Annotated Bibliography Series: Flexible Learning

Last Updated 14 June 2016

Recommended Citation:

Liu, Elissa. 2016. *Flexible Learning*. Annotated Bibliography Series. UBC Open Geography: Vancouver, British Columbia. Retrieved from: http://open.geog.ubc.ca

Summary

The annotated bibliography contains a number of well-cited studies on flexible learning. Majority of these studies support that flexible learning can help accommodate the decrease in resources. Studies on flexible learning investigated the effectiveness of flexible learning through either/both empirical and theoretical evidences. Across these studies, one of the reoccurring challenges with flexible learning analysis is the lack of sample size, which is usually limited by the number of students in the participating classes. Even when the sample size is large, analyses are based one classroom in one discipline which can lead to major bias. Studies that assess results across several years or disciplines are rare. These challenges are hard to overcome because authors usually only have permission from selected classrooms. As we move forward with our research on flexible learning, it is important to acknowledge these limitations. Lastly, the indicator for the effectiveness of flexible learning tend to be academic performance, which is the easiest to measure but may not always reflect the effectiveness. To truly understand effectiveness of flexible learning, analyses should incorporate all of institutions' goals (e.g., interactivity). Again, this is a challenge hard to overcome due to the lack of standards for measuring these other variables.

Annotated Bibliography

Alfred P. Rovai, H. M. Jordan. 2004. Blended Learning and Sense of Community: A Comparative Analysis with Traditional and Fully Online Graduate Courses. *The International Review of Research in Open and Distance Learning* 5 (2). http://www.irrodl.org/index.php/irrodl/article/viewArticle/192/274.%20Accessed%2019th%20March%202006

Cited by 564

This scientific paper evaluates the "sense of community" between traditional classroom, blended (online and classroom), and fully online higher education learning environments. Questionnaire responses from graduate students taking an education course in one of these three environments were used for the assessment. All of the students were full-time teachers working towards a master in education. The responses were assigned quantitative values and the authors used multivariate analysis of covariance (MANOCOVA) to measure the statistical significance between the three different groups. The quantitative analysis demonstrated that the "sense of community" differs among the three learning environments. In particular, the blended courses produce a stronger sense of community compared with the other two learning environments.

One of the drawbacks of the experiment is that the survey only targeted master students in the education field. The population survey would not represent students from other disciplines and other levels of education. Also, students in education may already have a sense of understanding of the social experiment. Although there are drawbacks to this article, the assessment variable (sense of community) is an important concept for post-secondary institutions but rarely assessed in literature studies. Overall, this is a very informative scientific paper and can provide information for future research topics.

Ziguras, C. 2001. Educational technology in transnational higher education in South East Asia : the cultural politics of flexible learning. *Educational Technology & Society* 4 (4):8–18. http://www.ifets.info/others/journals/4_4/ziguras.html

Cited by 85

This theoretical paper identifies the effects of cultural politics on flexible learning in terms of educational technology. Education for South East Asian countries has traditionally been more tightly structured and teacher-directed compared with Australia. The author suggests that this structure does not support interactive

educational technologies designed for autonomous students. To determine how South East Asian cultural influence flexible learning in higher education, the author evaluated case studies from different educational institutes in Singapore, Malaysia, and Vietnam. These case studies were created by higher authorities. From the case study analysis, the author concludes that there were three common themes across schools in the South East Asia. The first theme is that students are required to memorize and recall large amount of information for exams. The second theme is that institutions encouraged the use educational technology and self-directed learning. The third theme is that students have been resistant to technological innovations for learning, especially undergraduates. Later- year students are more accepting of the change.

The author provides some great insight to the influence of political culture on educational technology; however the author makes conclusions based on what was reported by higher authorities (e.g. lecturer, administrator) with very little information on actual responses of students in these institutions. Although the results may not be as useful for our study, the approach this article took to evaluate variability in learning across difference geographic location can be useful for our research, especially in terms of how (or if) different areas within Canada may respond differently to technological innovations for educations. Canada, being such a multi-cultural area, may have different responses based the geographic areas.

