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Best Practices for Adult Student Engagement in Graduate e-learning Environments

CAPSTONE REPORT

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Abstract

This annotated bibliography examines literature published between 2010 and 2016 that addresses educational best-practices for adult learners and how these practices can be combined with online and CMC technologies to influence engagement. It provides information to higher education administrators and instructors of adult learners about: (a) educational practices for adult learners; (b) online and CMC technologies; and (c) developing online and blended environments that create, sustain, or enhance adult learner engagement and learner motivation.

Keywords: adult learning, online tools, CMC mediums, educational practices, instructional modalities, learning modalities, learning engagement, collaborative learning, learning experience, e-learning, and blended learning.

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Introduction to the Annotated Bibliography

Problem

As the number of e-learning degree programs and courses grow, engaging adult learners becomes increasingly more difficult (Yoo & Huang, 2013). Creating, sustaining, and/or enhancing student engagement is a critical area of interest for higher education administrators, scholars, and practitioners (Lee & Choi, 2011). The online and digital world is a catalyst for creating, deploying, and sustaining learning networks. Higher education institutions are exploring ways to adopt and utilize online and CMC (computer-mediated communication) learning technologies and innovative teaching modalities. The goal of this exploration is to create, sustain, and/or enhance adult student engagement levels at the post-secondary level (Hendricks, 2012). Oztok, Zingaro, Brett, and Hewitt (2013) note that over the past decade the developmental process for engaging adult learners using technology has been significant. Baxter and Haycock (2014) indicate that engagement in e-learning settings predicts adult student capacity, motivation, retention, and success. This study explores and identifies best instructional practices and e-learning technologies (online and CMC tools and resources) that influence adult learner engagement.

Access and availability to collaborative technologies has grown tremendously over the past decade. Cheung and Hew (2011) find creating; sustaining, and/or enhancing engagement for adults in e-learning environments is unique when compared to other populations and demographics. Knowing the needs and wants of adult students in e-learning settings is critical to the discovery and development of relevant and supportive modalities for engaging instruction (Stott, 2014). Today's adult students are full-time professionals, part-time students, and lifelong learners (Martin, Spolander, Ali, & Maas, 2012). They are time pressed, face commitment

obligations related to work, family, and education, and increasingly asked to interact with fellow peers, instructors, and professionals through online and digital technologies (Casimiro, 2016).

Henrie, Bodily, Manwarning, and Graham (2015) define student engagement for adult learners as the amount of quality activity time spent in meaningful interactions with content, instructors, and peers. Stott (2014) describes adult online engagement as the measure of emotions and behaviors students' display while participating in technology mediated instruction. Adult learner engagement is the quality of effort students devote to educationally purposeful activities that contribute to critical thinking and achievement outcomes (Casimiro, 2016).

Post-secondary institutions are significantly placing more financial and instructional development into educational technologies (Hilliard, 2015). However, there are still no clear e-learning strategies or methods to blend technology and instructional andragogy for the purposes of engaging adult learners (Limperos, Buckner, Kaufmann, & Frisby, 2015). Institutions and instructors are searching for methods to create, sustain, and enhance adult engagement levels through technology and innovative practice (Hastie, Hung, Chen, & Kinshuk, 2010). Simple implementation of technology in educational settings has little impact on enhancing or supporting adult engagement. Motivating and supporting adult learners through simple technology deployment is not advantageous unless instructional innovation is also achievable (Bell & Federman, 2013). Yamagata-Lynch (2014) states that many administrators, instructors, and designers in higher education are trying to utilize consumer and professional-grade technologies and resources to motivate and engage students in and out of the classroom. However, most have been unsuccessful, lacking a clear and evidence-based approach/model.

Research by Donnelly (2010) and Gan and Balakrishnan (2016) suggest instructional initiatives that promote an open learning environment and encourage interactivity through online

and CMC technologies creates, sustains and/or enhances adult learner engagement. Sogunro (2014) writes that in all teaching and learning modalities, student engagement is a critical condition for effective learning and student success. A deep level of comprehension regarding available learning technologies and andragogies will contribute to a greater understanding of best practices related to online instruction and technology (Limperos et al., 2015).

Bower, Dalgarno, Kennedy, Lee, and Kenney (2015) find that strategically implementing CMC and online technologies enhances communication and participation between instructors and learners in online and blended learning environments. This allows adult students to put a greater focus on collaboration, critical thinking, and outcomes therefore improving engagement. In addition, Zhao and Kemp (2013) suggest that instructors who combine innovative teaching methods and current educational technologies create dynamic learning spaces that promote engagement through strong relationships, collaboration, and participation. Casimiro (2016) suggests the approach for increasing adult engagement through instructional best practices and technology within graduate populations needs further exploration. Innovation in instructional practice and online and CMC technologies holds promise for influencing adult engagement in online and blended post-secondary programs (Hilliard, 2015; Keengwe, Onchwari, & Agamba, 2013; Limperos et al., 2015; Northey, Bucic, Chylinski, & Govind, 2015).

Purpose

This study explores and identifies currently available online and CMC technologies for use in online and blended learning environments that create, sustain, and/or enhance adult engagement. This scholarly report also explores and identifies currently available teaching methodologies and best practices for engaging adult learners in e-learning modalities. Adult learners who are able to participate in self-directed learning and are intrinsically motivated

toward learning and professional goals thrive in e-learning environments (Yoo & Huang, 2013). Ocak (2011) believes a harmonious balance between educational-based technologies and traditional teaching modalities can promote student engagement and inspire critical thinking in adult learners. Research on instructional best practices and technologies is included as a method for exploring and identifying teaching and learning modalities to create, sustain, and/or enhance engaging environments. Additional studies in this scholarly report are included as evidence that adult engagement in higher education is critical to learner success.

