

St. Cloud State University

theRepository at St. Cloud State

Culminating Projects in Information Media

Department of Information Media

8-2020

Informal Online Learning: Motivational Factors and Incorporation into Formal Learning Environments

Aizhan Arapova

aaizhan@go.stcloudstate.edu

Follow this and additional works at: https://repository.stcloudstate.edu/im_etds

Recommended Citation

Arapova, Aizhan, "Informal Online Learning: Motivational Factors and Incorporation into Formal Learning Environments" (2020). *Culminating Projects in Information Media*. 31.

https://repository.stcloudstate.edu/im_etds/31

This Starred Paper is brought to you for free and open access by the Department of Information Media at theRepository at St. Cloud State. It has been accepted for inclusion in Culminating Projects in Information Media by an authorized administrator of theRepository at St. Cloud State. For more information, please contact tdsteman@stcloudstate.edu.

**Informal Online Learning:
Motivational Factors and Incorporating into Formal Learning Environments**

by

Aizhan Arapova

A Starred Paper

Submitted to the Graduate Faculty of

St. Cloud State University

in Partial Fulfillment of the Requirements

for the Degree of

Master of Science

In Information Media: Instructional Technology

August, 2020

Starred Paper Committee:
Yun Claire Park, Chairperson
Plamen Miltenoff
Tom Hergert

Abstract

This secondary research paper seeks to explore informal online learning, namely, the motivational factors behind it and the challenges of incorporating informal learning into formal learning environments. Using background research studies, main themes in the field of informal learning and research gaps were identified, and research questions for this paper were set. This secondary research paper also includes the description of the implications of the findings for educators and instructional designers, as well as suggestions for further research.

Keywords: informal learning, online learning, formal learning, incidental learning, online learning communities, social media

Table of Contents

3

Page

List of Tables	5
Chapter	
I. Introduction	6
Introduction and Background	6
Research Problem	7
Research Purpose	9
Significance of the Study	9
Limitations	10
Definition of Terms.....	11
Summary	11
II. Literature Review	13
Introduction.....	13
Methodology	13
Literature Themes	15
Informal and Incidental Learning	15
Informal Learning in Online contexts, or Informal Online Learning	17
Online Learning Communities and Culture of Sharing	18
Gaps in Research.....	20
Summary	21
III. Methodology	22
Introduction.....	22

Chapter	Page
Institutional Review Board Exemption.....	22
Methodology.....	22
Timeline.....	23
Summary.....	24
IV. Findings.....	25
Introduction.....	25
Summary of Findings.....	25
Motivational Factors.....	28
Incorporating informal learning into formal learning.....	31
Conclusion.....	35
V. Conclusion.....	36
Introduction.....	36
Discussion of the Findings.....	36
Limitations and Suggestions.....	37
Conclusion.....	38
References.....	39

List of Tables

Table	Page
2.1 Summary of Background Research	14
4.1 Summary of the Analysis of the Related Research Studies Findings	26

Chapter I: Introduction

Introduction and Background

Online learning has been gaining popularity among learners all over the world, at home, in school, or in the workplace (Okojie & Boulder, 2020). The interest in online learning varies in reasons: curiosity, convenience, professional growth, self-improvement, etc. (Song & Bonk, 2016). As any other type of learning, online learning can be characterized as formal or informal (Cofer, 2000; Merriam, Caffarella, & Baumgartner, 2007). According to Coombs and Ahmed (1974), formal learning takes place in an “institutionalized, chronologically graded and hierarchically structured educational system” (p. 8). Learning in K-12 and higher education institutions can be considered formal learning. Informal learning, however, is more self-directed than structured by others (Merriam, Caffarella, & Baumgartner, 2007). When it comes to informal learning, often, one might not even recognize the informal way of learning in the process of daily activities. Livingstone (2001) defines informal learning as “any activity involving the pursuit of understanding, knowledge or skill which occurs without the presence of externally imposed curricular criteria” (p. 4). Informal *online* learning, in turn, can be defined as “the unstructured learning that happens in daily life while people are accessing the Internet” (Holland, 2019, p. 215). Common platforms for informal online learning include Massive Open Online Courses (MOOCs), community discussion boards, email listservs, digital learning objects, websites, blogs, Facebook, and more (Holland, 2019).

However, scholars find increasingly difficult to provide an accurate definition of informal learning (Song & Bonk, 2016), as numerous learning environments nowadays include elements of both formal and informal learning, and teachers often use web-based teaching materials (Cox, 2013). Despite the character of the learning environment, the goal of any educator or

instructional designer is to provide effective materials for the learner to retain information or knowledge.