Sims, R. 2003. Promises of Interactivity: Aligning Learner Perceptions and Expectations With Strategies for Flexible and Online Learning. *Distance Education* 24 (1):87–103. http://itecideas.pbworks.com/w/file/fetch/60105186/sims_article.pdf

Cited by 148

This scientific paper investigated the concept of how interactivity is perceived by students and the relation to flexible learning. Interactivity, in the context of learning, "relates to things or persons acting on each other and the outcomes of that interaction". To evaluate students' perspectives of interactivity, three open-ended questions were asked of student enrolled in an undergraduate multimedia class. The questions focused on the benefits, characteristics and structure of interactivity. Responses from these students were grouped under different themes using the qualitative research paradigm. Based on the analysis, the author suggests that the most important variables for flexible learning include: individual learning style, maximize communication, and support learners with being control of their learning activities. For the major characteristics of interactivity, response reaffirmed that interface is responsible partially for the communication. The major

contributors to interactivity was identified as ability control one's learning and communication. The author points out the characteristics and structure of interactivity need future research and understanding.

One of the drawbacks of the paper was that sample population used only included students in the multimedia class. This group of students is likely to have experienced using technology to learn compared to students in other disciplines. Therefore, the results from this study may not apply across institutions. This study may be useful for our study because interactivity is an important component of university goals with regards to learning.

Sadler-smith, E., and P. J. Smith. 2004. Preferences in Flexible Learning Programmes. *British Journal of Educational Technology* 35 (4):395–412. https://www.researchgate.net/profile/Eugene_Sadler-Smith/publication/230227404_Strategies_for_accommodating_individuals_styles_and_preferences_in_flexible_learning_programmes/links/00b49518c913d004f9000000.pdf

Cited by 151

This theoretical paper identified flexible learning as means of delivering learning that includes the use of instructional technologies. In flexible learning, individual preferences and strategy of learning has been identified as important for course designers, learners, and supporters. Based on this understanding, this paper: 1) identify aspects of individual differences related to the delivery of flexible learning 2) identify challenges for instructional designers and learning facilitators due to the individual differences 3) suggest ways to accommodate individual differences in flexible learning. The authors used a combination of empirical and theoretical evidence to support reasoning for each of the research areas. The method was sufficient in providing evidence for the general research questions. However, the study used a couple of references for each aspects of individual differences. The author does not provide how or why studies were selected. This raises the question of whether the results may be slightly biased. The author suggests that the delivery of learning materials and individual differences interact to affect learning processes. Strategies have been identified to address individual difference in cognitive style, learning style and learning preferences. The authors then provided strategies for instructional designers, learners, and supporters to accommodate individual differences.

This paper would be useful for our research it does not only identify challenges of addressing individual differences but also recommends solutions for different

stakeholders. Individual differences in learning style have been identified in several other literature studies as an important component of e-learning effectiveness and satisfaction. In further researches, it would be interesting analyze the effectiveness of the solutions proposed.

Book Review

Collis, B., and J. Moonen. 2002. Flexible Learning in a Digital World. *Open Learning* 17 (3):217–230.
http://portal.ou.nl/documents/89037/89380/Collis+%26%20Moonen+(2001).pdf

Cited by 113
Book Cited by 1040

This journal article corresponds with the "Flexible Learning in a Digital World: experiences and expectations" book. Flexible learning is defined as the learner centric, where learners have the choice in respect to their learning experience. In practice, flexibility has 6 main dimensions: 1) flexibility related to time; 2) flexibility related to content 3) flexibility related to entrance requirements 4) flexibility relate to instructional approach and resources 5) flexibility related to course delivery and logistics. For each dimension, the authors specify a range of options for learners. The authors point out the importance of determining dimensions of flexible learning that the institution would like to focus on and the feasibility of carrying out the plan. The authors also summarize 18 lessons based on experiences with technology and learning-related changes from the past. The authors identify lessons relating to each of the 4 key components of flexible learning, which include technology, pedagogy, implementation and institution. In the book, one chapter is devoted to each of these 4 components.

This article and the book will be useful for our research because the authors discuss some important concept and theories regarding flexible learning. In particular, this book appears to help define flexible learning, which would be an important part of any research related to the flexible learning field. The author points out that institutions often do not have a common understanding of flexible learning before attempting to incorporate flexible learning into the education program. The authors also identify important lesson from the past can help shape our areas of focus.