Research question

How can exploring and identifying online and CMC technologies and best-practices in teaching methods/andragogies be incorporated and implemented to create, sustain, improve, and/or enhance adult learner engagement in e-learning modalities for post-secondary education?

Audience

Individuals have access to technologies such as the Internet, virtual collaboration and communication, and social networking at an early age. Society is increasingly dependent on technology. Kim and Frick (2011) suggest higher education institutions will have to adopt technology-based practices to appeal to adult learners. Future and current professionals expect to utilize online and CMC technologies for learning, communication, and business practices (Zhang & Goel, 2011). Blessinger and Wankel (2013) find that educational technologies and professional trends engage students when content and information aligns learning activities that create and/or enhance relationships. Stott (2014) writes that administrators, instructors, and designers have a responsibility to experiment with different teaching methods and technologies in an effort to uncover new and innovative strategies for instruction. Seidman and Brown (2016) suggest the classroom of the future, whether online, face-to-face, or a combination of both will

serve students who face a variety competing distractions and demands. They also find motivation is key to creating, sustaining, and/or enhancing engagement in all learning modalities. The primary audience for this study is higher education organizations, program administrators, instructors, and course developers exploring current best practices and technologies that influence adult learner engagement in post-secondary online and blended learning environments.

Search Report

Search strategy. Informational searches are restricted to the UO Libraries databases. Searches are limited to Computer and Information Science and Education subject categories within the Articles & Databases search tool, with the majority of references located in CiteSeer, ProQuest, and ERIC (Education Resources Information Center). Literature searches utilize the University of Oregon Libraries' site. Experience indicates that the University of Oregon Libraries' database provides current, relative, and accurate peer-reviewed articles and journals. This scholarly report strengthens the findings using additional and supplemental references utilizing relevant sources for pertinent information. Selected relevant sources are located using the University of Oregon Libraries database search.

The number of scholarly works available regarding the topic *Adult Student Engagement in e-learning Environments* is great. Search results ranged from peer-reviewed articles/journals, books, published dissertations, and newspaper articles. This report filters publications by date, to return only relevant publications for the years 2010 to 2016. This study utilizes peer-reviewed or published sources with full-text literature available.

Literature searches in the following areas are conducted as part of this scholarly review: (a) CMC technologies; (b) online learning; (c) adult learners; (d) adult learner engagement; (e) learning methodologies for adults; and (f) engagement practices. This study collects and analyzes

data in the form of peer-reviewed journals and published articles using the University of Oregon Library online databases. References meeting the following criteria are considered:

- Published in an academic, peer-reviewed journal, and/or book;
- Published between 2010-2016; and
- Available online in PDF or text format.

Key terms. The research focus is on various keywords in order to retrieve specific, relevant and timely articles. The keywords used are as follows:

- CMC Technologies;
- Online Learning;
- Adult Engagement;
- Student Engagement;
- Best Instructional Practices for Engaging Adult Learners;
- Blended Learning in Graduate Programs;
- Adult Learning;
- Instructional Methodologies for Adults;
- Engaging Learning Graduate Models;
- Successful Graduate Blended Education;
- Effective Learning;
- E-learning Engagement;
- Online and CMC Engagement; and
- Motivational Learning Modalities.

Search engines and databases. The literature search involves using the University of Oregon Libraries' databases. Returning a majority of the published literature sources was the

CiteSeer, ProQuest, and ERIC (Education Resources Information Center) search tools. CiteSeer, ProQuest, and ERIC compliment or supplement the University of Oregon Libraries' databases, as some of the articles returned through the University of Oregon Libraries' databases were unavailable as full-text. The University of Oregon Libraries' databases include the following:

- Academic OneFile;
- Academic Search Premier;
- ACM Digital Library;
- ArXiv.org;
- Computer Source;
- EBSCOhost;
- IEEE Xplore;
- JSTOR;
- ProQuest;
- Science Direct; and
- Wiley Online Library.

Documentation Method

Documentation approach. This study documents and tracks references using three specific methods. The first method utilizes the online University of Oregon Library *MyList* system. The *MyList* system provides University of Oregon students an efficient method for saving articles using generated keyword search results. The second method of documenting references is utilizing local and cloud-based storage solutions to save full text Microsoft Word and PDF format copies of references. Word and PDF files with key information are archived, using journal title, author(s) name, and published date to a local drive and two cloud-based

backups, Dropbox and Google Drive, to mitigate data loss. Modifications or changes made to Word and PDF items utilize software for Mac and PC. The third method uses an online reference builder titled *CiteFast* to record and alphabetize references. *CiteFast* auto-populates and stores relevant information related to scholarly sources in a cloud-database. Accessing citations is available through multiple devices and in a variety of computer readable formats. *CiteFast* follows strict APA formatting guidelines and saves all references in alphabetical order.

Reference Evaluation

Reference evaluation criteria. Scholarly works are evaluated using the Center for Public Issues Education (2014) guidelines titled *Evaluating information sources*, republished on the AIM 609 Canvas website. This resource includes key evaluation criteria and concepts provided by researchers utilizing current information standards. This study uses the following key criteria to review and analyze each article included in the annotated bibliography:

- Authority – emphasis on peer-reviewed journals, published books, recognized conference proceedings, and authors with professional credentials. Publishing organization and number of times an article is referenced in other scholarly works;
- Timeliness – review of publication dates are contemporary works are considered. Works published between 2010-2016 are used due to the constantly evolving field of higher education and Internet/connected technologies;
- Quality – works are reviewed for proper grammar, spelling and/or typographical errors;
- Relevancy – content is examined and analyzed for appropriateness related to main framework of the piece;
- Bias – examine works for persuasive tone. Articles reference other reliable and vetted sources of information. Acknowledge opposing views.