The purpose of this secondary research study is to explore informal learning for all learners including high school students, college students, and adult learners in an online environment; identify its features and benefit to the learners and discuss the opportunities of blending it into formal learning environments. These goals will be achieved by analyzing related research studies and articles on informal learning in general and in online environments, specifically. This secondary research study aims to discover certain trends in the field of informal online learning, so educators and instructional designers can use this information to better support their learners. Although this paper focuses on both the academic and training contexts, due to limited literature available (as discussed later in Limitations), it can still provide helpful insights and help gain a better understanding of informal learning.

This chapter outlines and describes the research problem, research purpose, significance of this study, its limitations, and includes the definitions of the main terms mentioned throughout this paper.

Research Problem

When it comes to learning and education, people's attitudes are a significant factor to consider. It appears the value of higher education is being diminished; some researchers mention an increasing public distrust in higher education in general, let alone online learning (Schleifer & Silliman, 2016). For example, more Americans currently see colleges as businesses that care mostly about the bottom line rather than education and students' educational experiences (Schleifer & Silliman, 2016). Holland (2019) agrees with the need to provide research-based educational information to promote learners' positive attitudes towards learning and policy

changes. However, this task is difficult to achieve in respect to online learning, considering the challenge to implement technology into education (Collins & Halverson, 2010). For example, a great number of learners discover their inability to persevere with an online course: they sometimes find online courses or programs boring and overwhelming and have difficult time finding the motivation to complete them (Lee et al., 2012). People's perceptions of education in general and especially online learning leave educators and instructional designers facing the challenge of making online learning as motivating and interesting to learners as possible. Learners might find online courses not sufficiently interesting or engaging, which, consequently, affects information comprehension, motivation and retention.

Despite the issue with online learning described above, people are increasingly becoming comfortable with learning in informal online settings, due to the popularity of social networking sites (Arnold & Paulus, 2010). Informal online learning communities, in general, have become a trend on the Internet (Thompson, 2011). For example, an informal online learning community forms when someone interested in a particular topic searches for others and forms or joins an online group (Ross, 2007). However, such informal communities have not been studied as much as formal online learning communities, in terms of their definition, motivational factors for learners' engagement, and their incorporation into formal learning environments. The fact that informal learning is gaining popularity but is not yet thoroughly explored calls for a comparative need to identify the character of learners' attraction toward informal online learning and educators and instructional designers' approach to incorporate informal learning into a formal learning environment.

Research Purpose

Given the research problem stated above, the purpose of this secondary research study is to explore informal learning for all learners including high school students, college students, and adult learners in an online environment: specifically, identify the features that make it attractive and beneficial to the learners, and discuss the challenges of blending it into formal learning environments. Therefore, the primary research questions set forth in this study include:

1. What are the motivational factors that make learners choose and engage in informal online learning?
2. What are the challenges of blending informal online learning into formal learning environments?

Significance of the Study

Although research studies have been conducted on informal learning in different settings (academic, corporate, online, face-to-face, etc.), research findings are insufficient to draw conclusions or generalizations on its benefits or ways of applying it by educators or instructional designers.

The results of this secondary research study can present to educators and instructional designers better understanding of informal learning and ability to incorporate it in the lessons and courses they design and teach. An exploration of learners' motivation to engage in informal learning and to be blended into formal environments can assist educators and instructional designers in creating more motivating, engaging and effective online courses and programs. The findings of this study will provide insights on the character of informal online learning and possibly determine other aspects to be studied. The results will allow schools, organizations,

educators and instructional designers to better understand and support their learners in the learning process.

The importance of this study is determined by the data collected from several research studies with a focus on high school students, college students, and adult learners engaged in informal online learning. If informal environments prove to play a role in the learners' motivation to engage in the learning process or are found effective when blended into formal learning, this information should be made available for schools, organizations, educators and instructional designers.

Limitations

A significant number of the articles on informal learning are 10 years and older. However, the studies described in them might be of the same interest and same relevance as the latest studies. The selection of latest articles for this research is determined with the increased familiarity with technology and its application in learning, which provides the researchers with a wider scope to work with. An analysis of such articles must be accompanied with an understanding of the constant evolution of technology and learning. Some of the studies described in this paper (e.g., Greenhow and Robelia's 2009 study) focus on the use of social networking sites which have only gained popularity in the last 10-15 years.

