of information.
Educational/Communication	Video Technology	Tools used to move images for the purpose of viewing information.
Educational/Communication	Mobile Technologies	Tools used for cellular technologies (auditory and visual capabilities).
Educational/Communication	Blogs	Websites updated frequently with information in chronological order.
Educational/Communication	Wikis	Sites created as collaborative efforts to share information; Can link from other sites.
Educational/Communication	Community of Practice	Sites created as collaborative efforts for a group of people who share a common profession; Can link from other sites.

Some instructors may have a few favorite tools that make their job of connecting with learners easier; however, this is not enough. To develop a competency in educational tools, instructors and administrators should understand the different categories and then be able to provide examples and explanations of them. This education leads to a process of continuous learning because new tools are consistently appearing. As well, older tools are gaining more distinction by adding new features. An example of this was the combining of a learning management system (used to deliver learning content) with a content management system (use to house content) to become the learning content management system (can develop, house, and deliver learning content) (Osugwu, 2010).

Another manner to understand and review tool is given by Singh, Managalaras, & Taneja, 2010. As part of a continuous learning plan, educational professionals can enhance their knowledge base of educational technology tools by targeting one to two tool categories per month to review and better understand.

Most professional are familiar with learning management systems such as Blackboard. Other potential technologies to gain a better understanding are noted in table two (2).

Table 2. On line teaching tools classification . Adapted from Singh, Managalaras, & Taneja (2010).

Category	Functionalities	Examples
Staging tools	Provides the basic structure to manage and deliver courses online.	Learning management systems/course management systems, online document management systems.
Course delivery tools	Enables the dissemination of course content in various forms.	Online videos, podcasts, news feeds, and screen capture.
Course collaboration tools	Allows collaboration between students, groups, and the instructor.	Blogs, wikis, collaborative document management systems.
Interactive communication tools	Facilitates rich communication between students and instructors.	Web conferencing, web based simulations.
Assessment and learning tools	Assists in gauging student learning against various objectives and benchmarks.	Testing tools, cheating prevention tools, plagiarism detection tools.

## 2.3 Practical Applications of Educational Technologies in Distance Education

Faculty need to understand practical experiences of applying different technologies and their applicability to fulfill different educational purposes. So far we have reviewed technological tools from the stance as educational and communication. Also, the tools have been viewed from the standpoint of categories, their functionalities, and with examples. Table 3 drills down through multiple distance education modalities while providing examples of the modalities, as well as the strengths and weaknesses. These tools can be used to teach courses, enhance course instruction, enhance instructor-learner and learner-learner interaction, and strengthen learners' knowledge, skills, abilities, and competencies. To better understand and be able to apply these modalities instructors can target learning and practicing one or two per month.

Table3. Distance education modalities: Examples, strengths, and weaknesses (Burton, Bessette, 2013)

Modalities	Examples	Strengths	Weaknesses
Tele-conferencing	<b>Audio-graphics</b> -GoToMeeting -Elluminate -Live Meeting -Netmeeting -WebX	-Allows the interaction of multiple users -Synchronous communication channel -User can share and use everything on their computers -Can be inexpensive to use if the medium of connection is the Internet -User can talk with a single person or large audiences -Participants can attend from remote locations -	<b>All systems do not have the capability to:</b> -Have participants raise hands, automatically tally the total number of raised hands, or flag the instructors -Show thumbs down of have participants clap - Deliver good voice quality and without delays - Easily share the desktop, microphone and whiteboard -Have voice over IP (the Internet) -Display whiteboards -Modify the layout -Connect easily (Are plug-in required; if so can they be installed easily)
	<b>Audio-conferencing</b> -Elluminate Vroom -FlashMeeting -Google Talk -Skype	-Allow students and teachers to replay sessions after the original end -Software uses voice over IP to allow user to communicate online -Select between push to talk or two-way capabilities	-May have a different number of maximum participants -May required a paid version for conference calls -May not be able to record sessions -Different levels of communication

Modalities	Examples	Strengths	Weaknesses
Email	-MicroSoft -Google -Yahoo	-Inexpensive manner to communicate with instructors and students -Can be used to instruct distance learning course - Access is 24/7 (anytime) -Unlimited licensing for users	-Asynchronous communication channel -Internet connectivity is required and understanding the email program -Limited ability to display information (e.g., charts, graphs)
Blogs	-Teacher Personnel blog -Class blog -Student blogs -Education Award blog	-Enabled learning to be independent of time and place -Learner-centered -Improves writing competencies -Captures paradigm shifts	-Asynchronous communication channel -Content must remain fresh -Biased or inaccurate information can be interjected in the conversation
Internet	<b>Web browsers</b> -Explorer -Google Chrome -Mozilla <b>Providers</b> -Comcast -Sprint -Verizon	-Allows a global audience, 24/7 -Inexpensive -Immediate distribution of information -Create online discussion forums -Content publishing tool	-Academic dishonesty -Can create a disconnect in conflict resolution as one can easily log-off -Possibility of getting inaccurate information -Hacking of personal information -Access to computer viruses
Instructional TV (ITV)	<b>Educational Television</b> -Public Broadcasting Service -Annenberg Foundation <b>Specialty Channels</b> -Documentary channels -Public Affairs	-People are generally comfortable with this medium -Can be inspiring and engaging -Delivery the has capability for high quality audio and video quality -Lessons can be recorded for future usage (flexibility) -Ease of access	-Lessons are expensive to develop, and update -Required expensive video production time -The Instructor has to be highly concerned with appearance and expressions -Expensive for small audiences
Learning Content Management Systems (LCMS)/ Content Management System	-Blackboard -Generation21 Enterprise -Saba TotalLCMS -Vuepoint	-Enables the making or capturing, management, and transfer of content designed for education and/or performance support -Data is saved under catalog and tagged with metadata to permit search and recovery	-May not be able to be operable with certain LCMS -May not support importing legacy content with minimal clean-up
Learning Management Systems (LMS)	-Dokeos -Jenzabar -Moodle -SPS	-Manages learners (courses, completion rates, progress, scheduling, use notification, waitlists, etc.) -Enhances and supports classroom teaching and offerings, and allows self-registering for instructor-led and prepared training for educational institutions	-Can be configured to either include or exclude features Instructors/Trainers may use the LMS and not consider other learning opportunities -All instructors cannot reproduce the same face-to-face charisma through online delivery -Physical skills are not easily learned or tested online
Mobile	-Blackberry -Smartphones	-Access to industry experts -Follow conferences and seminars online -Learn through mobile applications for those with learning disabilities -Provides just-in-time performance support	-Equipment costs -Asynchronous communication channel -Upgrades due to technology changing quickly -Battery life and recharging the phone -Storage space and costs