Book Review

Terry Anderson. 2003. E-moderating: the key to teaching and learning online. 2nd edition. *Journal of Distance Education* 2000 (1):99–102. http://ijede.ca/index.php/jde/article/viewFile/439/381

Cited by 4

Book cited by 3925

This book review provided a comprehensive analysis of the original book by Gilly Salmon, which emphasizes the role of e-moderators in the context of online learning and teaching. E-moderator is defined as the middlepersons between the learner and the educator and their role is to facilitate learning activity using well-designed learning materials. Their role in online learning is defined and explained through a series of short case studies, transcripts of conferences, diaries, and emails. The book reviewer commends the book author for providing comprehensive description of qualitative methods used in each chapter of the book. Ultimately, the book uses the empirical and theoretical base evidences to generate recommendations and checklists which the book reviewer suggests would be useful for education practitioners that are interested in integrating online tools for teaching and learning.

The book reviewer suggests that this book is very helpful for all types of education related practitioners even though the recommendations focus on e-moderators. The book offers some great concepts and "big ideas" on learning in general. In particular, the learning model based on the Maslowian hierarchical style may be an important guideline to think about learning in general. The book reviewer also mentioned that the book provides a chapter explaining all the different roles in online learning. Although the book provides many great concepts and ideas, the book sometimes lack in explaining certain words (such as those in the model). Generally, this book can be useful for our research as it provides a comprehensive description of different roles related to online learning.

Khan, B. H. 2005. Learning Features in an Open, Flexible and Distributed Environment. *AACE Journal* 13:137–153. http://faculty.ksu.edu.sa/ualturki/digital%20library/learning%20features%20in%20an%20open%20flexible%20and%20distributed%20environment.pdf

Cited by 44

This theoretical paper discusses the idea of e-learning and identifies e-learning components required for different e-learning programs. The paper references a series of literature studies, personal communication and experiences, and discussion boards. E-learning in this context is defined as "an open, flexible, and distributed learning environments". E-learning environment should allow learners to choose the time, pace, and place of learning. Considering that the internet is "device, platform, time, and place independent", the author suggests that meaningful e-learning design needs to consider the most important e-learning components, which includes instructional design, multimedia component, internet tools, computers and storage devices, connections and service providers, enterprise resource planning and server related applications. The more components integrated into e-learning, the more features that the institution can offer. Feature include ease of use, interactivity, multiple expertise, collaborative learning, authenticity, and leaner-control. For each of these features, the author identified the e-learning components and relation to open, flexible, and distributed learning environments (Table 1). The authors also offers a list of potential issues and concerns related to each of the features (Table 2 and 3)

Although the author does a great job defining the terms and ideas of e-learning features and components, the author mainly uses information from literature and personal experiences. The paper lacks real-life applications and experiences that would help solidify the recommendations for e-learning programs. This paper may will still be useful for our research because it provides a great framework on e-learning environments, which shares similar traits with flexible learning.

Nunan, T., R. George, and H. McCausland. 2000. Rethinking the Ways in which Teaching and Learning are Supported: The Flexible Learning Centre at the University of South Australia. *Journal of Higher Education Policy and Management* 22 (1):85–98. http://dx.doi.org/10.1080/713678130

Cited by 58

This theoretical paper uses the University of South Australia as a case study for studying how policies based on the paradigm shift are executed and received. The authors of the paper are part of the Flexible Learning Center (FLC) at the University;

the paper discusses the paradigm in the context of institution changes and changes for the FLC. The paradigm shift that the authors refer to is the shift from a culture of production to one of consumption. Indicators of the shift are categorized as inputs to outputs, teaching to learning, local too global and semi-elite to semi-mass. Inputs to outputs are refers to the ways that the quality of university was measured in the past and now. In the past, universities were measured based on the size of service; now the focus is on consumer satisfaction. The teaching to learning shift refers to the teaching staff's change in position: from power to facilitation. The local to global shift refers to the need for accommodating globalization. Lastly, semi-elite to semi-mass shift refers the shift in the number of students and types of students. Based on the paradigm shift, the University of South Australia implemented 9 policies in organizational arrangements, and the reorganization of advisory structures and refinements to planning and review frameworks (Bradley, 1994a, 1994b). The paper describes how each policy is implemented and the impact of these policies in the university. The authors also focus on the change to the FLC.