Second, informal online learning can occur in different settings. For the purposes of this paper, no specific context (academic or corporate) was chosen, due to lack of literature to analyze that would only focus on a specific audience. This is a significant limitation as it is possible that the findings of informal learning studies in a corporate environment are different than if conducted in an academic environment, due to the fact that audiences can be different in terms of their needs, preferences, and skills.

Definition of Terms

The most common terms mentioned throughout this paper and their definitions to best fit the purposes of this paper are as follows:

Formal learning: “Structured, pre-designed learning activities that are facilitated by an instructor” (Czerkawski & Hernandez, 2012, p. 139).

Informal learning: “Any activity involving the pursuit of understanding, knowledge or skill which occurs without the presence of externally imposed curricular criteria” (Livingstone, 2001, p. 30).

Informal online learning: “The unstructured learning that happens in daily life while people are accessing the Internet” (Holland, 2019, p. 215) or “unstructured, serendipitous, and in most cases, incidental learning” (Czerkawski & Hernandez, 2012, p. 139).

Non-formal learning: “Type of learning facilitated through organized, systematic educational activities, for example, professional development interest groups” (Schwier & Seaton, 2013, p. 2).

Online learning: “Instructional environments supported by the Internet. Online learning comprises a wide variety of programs that use the Internet within and beyond school walls to provide access to instructional materials as well as facilitate interaction among teachers and students” (Bakia et al., 2012, p. 2).

Online learning community: A place on the Internet which addresses the learning needs of its members by facilitating interactions among them (Cook & Smith, 2004; Zhan et al., 2011).

Summary

This secondary research paper is an analysis of the research studies conducted on informal online learning. It will explore informal learning for all learners including high school

students, college students, and adult learners in an online environment: specifically, identify what makes it attractive and beneficial to the learners, and discuss the challenges of blending it into formal learning environments.

The relevance of the topic of informal online learning is determined by a need to promote positive attitudes to learning in general, and online learning, specifically. People find themselves more comfortable in informal online learning communities rather than formal communities (Arnold & Paulus, 2010). Whether this fact can be used as an advantage by educators and instructional designers to enhance the learners' online learning experience, gives relevance to this topic.

The findings of this paper can be used by educators and instructional designers as possible design improvement for their lessons or courses. The limitations to the study include the number and publication dates of research articles selected, as well as the lack of a specific audience when selecting research studies for the analysis.

In the next chapter, a review of the existing literature on the topic will be presented.

Chapter II: Literature Review

Introduction

The purpose of this study is to explore informal learning for all learners including high school students, college students, and adult learners in an online environment, namely, identify the motivational factors behind it, and discuss the challenges of blending it into formal learning environments.

In this chapter, the background research on informal learning will be discussed. The methodology for literature review, trends in the research, and research gaps will be identified. The research gaps will be used to guide the focus of this meta-analysis in Chapter IV of this secondary research study.

Methodology

The research analyzed in this secondary research paper was located using the St. Cloud State University (SCSU) databases, Google Scholar, and Interlibrary Loan. The keywords in the article search were “informal learning”, “online learning”, “online learning communities”, “motivation in online learning” and “informal online learning.” The research studies were selected based on the relevance of the topic and the year published. The selection of literature was further limited based on access to the full text. Primary research studies were used when possible. The variables considered in the reviewed literature are summarized in a table below.

Table 2.1*Summary of Background Research*

Author	Year	Variables Considered in the Study			
		Informal/Incidental Learning	Informal Online Learning	Social Media in Learning	Online Learning Communities
Marsick & Watkins	2001	X			
Conole et al.	2008		X		
Cochrane & Bateman	2010		X		
Junco et al.	2010		X	x	
Blaschke et al.	2010		X	x	
Thompson	2011				x
Blaschke	2012		X	x	
Czerkawski & Hernandez	2012	X			
Tan	2013				x
Lebenicnik et al.	2015		X		
Sackey et al.	2015				x

Literature Themes

From the existing research studies outlined above, several variables and themes related to the research purpose and the research questions were identified. The majority of studies focus on high school students, graduate students, and adult users of various online platforms and communities from different backgrounds. The commonly discussed themes are informal and incidental learning, informal online learning, online learning communities. The findings are organized below based on the main theme and topic.

Informal and Incidental Learning

This paper centers around informal online learning and factors associated with it. An initial question emerging from the literature is: what is informal learning per se? The analysis of research, both primary and secondary, reveals frequent focus on informal learning in general; an important reason to understand the essence of informal learning before an attempt is made to critically review this type of learning in online environments.