Annotated Bibliography

This study's Annotated Bibliography explores, organizes, and summarizes 15 scholarly articles into four categories, in alphabetical order. Each category addresses elements related to this study's research question: How can exploring and identifying online and CMC technologies and best-practices in teaching methods/andragogies be incorporated and implemented to create, sustain, improve, and/or enhance adult learner engagement in e-learning modalities for post-secondary education? The first category explores the level of student engagement found in e-learning courses or programs and strategies that can influence adult student engagement. The second category contains references that explore the various learning models and the effect each model has on adult level engagement. The third category contains references that provide context for online and CMC technologies that can influence adult student engagement. The fourth category contains references that explore adult student engagement, satisfaction, and motivation related to learning in a blended environment that utilizes various learning approaches and processes. Each annotation consists of three parts: (a) the full APA bibliographic citation, (b) an abstract, and (c) a summary. The abstracts are either complete as published, or are modified versions of the published abstracts for content relevance. The summaries tie together content within each article to address the research issue.

Learner Engagement in e-learning Environments

Casimiro, L. T. (2016). Cognitive engagement in online intercultural interactions: Beyond analytics. *IJIET*, 6(6), 441-447. doi:10.7763/ijiet.2016.v6.729

Abstract. The high dropout or attrition rate in many online classes as well as concerns on their quality have attracted research in online student engagement. Of particular importance among the dimensions of engagement is cognitive engagement because of its

close affinity with learning. However, the distance factor between teachers and online students and the mental nature of cognitive processes make cognitive engagement difficult to observe. Academic analytics provide a picture of student engagement but learning is far from quantifiable. This paper attempts to explore the conditions that support cognitive engagement in online classes through discourse analysis of the discussion forum. Results showed five conditions that could have defined student engagement: nature of discussion questions, the mitigating factors for the level of student response, learning community, student characteristics, and teacher facilitation. Of these five, the nature of discussion questions, quality of student response, and learning community appeared to be the best to promote cognitive engagement.

Summary. In this study, the authors explore engagement as a construct. The author analyzes student responses to online discussion questions to determine the quality and cognitive level of responses. The author reviews factors that influence respondent engagement in adult courses. Asynchronous technologies, when strategically implemented are contributing factors in building and sustaining adult engagement in e-learning settings. The study notes that instructors who design learning and assessment materials that are relevant to student needs accommodate multiple viewpoints. This article finds that implementing personal experiences into the learning and combining online and CMC technologies enhances engagement of adult students. The author finds that enhanced engagement is achievable in online and blended settings when instructors combine technology and relevant content with student experience, thus satisfying one key focus of this research study by identifying and applying specific technologies and methods to adult engagement in higher education.

Donnelly, R. (2010). Harmonizing technology with interaction in blended problem-based

learning. *Computers & Education*, 54(2), 350-359. doi:10.1016/j.compedu.2009.08.012

Abstract. This paper discusses the harmonizing role of technology and interaction in a qualitative study on blended problem-based learning within higher education. Within this setting, and as both designers and tutors in blended PBL, it is important to seek best practices for how to combine instructional strategies in face-to-face and computer-mediated environments that take advantage of the strengths of each and avoid their weaknesses. A qualitative study of the lived experiences of 17 academic staff participants in a blended problem-based learning module was considered likely to provide a much-needed analysis of current thinking and practice on the potential of interaction in this form of professional academic development in higher education. Specific aspects of interaction (technical, peer, content and the learning experience) within blended problem-based learning tutorials are analyzed to provide research-based information about the realities of delivering a PBL program using technology. The study argues that the intersection of PBL and learning technologies can offer different ways of teaching and learning that require exploration and reflection of combining pedagogy and technology.

Summary. The author writes that blended learning requires students to adapt to different educational environments. This may cause confusion regarding the learning outcomes, thus disengaging students from the learning process. Instructors should note that teaching and learning in blended learning environments are highly unstable and fluctuating.

Continuity between face-to-face, asynchronous, and synchronous online environments is critical for creating and maintaining student engagement and success. The author satisfies one key focus point of this research study by identifying and applying specific e-learning

strategies to create engagement amongst adult learners. The study suggests that to effectively incorporate blended learning technologies and methods, instructors design courses based on how they can enhance, extend, or transform the face-to-face experience. Developing a sense of community is an important aspect for motivating and engaging learners in online and blended settings. The author believes that learning is not possible when students are isolated. The study finds that increased levels of interaction positively influence motivation, engagement, and attitudes toward learning. Learner satisfaction is critical to positive outcomes. Online and CMC tools increase interaction between instructors and students. This leads to knowledge creation and validation, allowing students to share ideas in a secure environment and with likeminded students.

Keengwe, J., Onchwari, G., & Agamba, J. (2013). Promoting effective e-learning practices through the constructivist pedagogy. *Education and Information Technology, 19*(4), 887-898. doi:10.1007/s10639-013-9260-1

Abstract. Although rapid advances in technology have allowed for growth of collaborative e-learning experiences unconstrained by time and space, technology has not been heavily infused in the activities of teaching and learning. This article examines the theory of constructivism as well as the design of e-learning activities using constructivist values. The manner in which constructivist theory supports e-learning is explored, and extrapolating from this pedagogical theory, implications are provided to model effective practices of the characteristics and capacities of this powerful learning environment.