This paper can be very useful for our research as the authors provide insight as to how and why flexible learning is needed. The concept revolving around the paradigm shift is well discussed in the paper and can be useful for our research. The University of South Australia can also be used as a reference for how universities have adapted to the paradigm shift. One of the weakness of the paper is that a lot of focus is placed on the FLC, which may not be relevant for other institutions. Also, the ideas of the paper is from the perspective of the FLC and may not represent the interest of learners and educators of the university.

Book Review

Dennison, D. 2014. E-Learning and social networking handbook: resources for higher education, 2nd edition. *Studies in Continuing Education*, 36 (3): 382–383. http://dx.doi.org/10.1080/0158037X.2014.952948

Review cited by 0

Book cited by 415

This book review suggests that the "E-Learning and social networking handbook" is a well written book which provides tools for almost all types of the e-learning. The tools presented in the book address social technological trends in education. The tools included blogs, wikis, podcasts, and e-portfolios. For each of the tools, the book provides detailed discussion of its effectiveness, strength and weakness. In the very end of the book, the author also provides arguments for potential

constraints of using e-learning, which informs the readers of alternative opinions. Although the book seems to be very informative regarding tools used in e-learning, the book reviewer does point that the book lacks in the area of social networking. Although the concept is part of the book's name, the book does not seem to provide enough contexts.

In addition, the book reviewer suggested that the handbook fails to incorporate concept of team working, developing team working skills, shared enterprise, group dynamics, social, and academic. The web-based systems discussed in the book is also out-of-date due to changes since the time that the book was written. Lastly, the book considered that students are all the same, which the book reviewer argues overlooks many groups of students; especially those with disabilities. The book is definitely useful for our research because it seems to compile all the e-learning tools. It would be an interesting research direction to compare the effectiveness of these tools in real-life application. The book review is also interesting for our research because it points out areas for future research.

Demetriadis, S., and A. Pombortsis. 2015. e-Lectures for Flexible Learning: a Study on their Learning Efficiency. *Journal of Educational Technology & Society*, 10 (2): 147–157. http://ifets.info/journals/10_2/ets_10_2.pdf#page=152

This is a scientific article that quantitatively and qualitatively analyzes the effectiveness of e-lecture and the satisfaction of students. The two main questions that the study assesses include: 1) Are e-lectures as efficient as traditional lectures for students' learning; 2) What is the level of students' satisfaction and the attitudes they develop regarding the use of e-lectures. To conduct the analysis, students taking a mandatory computer science course were divided into the control group (live lecture) and the treatment group (e-lectures). The content presented to both groups were identical. To compensate for the lack of teacher-student interaction, the treatment group were given the opportunity to the instructor face-to-face. The students from both groups were given a pre-test to confirm that both groups had minimal experience with the topic and post-test to measure the effectiveness of the lectures. The results show no significant differences between the two groups in terms of effectiveness and satisfaction. The authors emphasized that the study can only make such a conclusion for introductory courses and acknowledges that students participating in the study were computer science students that were enthusiastic about using a computer.

At the end of the paper, the authors presented areas of limitation in the study and future research areas. For example, the authors talk about performing similar

experiments with higher level educations. These potential limitations of this study provide a great leeway for future research topics that we can reference for our research project. The biggest strength of the paper is that is clearly states the purpose, methods and limitations. The combination of literature searches on current concepts on e-learning in conjunction with the qualitative and quantitative analysis makes their results reliable. Furthermore, the paper acknowledges and addresses limitations and possible bias within the study.