A number of definitions of informal learning, both in peer-reviewed research articles and various websites, exists. It becomes clear from all those definitions and explanations of what the concept means that informal learning cannot be clearly defined without being compared to formal learning. Czerkawski and Hernandez (2012), for example, point out the reference for formal learning to structured, pre-designed learning activities, facilitated by an instructor while informal learning refers to unstructured, serendipitous, and in most cases, incidental learning. Formal learning occurs inside a classroom and usually leads to the obtainment of an academic degree. Informal learning, then, occurs outside the classroom and is not assessment-driven. It can also be defined as unstructured learning so embedded in our daily activities, it often goes

unrecognized as problems are solved and knowledge is built upon (Merriam, Caffarella, and Baumgartner, 2007).

The field of informal learning offers some noteworthy theories. One of those theories was offered by Hase and Keyton in 2000 and is called heutagogy, which is the study of self-determined learning (as cited in Blaschke, 2012). According to heutagogy, learners are autonomous and do not need much direct structure from teachers in order to achieve learning outcomes (Blaschke, 2012; Knowles, 1980). The theory of heutagogy is also closely aligned with the constructivist learning theory, which is focused around real-life questions and is learner-centered (Dysktra, 1996). Heutagogy is also mentioned a lot together with the theory of andragogy, which is also self-directed learning. However, in heutagogy, the learners design their own learning content while the teacher only enables learning by providing the necessary environment, for example, by sharing resources available to the learner. Some research studies focus on the use of the heutagogical approach in higher education and they showed the benefit of heutagogy and the possibility to improve learning outcomes. However, data from grade school proves pedagogy alone is not sufficient if the school wants to challenge students (Price & Andrews, 2014). In addition, Northcote and Boddey (2014) investigated the use of heutagogy as the underpinning model to guide online professional development of university teaching staff. They found heutagogy was helpful in efficiently and effectively delivering professional development in a high demand environment.

As mentioned above, informal learning refers to unstructured and, in most cases, incidental learning (Czerkawski & Hernandez, 2012). Incidental learning is another commonly used term in the current research on informal learning. While most researchers refer to informal learning as intentional, incidental learning often happens without intention or even awareness on

the part of the learner (Marsick & Watkins, 2001; Schugurensky, 2000). In their theory of informal and incidental learning, Marsick and Watkins (2001) place *context* at the center of the learning experience. They also connect informal and incidental learning within both the personal and sociocultural context in which experience occurs, which means that a learner interprets his/her learning experience depending on the external context in which it happens. However, they also believe in the contribution of the learner's internal context – that is, his/her beliefs, values, and preferences –to the learning experience, too.

Informal Learning in Online contexts, or Informal Online Learning

In connection with the concept of informal learning in general, informal *online* learning is also discussed widely in current research. Due to the benefits of online information, online resources are the most common sources for informal learning (Lebenicnik et al., 2015). Access to electronic devices and the Internet allow people to learn anytime and anywhere. Informal online learning refers to the use of online learning resources: online learning content (e.g. video lectures, tutorials, online courses, e-books etc.) and online learning tools (e.g. mind-mapping, quizzes etc.); resources learners are not introduced to in the process of formal learning. Various online learning resources enable the user to create a learning environment suitable for his/her personal learning needs (e.g. learning styles, individual accessibility needs, motivation, etc.) (Lebenicnik et al., 2012). Survey results (Conole et al., 2008) prove learners' selection of appropriate technologies to suit their personal learning needs.

Blaschke (2012) discusses the theory of heutagogy in connection with Web 2.0 and social media. The concept of Web 2.0 supports the heutagogical approach by allowing learners to direct their learning path and take an active role in their individual learning experiences. Social media are an attractive platform for learners since they provide “connectivity with others, information

discovery and sharing (individually and as a group), and personal collection and adaptation of information” (Blaschke, 2012, p. 62). Blaschke’s statement is supported by the current research on the use of social media in relation to informal learning: for example, Cochrane and Bateman’s (2010) research affirms mobile learning’s support of collaboration, data and resource capturing and sharing, and increases user-user interaction. Junco, Heiberger, and Loken (2010) report on the positive impact of Twitter on the user’s engagement in their learning process. Of importance is the learner-generated content, as well: Blaschke, Porto, and Kurtz (2010) indicate that creating learner-generated online content contributes to development of skills of self-directedness. Their findings reveal the importance of the active use of social media on cognitive and metacognitive skill development.