Summary. This study examines how teaching styles, course design, and implementation modalities can influence the utilization of technology to engage adult learners. Instructor and student motivation and desire/comfort to try new tools affects the use of technology

to engage learners. Instructors and students, who embrace technology, create effective and engaging e-learning environments. The article provides various suggestions for implementing technology in learning settings, thus satisfying one key focus of this research study by identifying specific interactive technologies and uses to enhance adult engagement. The focus of this study is about online and CMC tools to align learning standards, curriculum, and assessment. Adult online learners benefit from teachers who provide and encourage human interactions through online and CMC technologies for communication and collaboration. The study finds that active and motivational learning encourages participation in structured online discussions, collaborative online activities, and online assessment. The authors suggest employing a constructivism teaching theory of practice to engage adult learners. This strategy presents curriculum dynamically while offering strategic and collaborative opportunities through proper technology tools.

Northey, G., Bucic, T., Chylinski, M., & Govind, R. (2015). Increasing student engagement using asynchronous learning. *Journal of Marketing Education*, 37(3), 171-180.

doi:10.1177/0273475315589814

Abstract. Student engagement is an ongoing concern for educators because of its positive association with deep learning and educational outcomes. This article tests the use of a social networking site (Facebook) as a tool to facilitate asynchronous learning opportunities that complement face-to-face interactions and thereby enable a stronger learning ecosystem. This student-centered learning approach offers a way to increase student engagement and can have a positive impact on academic outcomes. Using data from a longitudinal quasi-experiment, the authors show that students who participated in both face-to-face on-campus classes and asynchronous online learning opportunities were

more engaged than students who only attended face-to-face classes. In addition, the findings show that participation in the asynchronous setting relates significantly and positively to students' academic outcomes (final grades).

Summary. This study explores the idea of knowledge co-creation on adult student engagement and outcomes in online and blended learning environments. This study examines the effects knowledge creation and collaboration on engagement and student outcomes in blended environments. Randomly assigning 120 out of 400 students to a blended learning environment and tracking engagement levels is the focus of this experiment. The authors find that leveraging existing technologies and employing them with instructional incentives (outcomes) creates and enhances engagement. Promoting student diversity develops trust among instructors and learners. This study's key points align with this research study by identifying and applying specific digital teaching methods to enhance engagement amongst adult learners. Educators who provide online and CMC learning opportunities increase student engagement, contribute more actively, and achieve better grades. The results of this study link technology integration with adult education.

Stott, P. (2014). The perils of a lack of student engagement: Reflections of a "lonely, brave, and rather exposed" online instructor. *British Journal of Educational Technology*, 47(1), 51-64. doi:10.1111/bjet.12215

Abstract. Wholly online presentation of courses is becoming increasingly common, but poor levels of student engagement pose challenges to institutions, instructors and students. In this paper, I explore the risks arising from those challenges using an analysis of the presentation of a WM course as a model, comparing data about levels of student

engagement with assessments of students, the instructor and the course. My findings are consistent with the assertion that, for this course, there were risks of poor grades for students and risks of poor student evaluations for the online instructor; risks that can be minimized using recent findings about the factors leading to poor engagement.

Summary. In this study, the author finds engagement levels through asynchronous mediums to be low. This study addresses negative instructional design and implementation processes and practices. This study serves as an evidence-based learning opportunity for administrators, instructors, and designers for engaging adult learners. Online and blended learning environments require strategic and intentional thinking regarding content development, instructional design, and use of technology. The author suggests that observed student engagement was motivated by technical compliance and not by collaborative learning. The lack of experience with online learning constructs, an awkward LMS platform, poor/slow Internet connectivity, slow instructor response times, and competing work commitments were all issues that adult students faced during this study. The author notes that working students display lower levels of engagement with curriculum and peers, as professional commitments interfered with academic time. The findings show low levels of engagement in online courses intensify when students feel the course is not relevant to professional goals. The study finds that habits and andragogies specific to face-to-face instruction and learning are not advantageous in online and blended settings. Instructional practices that are methodically unique create, sustain, and enhance engagement through active and relevant learning.

Teaching and Learning Modalities for Adult Learners

Hastie, M., Hung, I., Chen, N., & Kinshuk. (2010). A blended synchronous learning model for educational international collaboration. *Innovations in Education and Teaching International*, 47(1), 9-24. doi:10.1080/14703290903525812

Abstract. Educators and students living in the digital age are faced with complex problems that are forcing them to seek collaborative solutions. These problems can be addressed through the successful application of digital technologies and pedagogies that enhance the educational, social and economic prospects of students. The main aim of this study was to propose a blended synchronous learning model and to show how this model can be adopted for better supporting educational international collaboration. The paper describes how the authors have applied advanced synchronous learning technologies and pedagogies to maximize interconnectivity and social interactions to engage in a range of educational collaborations in the last seven years.

Summary. This scholarly study makes the case that intentional collaboration is an imperative characteristic for creating engagement in an adult learning environments. The authors describe specific pedagogical models that utilize digital collaboration, to maximize the educational, social, and engagement potential that Internet and communication technologies provide. The study finds that a blended learning approach holds the greatest promise for increased adult engagement and outcomes, thus satisfying one key focus of this research study by identifying specific interactive methods for engaging adult students. It is imperative for the teachers in blended learning settings to adapt instruction to fit a range of learning styles in various physical and digital locations to enhance educational engagement. The authors also write that because digital

technologies play such a critical role in blended environments, it is important that professionals in higher education and learning settings develop the skills and andragogies related to implementing digital and online technologies into practice.