Drennan, J., J. Kennedy, and A. Pisarski. 2005. Factors Toward Affecting Flexible Management Student Online Attitudes Learning in Education. *The Journal of Education Research* 98 (6):331–338. http://dx.doi.org/10.3200/JOER.98.6.331-338

Cited by 241

This scientific article measures factors influencing student's satisfaction towards flexible learning courses. In this article, flexible learning refers to the belief that students should be considered active participants (Nikolova and Collis, 1998) and that "deeper approaches should be encouraged" (Gendron, 1955). The authors do not explain what "deeper approaches" encompass. To analyze students' satisfaction with flexible learning, the authors define two key components of effective flexible learning: positive perception of technology and autonomous and innovative learning style. Survey questions aimed at determining the perception of technology, learning style, and satisfaction of flexible learning were distributed to 250 students from an online introductory management course. From a quantitative analysis of the survey results, the authors conclude that course satisfaction is influenced directly by the perceived usefulness of flexible learning and by the locus of control (extent to which students believe they are in control of their success of the course). The authors note that the locus of control is measured at the beginning of the course and not the end because it is assumed that the locus control would remain the same. This assumption is not actually backed up by any experiments nor literature. Students could have very well changed their perception on the locus of control depending on the experience during the course.

One of the biggest strength of the paper are the details provided in the method section. The authors break down the different background of the students that participated in the study. This study can be useful for our research because it addresses two important component of e-learning: learning style and perception of technology. The method section of this article can also be a great reference for potentially designing a survey for our research because it is comprehensive and detailed.

Mitchell, P., and P. Forer. 2010. Blended Learning: The Perceptions of First-year Geography Students. *Journal of Geography in Higher Education* 34 (1):77–89. http://dx.doi.org/10.1080/03098260902982484

This scientific paper assesses e-learning from the perspective of students. The authors propose that neoliberal agendas of the 1990s shifted the funding around the world and this has been the major driver of the e-learning. Blended learning has been of particular interest to educators because it combines traditional and e-learning mechanisms. This paper examines "1) how students perceive e-learning vs traditional learning 2) how e-learning mechanisms are affecting students' learning behaviour; and 3) why certain e-learning mechanicals in Digital Worlds are more appealing than others". Using surveys, the authors distributed questionnaires to students in 2006 and 2007. These students were part of a Digital Worlds course at a New Zealand university. The questionnaires were distributed to students at the end of the class and they were asked to submit the forms in the box available in the host department's Student Resource Center. The response rate was about 44%. Since the forms were not collected directly from classrooms, the inconvenience may have deterred students from responding. The authors conclude that students acknowledged that flexibility is tied with e-learning; this perspective were driven by learning style. e-learning component of blended learning changed the student's behavior in approaching learning slightly, opinions varied depending on previous experiences with e-learning. Lastly, students preferred texting as a form of communication but they did not appreciate certain limitations and informality of texting with course staff.

This paper is useful for our study because it provides some interesting perspectives of e-learning from students. One of the paper's strength is that it surveyed students for two consecutive years to determine whether results are static or dynamic. This is an important factor that most studies lack due to the lack of time and resources. One of the drawbacks of the paper is the lack of analysis of the educators that also play an important role in terms of e-learning. Overall, this paper provides an interesting perspective on the components of e-learnings; especially with regards to the technology preferences. The paper points out that in 2005 the CERI compiled information on the development of e-learning at the tertiary level in OECD countries. It was found that Asia Pacific Region showed 21.8% of courses offering online component while Canada had 14.5%. It would be interesting to dig into the same resources to see if the data has been updated (CERI 2005).

Lynch, K., B. Bednarz, J. Boxall, L. Chalmers, D. France, and J. Kesby. 2008. E-learning for geography's teaching and learning spaces. *Journal of Geography in Higher Education*, 32 (1), 135-149. http://dx.doi.org/10.1080/03098260701731694

This symposium discusses the variety of practices and opportunities of educational technology in the context pedagogy in geography. Information and communications technology (ICT) in higher education highlights four types of e-learning (OECD 2005): web supplemented, web-independent, mixed-mode, and fully online. The main questions that the authors answered are 1) why is e-learning important? 2) Is it an improvement on learning with the 'e'? and 3) why is this significant for geography education. The authors addressed these questions through a series of rationale supported by literature studies. The authors conclude that e-learning is important for Geography because technology allows students to access information quickly and provide visual information that cannot be easily provided otherwise. In relation to this point, the authors make several references to studies on virtual field trips. The authors then identify the variety of e-learning and list the different technologies that can be employed (e.g., podcast, mobile learning). The versatility of technology improves learning by allowing students to gain life-long skills for future work and life. The significance of e-learning lies in the interest of both students and employers. The authors point out that Geography education requires the use of laboratories, tutorial, libraries, and computer laboratories. All of which can be supported by e-learning strategies.