Social media are one example of platforms for informal learning. A rich online context for informal or incidental learning can be created in a number of ways, such as “negotiating among their own internal states of being, the external technical structures of the virtual classroom (e.g., discussion forums, personal messages, instructional materials), synchronous and/or asynchronous interactions with instructors and classmates, readings and assignments, and their independent learning” (Cox, 2018, p. 74). One of the commonly discussed terms in current research in connection with online contexts is “online learning communities”, or “online learning spaces”.

Online Learning Communities and Culture of Sharing

As discussed, one of the terms mentioned in numerous primary and secondary studies on informal learning is “online learning communities”, or “online learning spaces”. People participate in informal online learning communities to make connections with peers and learn useful work-related skills (Sun et al., 2017). While the word “community” may place the online

world to appear as an equal alternative for other learning environments, assumptions keep being raised surrounding online learning communities. According to Hodgson and Reynolds (2005), idealized interpretations of online communities ignore “limitations in relation to difference, the oppressive aspects of conformity, and the obstacles to participation given inevitable inequalities and conflicts of interest” (p. 17). Haythornthwaite (2008) agrees with the idealization of online communities, “overstating the knowledge that may be present in such communities, the imbalance in who does the work and who benefits, and the actualities of altruistic contribution necessary to maintain critical mass and sustain working knowledge communities” (p. 599). Online learning communities cannot yet be considered equal to other learning environments and electronic spaces are not necessarily accessible. Therefore, it is important for researchers, educators and instructional designers to understand people’s engagement in these online learning communities, the renegotiation of pedagogy due to technology, and the attitudes and perceptions they have towards their participation in such communities.

As mentioned above, online learning communities are of special importance to students learning work-related skills. Thompson (2011) conducted interviews with self-employed workers engaged in online learning communities. According to his research, participants engage in online learning communities in four ways: fit with understandings and expectations of online community, leverage fluidity, play with boundaries, and mesh with work. Interestingly, learning itself was not the greatest motivational factor when it came to reasons for participants’ engagement in online learning communities in the first place. Instead, their expectations centered around the search for a sense of community and bonding, rather than learning itself. “Fluidity” refers to the learners’ ability to choose what kind of communities they want to participate in, when to join and when to leave. Finally, the “play with boundaries” and “mesh with work”

factors refer to the lines between the social interaction and work-related focus of the participants' engagement. Although the communities in question were work-related, Thompson (2011) points out that "it was the mix of personal sharing and socializing that made the online space a community and a place they wanted to be" (p. 189).

This aligns with Tan's study on the use of YouTube by learners (2013). In this study, a selection of YouTube video clips was shared with students enrolled in an Anthropology course, and the results of the research demonstrated a number of interesting practices on the part of the student. "Sharing culture" is a significant part of the learners' engagement in an online learning community (Tan, 2013). For instance, even social interactions on an online platform can lead to learning, where students share the material they found with their friends and then discuss it and learn something new in the process. Being able to discuss, share, and comment is valued as a learning activity in itself. It is the same "culture of sharing" resulting in learning, according to Sackey et al. (2015). Such opportunity to share promotes "a level groupness where participants engaged in sharing experiences and objects, making their ideas public, and were attentive and accountable to each other" (Sackey et al., 2015, p. 122). According to the researchers, it was the so-called "facilitative" moves on the part of the participants in the online environment that make these conditions possible and turn an online platform (such as Facebook in their study) into a setting where learning can take place.

Gaps in Research

Informal learning in general and informal learning in online contexts, specifically, is discussed widely in current research; however, one of the gaps identified after the analysis of background research is the lack of discussion on the motivation for learners' engagement in detail. Despite the fact that plenty of definitions for informal online learning and descriptions of

its characteristics and elements exist (e.g. online learning communities), more research is needed regarding the conditions making it attractive and beneficial to learners. Therefore, the first research question posed in this paper focuses on the attempt to identify various motivational factors behind learners' engagement in informal online learning.

In addition, the analysis of background research presented in this chapter also pointed out the insufficiency of information for educators and instructional designers to use in their curriculum and course design to maximize the benefits of informal learning. Both formal and informal learning are discussed widely as two separate types of learning and educators could benefit from information on the capacity of informal learning to become part of their institution's curriculum. Thus, a need to pose a second research question to help understand learners' engagement in informal learning can be used in formal learning environments.