Limperos, A. M., Buckner, M. M., Kaufmann, R., & Frisby, B. N. (2015). Online teaching and technological affordances: An experimental investigation into the impact of modality and clarity on perceived and actual learning. *Computers & Education*, 83, 1-9.

doi:10.1016/j.compedu.2014.12.015

Abstract. Online courses have become commonplace at many institutions of higher education. While the popularity on online courses is growing, there are still many questions regarding the effectiveness of such courses in facilitating learning outcomes. Using theories from mass communication and education, we designed an online lecture that employed a 2 (modality) 2 (clarity) between-subjects factorial design to better understand how variations in the mode (text only; audio and text) and structure/clarity (high clarity; low clarity) of information impacted feelings of instructor closeness, credibility, and perceived and actual learning. Results indicated that online lectures presented in a multimodal format were better at facilitating positive student experiences with instructors, as well as perceived and actual learning than lectures that contained only one mode of information. Implications of these findings are discussed with a specific focus on instructional design and technology.

Summary. This study investigates how instructional modality and clarity in online classes affects student's engagement levels, perceived learning, and actual learning. Specifically, the authors find that a media rich online lecture format positively influences students' engagement levels and academic outcomes. Multimodal lecture formats are the

most beneficial in increasing students' motivation to learn as well their actual performance. The results of this study indicate that the addition of an instructor's voice in lecture materials enhances student engagement and the feelings of connectedness and trust. The authors suggest that in online contexts, it is important for students to feel like they are close to the instructor regardless of the content structure. Students who establish feelings of relational closeness in online settings receive more out of the learning experience. The results of this study indicate that multimodal information facilitates learning. It also creates an engaging experience that contributes to learning outcomes, thus satisfying one key focus of this research study by identifying specific interactive methods for engaging adult students. The authors suggest that the use of multimedia technologies may help instructors address negative connotations students sometimes face in online settings. Instructors who are teaching online courses need to be more technologically perceptive to facilitate a more positive experience for adult learners.

Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record*, 115(3).

Retrieved from

<http://www.tcrecord.org/library/Issue.asp?volyear=2013&number=3&volume=115>

Abstract. Earlier research on various forms of distance learning concluded that these technologies do not differ significantly from regular classroom instruction in terms of learning outcomes. Now that web-based learning has emerged as a major trend in both K–12 and higher education, the relative efficacy of online and face-to-face instruction needs to be revisited. The increased capabilities of web-based applications and teamwork technologies and the rise of blended learning models combining web-based and face-to-

face classroom instruction have raised expectations for the effectiveness of e-learning.

This meta-analysis was designed to produce a statistical synthesis of studies contrasting learning outcomes for either fully online or blended learning conditions with those of face-to-face classroom instruction.

Summary. The findings in this study demonstrate that purely online learning is equivalent to face-to-face instruction in terms of engaging learners. Blended learning is more effective than instruction offered entirely in a face-to-face setting for adult professional learners. Achieving high student outcomes is possible when the learning pedagogy is expository or collaborative rather than independent in nature. Students were more engaged and motivated when the curricular materials and instruction varied between online and face-to-face conditions. This study notes the combination of online and digital elements; especially the inclusion of different learning activities, proves to be the most effective in online and blended modalities. The study provides practical reasoning for utilizing a blended learning approach. Blended learning environments increase the amount of time that students spend engaging with the instructional materials. The findings support redesigning instruction and curriculum to incorporate additional learning opportunities online while retaining elements of face-to-face instruction. The positive findings with respect to blended learning approaches documented in the meta-analysis provide justification for the investment and further development of blended courses. The meta-analysis format provides guidance for instructional design and implementation. The authors explore and examine a variety of studies providing effective guidance and ideas regarding the engagement of adult learners in online or blended learning experiences.

Yamagata-Lynch, L. C. (2014). Blending online asynchronous and synchronous learning.

International Review of Research in Open and Distance Learning, 15(2). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/1778>

Abstract. In this article I will share a qualitative self-study about a 15-week blended 100% online graduate level course facilitated through synchronous meetings on Blackboard Collaborate and asynchronous discussions on Blackboard. I taught the course at the University of Tennessee (UT) during the spring 2012 semester and the course topic was online learning environments. The primary research question of this study was: How can the designer/instructor optimize learning experiences for students who are studying about online learning environments in a blended online course relying on both synchronous and asynchronous technologies? Through the experiences involved in designing and teaching the course and engaging in this study I found that there is room in the instructional technology research community to address strategies for facilitating online synchronous learning that complement asynchronous learning. Synchronous online whole class meetings and well-structured small group meetings can help students feel a stronger sense of connection to their peers and instructor and stay engaged with course activities.

Summary. This article addresses the benefits of integrating CMC tools into asynchronous course environments. The author follows a course development approach where the researcher/designer/instructor engages learners by implementing student responses collected from pre-course survey and student data. Course activities that strategically provide opportunities to learn from personal and professional experiences are advantageous to enhancing engagement. The results of the study show that students

report a stronger connection to instructors and peers when engaged in spontaneous conversations through CMC mediums. Students in the study report that the blended online course format allows them to gain a sense of stability, allowing them to stay on task and develop strong connections with peers. CMC tools that enable live online video and voice communications between the instructor and learners creates a strong social presence. Research findings from this study provide appropriate strategies for implementing flexible shared virtual spaces to ensure student engagement and success. The strategies in this study ensure that instructors engage learners in meaningful learning activities, thus aligning to this research study by providing implementation strategies regarding technology that fosters engagement.