This paper offers a great overview of e-learning field by reporting the different technology that has been studied in the literature. However, this paper does not provide any insight as to which of the technology would be most effective. Overall, this paper will be useful for our study as it provides great summary of the field and an abundant amount of references on e-learning. This paper is also focused on Geography education while reflects our area of expertise and interest.

Edwards, R., and J. Clarke. 2002. Flexible Learning, Spatiality and Identity. *Studies in Continuing Education* 24 (2):153–165.
http://dx.doi.org/10.1080/0158037022000020965

Cited by 56

This theoretical paper discusses spatial concept of flexible learning. Generally, flexibility refers to the process of "teaching and learning can be liberated from constraints of time and place". Drawing on existing literature, this paper analyzes the concept of social space and modularization. The authors then use their own research to explain the concept of spatially through stories from distance learning students. The authors define space for two types of social space: disciplinary

societies and societies of control. Disciplinary societies are where "separate spaces of enclosure are experienced" as students move from one enclosed area to another. On the other hand, societies of control do not have clear transitions between enclosed spaces. Flexible learning relates more to societies of control. Building on the idea of social space, modularizing space refers to creating learning that is non-linear and reordering of space-time. In their literature review, one of the studies found that physics is an area that exercise traditional linear pattern while management exercise non-linear, module and flexible. The consequence of the different learning environments yields different skill sets, caused by the learning style rather than the subject. Following the literature search, the authors interview students taking online learning. It was found that education was seen primarily as spaces of enclosure.

This paper offers very interesting insight into the spatial concept of flexible learning which can be used as a reference for helping define flexible learning. However, this paper may not be that useful for our research because it does not provide any information on how spatially concepts may actually influence the success of flexible learning.

Sun, P.-C., R. J. Tsai, G. Finger, Y.-Y. Chen, and D. Yeh. 2008. What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education* 50 (4):1183–1202. http://www.water-msc.org/en/Knowledge_base/successful_e_learning.pdf

Cited by 954

This scientific article addresses factors driving e-learning. According to the authors, e-learning is a "web-based system that makes information or knowledge available to users or learners and disregards time restrictions and geographic proximity". The authors consider six dimensions of e-learning including: learners, instructors, course, technology, design, and environment. The study uses a series of existing literature to develop hypothesizes based on factors within the six dimensions. Then, the authors conducted in-depth interviews and questionnaires with students from a Taiwanese university to verify the hypothesis. The response from 295 students were received, which represents 45.7% of the total students asked to participate through an email. The research used the Statistical Package for Social Sciences version 10 to conduct the data analysis. The authors conclude that learners' computer anxiety, instructor's attitude towards e-learning, the flexibility of e-learning, the quality of the course, perceived usefulness, and perceived ease of use, and diversity of assessments are factors influencing the satisfaction of learner.

Overall, the dimensions identified in this paper may be helpful for our research in measuring the success of different flexible learning programs. One of the biggest strength of the paper is that the authors described the theories behind the survey questions. The author also does a great job identifying these limitations and proposing future studies that may address these problems. In the discussion, the authors acknowledge the limitation of the study. One of the limitations being that students' satisfaction was the only dimension measured in the study. An important player of e-learning would be the educators. The lack of time and resources also limited the level of comprehensiveness when covering factors influencing learner's satisfaction. Lastly, this study focuses on e-learning and does not consider the different between different digital learning systems.

Bhuasiri, W., O. Xaymoungkhoun, H. Zo, J. J. Rho, and A. P. Ciganek. 2012. Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education* 58 (2):843–855. https://www.researchgate.net/profile/Hangjung_Zo/publication/220140120_Critical_ success_factors_for_e- learning_in_developing_countries_A_comparative_analysis_between_ICT_experts_an d_faculty/links/00463527841234fe99000000.pdf

This scientific study assesses factors that influence the success of e-learning for developing countries. This study used previous literature to identify factors that influence the success of e-learning systems and then identifies the importance of these factors from the perspective of Information and Communications Technology (ICT) experts and faculty. The authors suggest that these two groups of stakeholders are considered critical in understanding the success of e-learning implementation. Using the Delphi method and the Analytical Hierarchy Process (AHP) approach, the authors collected 76 useable responses from these two groups. Unlike most other studies, the Delphi method proposes that the selection of participants should not be random but rather through a series of consideration to confirm their qualifications. The down side of the process is that the ICT experts may not always be relevant in all places. In some institutions the ICT is also the faculty. The study concluded that for developing countries curriculum design, technology awareness, motivation, and learner's behaviours are vital for the success of e-learning implementation. Generally, the ICT experts identified learner's characteristics as the most important dimension while faculty identified infrastructure and system quality as the most important dimension.