Modalities	Examples	Strengths	Weaknesses
Online Chat rooms	-Chatroomss.com -Educational Technology Services -Education World -Gogloom -Moderated Chat Module -123FlashChat -PalTalk	-Provide for two-way interactive exchange of information via the Internet; communicate in real time -Provide online office hours without the use of a telephone -Immediate response -Avenue to improve student's thinking and literacy skills	-May not have a moderated chat module where -May not have a whiteboard module -Participants need to schedule to meet - Can be addictive -Can access a computer virus
Online Forums (e.g., Bulletin Boards)	-ProBoards -Popplet -Linoit	-Provide for asynchronous communication amongst numerous participants - Forums can act as support systems for other teaching modalities; Can stand alone as a class -Delivers capabilities for participants read and re-read comments, and to think deeply and then respond to posts and comments	-May be limited to the number of typed words -Threading may not be easy to follow -User are generally required to register
Self-paced Learning	-Audio recordings -CD Rom -MOOCs -Online tutorials -Text -Video recordings -On-the-job training aids	-Supports anytime access (busy schedules) -Allows self-paced work for the highly motivated -Provides for case studies, motivating written discussions for learners to participate	-Allows self-paced work which can be a drawback if the individual procrastinates -Instructors are challenged to think in advance regarding possible learner challenges -
Smartboards	Interactive whiteboards	-Enables collaboration on the Internet - Can share symbols and spreadsheets -Interacts through touch	- Remote sites user may not be able to share information (depends upon the tool) -Will need audio-conferencing (telephone r internet)
Video	Interactive	-Can work with learners at multiple locations at one time -Learners can view each other as each one works - Small set-up will may not require camera operators	-Usage gets more difficult when multiple sites are in play - Active blackboard usage may be difficult to capture on screen -Large set-up will require camera operators
Video	<b>Video Streaming</b> -Live Broadcast	-Video or audio content that does not have to be downloaded to play- content plays as it is received.	-High cost due to the cost of the equipment needed
Video	Teleconferencing	-Permits live contact, instructor to student, and student to student - Allows usage of boards, hand-outs (traditional classroom media), as well as recordings (audio and video), plus PowerPoint, and Overheads -Permits the introduction of guest speakers and listeners -Supports remote learners	-Synchronous communication channel -Required the usage of cameras -May require large costly systems - Requires the understanding of what types of systems to use (may need an administrator)
Video-Taping	100% Video tape	-May have poor video quality	-Communication lost between instructor and student
Wiki Space	Online content storage space	-Use as a knowledge repository -Store information in communities of practice	-Needs Internet connectivity -Requires knowledge management and organization skills

### 3. CONCLUSION

As distance education and exploding technological progressions reform the way instructors, administrators, and students conduct educational actions; general knowledge must keep pace with evolutions; therefore improved performance (Bessette & Burton, 2013). Tables one and two provide general knowledge about educational and communication tools. However, colleges, universities, and training departments need to use faculty education and developed programs which further explain these types of tools. Not only must the programs explain the tools and allow users to practice; they should provide individual development plans, targeted development (Burton et al, 2013). Such programs will enable users to become more knowledgeable and have the ability to use technological tools to better develop lessons.

Education will need to be delivered through the adult learning theory, andragogy. This model of adult learning explains how adults learn. Andragogy is founded upon five postulations: (a) self-directedness, (b) need to know, (c) use of experience in learning, (d) readiness to learn, (e) orientation to learning, and (f) internal motivation (Knowles, 1984).

Once better educated, faculty and administrators will be able to employ these technologies to develop lessons. At this point faculty will bring students into the fold of technology usage. The fold may be to become better with current usage, or to learn to use a new tool. Faculty development programs, drilling down to course development using tools, and then facilitating tool usage with students will help technology advancement in the educational arena. The education will be pushed through adult learning.

This paper reviews educational and communication tool usages that can be used in a best practices program. On the other hand more study is needed to review research describing how these points offer benefits targeted development programs.

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