Influencing Adult Engagement

Bower, M., Dalgarno, B., Kennedy, G. E., Lee, M. J., & Kenney, J. (2015). Design and implementation factors in blended synchronous learning environments: Outcomes from a cross-case analysis. *Computers & Education*, 86, 1-17.

doi:10.1016/j.compedu.2015.03.006

Abstract. Increasingly, universities are using technology to provide students with more flexible modes of participation. This article presents a cross-case analysis of blended synchronous learning environments contexts where remote students participated in face-to-face classes through the use of rich-media synchronous technologies such as video conferencing, web conferencing, and virtual worlds. The study examined how design and implementation factors influenced student learning activity and perceived learning outcomes, drawing on a synthesis of student, teacher, and researcher observations collected before, during, and after blended synchronous learning lessons. Key findings

include the importance of designing for active learning, the need to select and utilize technologies appropriately to meet communicative requirements, varying degrees of co-presence depending on technological and human factors, and heightened cognitive load.

Pedagogical, technological, and logistical implications are presented as a Blended Synchronous Learning Design Framework that is grounded in the results of the study.

Summary. The authors note that there are still significant challenges when teaching an online or blended course. The study notes that instructors face challenges relating to the facilitation and management of teaching responsibilities, while also handling online technologies that promote interaction between learners. Information overload is another factor to consider when using online and CMC technologies with adult learners. Students in this study find that multiple channels of information kept them engaged and interested, while others can find it confusing and stressful. The lack of dynamic yet simple technology, can lead to potential information loss and/or a reduction in the sense of virtual co-presence. Other technology issues including latency, bandwidth, breakout rooms not functioning, students losing access to online spaces, slides not progressing, software crashing, and audio feedback loops frustrate learners and decrease engagement levels. Lack of instructor and learner support can undermine the development of a learning environment where adult learners can achieve maximum effectiveness and engagement. Technical help, teaching assistance, professional development, automated teaching spaces, and preparation time provide opportunities to create and enhance student engagement and outcomes. The study explains that enabling remote students to participate in online and blended classes, using rich-media technologies, requires a fundamental shift in the teaching and learning andragogy.

Henrie, C. R., Bodily, R., Manwarning, K. C., & Graham, C. R. (2015). Exploring intensive longitudinal measures of student engagement in blended learning. *International Review of Research in Open and Distributed Learning*, 16(3), 131-155. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/2015/3386>

Abstract. In this exploratory study we used an intensive longitudinal approach to measure student engagement in a blended educational technology course, collecting both self-report and observational data. The self-report measure included a simple survey of Likert-scale and open-ended questions given repeatedly during the semester. Observational data were student activity data extracted from the learning management system. We explored how engagement varied over time, both at the course level and between students, to identify patterns and influences of student engagement in a blended course. We found that clarity of instruction and relevance of activities influenced student satisfaction more than the medium of instruction. Student engagement patterns observed in the log data revealed that exploring learning tools and previewing upcoming assignments and learning activities could be useful indicators of a successful learning experience. Future work will investigate these findings on a larger scale.

Summary. The authors measure student engagement in a blended course through a longitudinal approach. Using self-report and observational measures, the study analyzes the variance in student engagement. The study identifies indicators related to quality of effort and quality of engagement. The authors note that students, who look ahead and plan their subsequent class time accordingly, display higher levels of cognitive engagement. Additionally, students who take the initiative to become familiar with course learning tools and technologies were more engaged and successful than students

who waited for help/support. The study recommends that instructors actively employ digital mediums to track and identify students who are disengaged or struggling. The authors find that technology itself is not the cause for student dissatisfaction or disengagement, but rather the processes for implementing technology. The findings from this study provide lessons for implementation. This study explores and identifies strategies and ideas for engaging and motivating adult learners during course activities.

Kim, K., & Frick, T. W. (2011). Changes in student motivation during online learning. *Journal of Educational Computing Research*, 44(1), 1-23. doi:10.2190/ec.44.1.a

Abstract. Self-directed e-learning (SDEL) refers to electronic learning environments where there are often no peer learners or instructors regularly available. Past studies suggest that lack of time and lack of motivation are primary causes of learner attrition in online settings. However, little is known about what influences motivational change during SDEL. We surveyed 368 adult learners from both higher education and corporate settings who had used commercial SDEL products. Results from stepwise regression analysis indicated that the best predictors of motivation to begin SDEL were perceived relevance, reported technology competence, and age. The best predictors of motivation during SDEL were perceived quality of instruction and learning and motivation to begin. Motivation during SDEL was the best predictor of positive change in motivation, which predicted learner satisfaction with SDEL. Instructional design principles for sustaining learner motivation in SDEL are identified from the findings of the present study.

Summary. The findings in this study show that adult learners choose e-learning programs and courses because of the convenience and flexibility online learning provides. Adults also prefer e-learning when face-to-face classroom instruction is

unavailable or not possible due to location or scheduling conflicts. Adult students are more likely to be motivated if they perceive the learning goals to be relevant to their professional experiences and goals. Students who are motivated to learn are more likely to be engaged and more likely to be successful. Solving real-world problems and authentic tasks, applicable in professional settings is key to creating and enhancing engagement. The results of the study show that engagement is heavily dependent on competence in using technology in e-learning settings. Students who struggle with the use of technology often fall behind due to technical challenges. Adult learners who are not familiar with e-learning environments or online and CMC technologies are not likely to benefit from online or blended learning settings.

Adult Student Engagement

Bell, B. S., & Federman, J. E. (2013). E-learning in postsecondary education. *The Future of Children*, 23(1), 165-185. doi:10.1353/foc.2013.0007

Abstract. Over the past decade postsecondary education has been moving increasingly from the classroom to online. During the fall 2010 term 31 percent of U.S. college students took at least one online course. The primary reasons for the growth of e-learning in the nation's colleges and universities include the desire of those institutions to generate new revenue streams, improve access, and offer students greater scheduling flexibility. Yet the growth of e-learning has been accompanied by a continuing debate about its effectiveness and by the recognition that a number of barriers impede its widespread adoption in higher education.