This study may not be as relevant for our research because it focuses on developing countries rather. However, the approach and method that the authors introduce in this study may be a useful reference when designing our study. For limitations of the study, the authors acknowledge that only two groups of stakeholders were focused while other stakeholders may have different perspectives driven by different sets of needs. For example, students are an important group of stakeholders in e-learning.

Lee, B.-C., J.-O. Yoon, and I. Lee. 2009. Learners' acceptance of e-learning in South Korea: Theories and results. *Computers & Education* 53 (4):1320–1329. http://dx.doi.org/10.1016/j.compedu.2009.06.014

This scientific paper assesses factors on e-learning adoption in Korea. The dense population of Korea and high literacy rate makes e-learning a useful and cost-effective tool in meeting education standards. E-learning in this study is defined as "web-based learning which utilizes we-based communication, collaboration, multimedia, knowledge transfer, and training to support learner's active learning without the time and space barrier". The authors analyze existing literature to understand factors that are relevant to e-learning adoption. The literature search focuses on the Technological Acceptable Model (TAM), service quality (instructor characteristics, teaching materials, and design of learning contents), and flow theory (playfulness). Based on the literature, the authors developed a survey that measures the perspectives of students on the importance of these e-learning factors. The Survey was conducted with 250 undergraduate students who attended at least one e-learning course. The authors summarize students' background and discipline to ensure transparency of the experiment. Results are analyzed using a regression model. The authors concludes that the increase in the e-learning service quality will increase the learner's positive attitude towards e-learning. The perceived usefulness was perceived as the greatest driver of e-learning satisfaction. The increase in playfulness also has a positive effect on the student's perspective on e-learning.

This paper can be useful for our research because the author brings up several general theories and models that are used in the realm of e-learning research. The comprehensive descriptions of the literature search and survey is one of the paper's largest strength. For our research, we can draw on the knowledge gained from the preliminary literature research and some of the results from the survey. Not all the results may be applicable for research focused on Canada due to cultural differences. The authors acknowledge that the cross-cultural difference is a limitation of this paper. Along with this limitation, this study also does not address the perspectives of educators which is an important stakeholder in e-learning.

Lastly, the authors acknowledge the narrow definition of service quality. For future research topics, it would be interesting to expand on factors influencing e-learning adoption (e.g., what influences perceived usefulness).

Errington, E. 2004. The impact of teacher beliefs on flexible learning innovation: some practices and possibilities for academic developers. *Innovations in Education and Teaching International* 41 (1):39–47. http://researchonline.jcu.edu.au/8511/1/8511_Errington_2004.pdf

Cited by 73

This theoretical paper explores potential impacts of teachers' belief on flexible learning by using a combination of literature studies and personal experiences as an academic/staff developer. In addition, the author uses Massey University flexible learning program to identify solutions to address challenges with regards to teachers' beliefs. This paper includes three main sections: 1) Impacts of teacher beliefs on innovation; 2) Challenges with advancing flexible learning from the perspective academic/staff developers; 3) Examples of practices from the Massey University (New Zealand) aimed at addressing the challenges identified. Flexibility in the context of this paper refers to the ability to offer accessible university courses to a diverse range of students in all levels of education. The major take-away message from this article is that teachers' beliefs do influence how flexible learning is received by the teachers and also students. For example, students are much less likely to accept flexible learning if teachers do not support or understand flexible learning. From the Massey University program, the author identified that education supporters need to link flexible learning into the overlying beliefs of learning and teaching in the context of the institution and individual teachers. The teachers not only need to understand the connection but also have the opportunity to design and exercise innovations related to flexible learning. The author also points out the importance of helping teachers find proper support that will help with change.