Summary. The study finds that research is shifting away from evaluating whether e-learning works and towards examining the instructional features that influence

effectiveness and engagement. The authors find that e-learning programs that employ dynamic instructional dimensions, including interactivity, relevancy, activity, and feedback create engaging settings. Utilizing a variety of simple online and CMC learning tools, aids different types of learners to acquire various sets of skills and knowledge. This study satisfies one key emphasis of this research study by identifying strategies for implementing collaborative technologies with e-learning practices to enhance adult engagement. E-programs offering moderate to high levels of interaction have better engagement and achievement outcomes than those with less interaction. The study states that programs incorporating student-to-student, student-to-content, and student-to-instructor interaction achieve high levels of engagement. This article provides evidence that e-learning can effectively deliver engaging instruction in postsecondary settings.

Sogunro, O. A. (2014). Motivating factors for adult learners in higher education. *IJHE*, 4(1).
doi:10.5430/ijhe.v4n1p22

Abstract. All learners learn best when they are motivated; so do adults. Hence, the way to ensure success of students in higher education is first to know what motivates and sustains them in the learning process. Based on a study of 203 university students, this paper presents eight top most motivating factors for adult learners in higher education. These include quality of instruction; quality of curriculum; relevance and pragmatism; interactive classrooms and effective management practices; progressive assessment and timely feedback; self-directedness; conducive learning environment; and effective academic advising practices. The study concludes that these eight factors are critical to eliciting or enhancing the will power in students in higher education toward successful learning. The implications for practice and further research are also discussed.

Summary. The author finds that utilizing appropriate instructional incentives and course structures creates and enhances engagement. This motivates students to achieve greater outcomes. The quality of instruction through online and CMC technologies plays a critical role in engaging adult students. The study reports that students expect online and CMC materials to be high quality and easy to use. Adult learners display higher levels of engagement with curriculum, instructors, and peers when instructors incorporate professional standards and relevance in the learning. This study placates one key element of this research study by identifying adult learner motivators and exploring learner satisfaction through various learning processes. Instructors engage students when they utilize interactive class designs that encourage learners to interact with materials, resources, and instructors/peers frequently. Progressive assessment and timely feedback provides students with clear instruction and goals to stay motivated. The author finds that student support, in terms of both the learning and technology, is critical in creating an environment that promotes engagement as well as positive outcomes.

Yoo, S. J., & Huang, W. D. (2013). Engaging online adult learners in higher education:

Motivational factors impacted by gender, age, and prior experiences. *The Journal of Continuing Higher Education*, 61(3), 151-164. doi:10.1080/07377363.2013.836823

Abstract. As the number of online degree programs continues to grow among higher education institutions in the United States, engaging online adult learners to online degree programs is getting more difficult than before. Therefore, this study, situated in a land grant university, investigated the motivational factors that contribute to adult learners' engagement with online graduate degree programs. Based on 190 sets of survey responses, this quantitative study identified four significant motivational factors (intrinsic

motivation and technological willingness) that contributed to their selection of online programs. Discussions further focused on the implications of the findings in engaging online adult learners in order to sustain online degree programs in higher education.

Summary. The authors find that engaging adult students requires methodically tailoring curriculum to satisfy intrinsic motivations (short and long-term) and the technological willingness of adult learners. The study explains that effective online engagement is achievable through activities that focus on communication, collaboration, feedback, and career relevance. The study suggests that for online programs to fully engage learners, instructors and designers need to incorporate and apply real-world and professional aspects to the learning environment. This research study identifies motivational factors for adult learner while exploring strategies to enhance adult learner engagement.

Professionally relevant curriculum design provides students the opportunity to acquire specialized experiences and connections to advance their careers. Intrinsically motivated adult learners are more likely to enroll and excel in online courses. The study reports that learners in their 20's – 40's display higher levels of engagement in online and blended learning environments and are more adept at using online and digital mediums.

Conclusion

Learning for adults in higher education environments is transitioning from traditional lecture and classroom-based instruction to applied, interactive, and collaborative learning through online and blended modalities. Online and blended learning environments combine various instructional methods through online and CMC technologies to create, sustain, and/or enhance adult learner engagement, motivation, and outcomes (Hilliard, 2015). The 15 references selected for this Annotated Bibliography examine online and CMC technologies, identify instructional best practices for engaging adult learners, and provide techniques for incorporating said technologies and practices into the andragogy of instructing adult learners in a post-secondary setting.

This study defines adult learner engagement as quality, relevant, interactive, and collaborative learning that motivates and involves students beyond the confines of academic success (Casimiro, 2016; Henrie et al., 2015; Stott, 2014). Online and CMC technologies that are part of this research effort include: discussion forums, social networking, audio/video conferencing platforms, and LMS platforms (Hastie et al., 2010; Limperos et al., 2015; Means, Toyama, Murphy, & Baki, 2013; Yamagata-Lynch, 2014). This study examines best practices for adult teaching and learning while exploring online and CMC technologies that influence motivational factors for student learning and success. The references are organized in four categories: (a) adult learner engagement; (b) best-practices for adult instruction and learning; (c) online and CMC technologies; and (d) methods for creating, sustaining, and/or enhancing adult engagement.

Adult Learner Engagement

When analyzing the success of various instructional approaches, discussing relevant theories of learner motivation and satisfaction are critical. Bell and Federman (2013) find factors of adult learning that promote engagement are feelings of relevancy, belonging, meaningfulness, trust, and support. Yoo and Huang (2013) determine that students who are intrinsically motivated increasingly enroll, engage, and are successful in online and blended courses. The need to fulfill one's personal and professional self-interests positively influences the levels motivation and engagement in adult learners (Zhao & Kemp, 2013).