The combination of in-situ and theoretical examples presented in this paper offers a great overview of potential problems and solution for flexible learning. One of the drawbacks of the paper is that the personal experience is drawn from one institution, which may not apply to all institutions. Also, the author reports programs aimed to address problems with flexible learning but there were no measurements of the effectiveness of these programs. The paper also did explain students' experiences as a result of these programs. Despite of the drawback, this paper would be useful for our research because it provides some great theoretical contexts that can easily be built on through another research paper.

Moore, N., and M. Gilmartin. 2010. Teaching for Better Learning: A Blended Learning Pilot Project with First-Year Geography Undergraduates. *Journal of Geography in Higher Education* 34 (3):327–344. http://irserver.ucd.ie/bitstream/handle/10197/4305/JGIHEsubmission_Moore_and_Gilmartin_7jul08.pdf?sequence=4

Cited by 23

This scientific article assesses the effectiveness of a blended learning environment for a first-year geography class. This paper uses theories from literature studies in conjunction with in-class experiment with a first year geography class at the University College Dublin. The study was conducted in response to the growing class sizes and resource restraints at the university, especially for large sized classrooms. In a broad sense, the rationale for taking the blended learning approach was the desire of enhancing the student experience. In traditional classrooms, lectures and tutorials are the dominating components and educators tend to spend majority of their time resolving conflicts (e.g., preventing distractions). For blended learning, educators spent time encouraging students to learn by interacting with each other and promote active learning. To identify the effectiveness of the blended learning, the author reconstructed a first-year geography course to accommodate for an online learning component. The online portion solely contained short assignments and discussion groups; all lectures were not shown online. The teachers (who are also the authors of this paper) were actively speaking with the students to receive constant feedbacks. From this experiment, the authors concluded that blended learning was well received and helped promote interactivity and autonomous learning. This was evident in the results as a large portion of students from the blended course received higher marks compare with previous courses and other classes. On the other hand, there was also more students that did poorly; mostly likely a result of them not adapting to the online learning environment.

One of the problems with the result was that marking scheme of the traditional and blended learning were different since the traditional learning did have an online component. The fact that more students did well in the blended course could have been a result of easier evaluations from the online learning. Less weight may have been placed on the midterm and final to accommodate for the added component. This paper can be very useful for our research because it speaks directly about flexible learning for geography courses. The authors identified that flexible learning is not researched enough in the context of Arts departments, such as Geography. The authors also identified the relationship with student retention

and blended learning need further investigation. This may be an area that we could explore in our project.

Brinson, J. R. 2015. Learning outcome achievement in non-traditional (virtual and remote) versus traditional (hands-on) laboratories: A review of the empirical research. *Computers & Education* 87:218–237. http://dx.doi.org/10.1016/j.compedu.2015.07.003

Cited by 0

This is a scientific paper assesses the effectiveness of non-traditional (NTL) versus traditional laboratories (NL). NTL studies are driven by cutbacks for labs and maintaining equipment (Magin and Kanapathipillai, 2000). The authors use meta-analysis to determine whether there is a consensus on whether there is a difference between NL and NTL, mostly for science courses. The author collected studies from a series of platforms and selected studies that address NT or NTL. Based on the meta-analysis, the author concluded that the outcome achieved is equal or higher in the NTL across all learning outcomes assessed (knowledge and understanding, inquiry skills, practical skills, perception, analytical skills, and social and scientific communication). This method was viable because the authors utilized a number of platforms to locate studies, which decrease bias. The large number of studies also allowed the authors to assess results from several different environments. Generally speaking, the use of multiple study can help decrease bias from single location studies.

The largest problem with the paper, identified by the author, was that 87% of literature studies used knowledge and understanding as the endpoint. The lack of data for other endpoints has the potential to increase the bias of the analysis. Another issue is that the authors divided the results to NTL is better than TL and NTL is worse than TL. Studies with the degree of differences are not reflected in the meta-analysis. Also, laboratory practices at a job is the ultimate assessment of whether NTL or TL is effective. Therefore, classroom assessments may not be sufficient to fully understand the effectiveness of NTL and TL. The authors end the article by acknowledging that there is a lack of consensus on the best practice for virtual labs that need further research. This study may be helpful for our research in finding gaps in the flexible learning field.