The research suggests that the effectiveness of engagement in online and blended learning settings directly correlates to a student's ability to apply learning in a professional context (Limperos et al., 2015; Yoo & Huang, 2013). Adult students find learning engaging and impactful when the curriculum, instruction, interactivity, and collaboration are applicable to the skills and knowledge relevant and essential to the workplace (Casimiro, 2016; Hilliard, 2015). Online and CMC technologies that promote interaction and collaboration between instructors, students, and peers that successfully create, sustain, and/or enhance adult learner engagement in online and blended modalities include: discussion forums, social networking, audio/video conferencing systems, and LMS platforms (Hastie et al., 2010; Limperos et al., 2015; Means et al., 2013; Yamagata-Lynch, 2014).

Best-Practices for Adult Instruction and Learning

Many higher education institutions and programs apply a blended approach to developing, formatting, and delivering adult curriculum and course work. Blended learning environments utilize a combination of teaching methodologies from traditional, collaborative, transformative, and exploratory models (Cheung & Hew, 2011). Online and CMC technologies

that are effective and efficient create a teaching and learning environment that blends the best aspect of each modality with online and digital tools (Means et al., 2013). Effective blended learning settings, aimed at adult learners, facilitate the development of a learning community through evidence based practice, interactivity, and collaboration. This promotes interaction between instructors and students, facilitating student enjoyment, motivation, and engagement towards the learning experience (Hastie et al., 2010; Limperos et al., 2015).

Literature points to several benefits of merging active and relevant instruction with collaborative technologies (Donnelly, 2010; Keengwe et al., 2013; Northey et al., 2015). Incorporating collaborative technologies with professionally relevant course content and curriculum provides opportunities for active participation that maximizes learner engagement and outcomes (Casimiro, 2016). Today's adult learners are career-oriented, self-directed, and highly motivated to expand their critical and evidence-based thinking regarding personal and professional goals. Previous research (Yamagata-Lynch, 2014; Yoo & Huang, 2013) suggests higher education instruction that incorporates tangible outcomes provides opportunities for professional growth. The instructional methods that provide personal and professional growth and enhance adult learners sense of self-worth are highly motivational and engaging. Research suggests post-secondary administrators, instructors, and designers be considerate and acknowledge learner's time, prior learning experience, and professional abilities when developing learning environments for adult students. Providing students with the opportunity to actively create and experience learning enhances and creates value when developing, sustaining, and/or enhancing adult student engagement and outcomes (Casimiro, 2016; Hilliard, 2015; Limperos et al., 2015).

Online and CMC Technologies

The needs and wants of adult learners, dynamics of higher education, and the growing availability and acceptance of online and CMC technologies in professional settings are altering practices and modalities regarding adult education (Bell & Federman, 2013). Adult learners expect instructional opportunities to be interactive, relevant between theory and practice, and to be active participants and contributors through collaboration with instructors and peers (Martin et al., 2012). Online and CMC technologies such as discussion forums, social networking, audio/video conferencing systems, and LMS platforms enable adult learners and instructors to participate in collaborative and supportive learning outside the confines of a brick-and-mortar tradition (Bell & Federman, 2013; Sogunro, 2014; Yamagata-Lynch, 2014). According to Bower et al. (2015), online and CMC technologies have a positive impact on adult student engagement in online and blended learning courses when combined with professionally relevant curriculum. Adult learners benefit from instructors who provide and encourage opportunities for interaction and collaboration through structured online discussions, collaborative online activities, online assessment, interactive course material, and audio or video-based conferencing programs (Keengwe et al., 2013).

Creating, Sustaining, and/or Enhancing Adult Engagement

Henrie et al. (2015) find higher levels of adult engagement and motivation when learning incorporates the use of online and CMC technologies. Online and blended learning environments that influence adult engagement (a) promote interactive and collaborative learning beyond the classroom; (b) motivate students through learning tasks that meet professional and career standards; (c) offer students flexibility and choice in how/when they learn; and (d) incorporate innovative learning modalities that enhance instruction through online and digital mediums.

According to Bower et al. (2015) instructional design, curriculum delivery mediums, timeliness of feedback, and the exploration and identification of motivational and support factors are critical for creating constructive learning conditions. Online and blended course development utilizing active, interactive, and collaborative technologies statistically affects adult engagement levels (Bell & Federman, 2013). Research suggests that implementing innovative, intuitive, flexible, and relevant instructional practices and technologies promotes learner flexibility enabling conditions that support collaboration (Kim & Frick, 2011; Sogunro, 2014). Flexibility and collaboration opportunities make higher education more attractive, attainable, and engaging for students who experience challenges with competing obligations and commitments. Using an online and blended approach, administrators, instructors, designers can support and encourage stimulating, innovative, and participatory opportunities for adult learners. Online and blended learning settings influence positive responses and outcomes when they align content and various modalities to create learning activities that foster meaningful interaction (Stott, 2014).

Summary

The traditional andragogy of classroom based, instructor-led teaching and learning for adult students is evolving. The development and availability of online and CMC technologies coupled with innovative instructional practices creates an active and applicable learning environment. Current and future learning professionals have the opportunity to fully embrace online and blended modalities that utilize the best instructional approaches with the latest digital technologies. A thorough identification and understanding of instructional best-practices and educational technologies enables higher education administrators, instructors, and designers modern methods for optimizing various modalities to create, sustain, and/or enhance adult student engagement.

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