Summary

Chapter II presented a critical review of the common themes and variables discussed in the research studies on informal learning. The following major themes were identified: informal and incidental learning, informal online learning, online learning communities. The analysis of background research on informal learning helped identify existing gaps as the basis for the research questions this paper will attempt to answer: motivational factors in informal learning and challenges of blending it into formal environments. The following chapter will detail the methodology for selecting and organizing articles to answer the research questions.

Chapter III: Methodology

Introduction

The purpose of this study is to identify the features that make informal learning attractive and beneficial to the learners and discuss the challenges of blending it into formal learning environments.

Chapter III outlines the methodology for the study, including the selection of research articles, how data were organized and how conclusions were drawn. First, research databases and article selection are discussed, then data organization methods are detailed.

Institutional Review Board Exemption

Before conducting a research study with human subjects, an approval from the Institutional Review Board (IRB), must be collected. IRB process is ensuring the safety and privacy of human subjects. However, the current paper describes a secondary research study without the collection of any primary or existing data collected from human subjects. All the data outlined in the current paper come from already existing research studies. As a result, this secondary research study did not require IRB approval.

Methodology

The related research studies, sources for the secondary data, were identified using the keywords “informal learning”, “online learning”, and “informal online learning”. The studies were found using the SCSU databases, Google Scholar, and SCSU Interlibrary Loan. Around 50 articles were found through the search. The summaries and abstracts of the articles found were scanned for relevant details and information. Ten of the most useful empirical research studies were chosen, and 20 additional studies with relevant information. The number of the articles supplied sufficient data to analyze for the purposes of this study.

A range of nine years, 2008-2017, was selected for this study. The publication date was less significant factor in the choice of the articles for review, while the themes they focus on and the findings were of greater importance. As explained in Chapter I, the main reason for the time range of the articles for this paper became the familiarity with technology and its use for learning and this fact gives the researchers a wider scope to work with. In addition, some of the studies described in this paper focus on the use of social networking sites which have only gained popularity in the last 10-15 years.

This secondary research study focuses on identifying the common themes in informal online learning, rather than any quantitative findings or statistical data. Therefore, this study presents an overall picture of informal online learning, motivational factors for the learners, and its relationship with formal learning.

The research articles selected for review are summarized in a Microsoft Word table outlining the themes and findings described (provided in Chapter 4 of this paper). Categories of information in the table include author, year, title of article, main theme or variable, and summary of findings. The table helps organize the information available in the research studies in question and identify the main themes and variables.

Timeline

The completion date for this secondary research paper is August 2020. Chapters One, Two, and Three were completed in June 2020. The committee is made up of three graduate faculty members, including Dr. Yun Claire Park, who will act as the Committee Chair, Dr. Plamen Miltenoff, and Dr. Tom Hergert. The research studies for analysis were selected by the beginning of February. The period of February-May consisted of data analysis and the writing of the first three chapters. Copies of the paper with the first three chapters were sent to members of

the committee the week of June 29, 2020, and the preliminary committee meeting was held in July. The final two chapters of the paper were sent to the members of the committee on August 2, 2020. The final committee meeting was held on August 7, 2020.

Summary

Chapter III presented information on the methodology for the study, including the selection of research articles, the organization of data and the arrival to conclusions. Understanding the methodology for this study affects the results and their interpretation in relation to the research questions identified in this paper. Articles for the literature review and analysis were drawn from SCSU databases (ASAP, Eric, EBSCO eBook collection), Google Scholar, and Interlibrary Loan. The keywords in the article search were “informal learning”, “online learning”, and “informal online learning”. The research studies were selected based on the relevance of the topic and the year published. The studies were then outlined and organized into a table for analysis of the themes discussed by the authors.

Chapter IV: Findings

Introduction

This secondary research study is aimed at exploring the motivational factors behind informal online learning for all learners including high school students, college students, and adult learners, as well as discussing the challenges of blending it into formal learning environments.

This chapter focuses on the findings of this secondary research study. The discussion of the findings is organized to answer the two research questions posed in this study and focuses on the attempt to identify learners' motivation to engage in informal online learning and the use of informal learning in formal learning environments.

Summary of Findings

The findings of the research are organized in the table below. In addition to the findings, Table 4.1 includes the title of the article, author(s), year of publication, and summary of each article, as well as the method of research conducted.

Table 4.1

Summary of the Analysis of the Related Research Studies Findings

No.	Title	Author	Year	Findings	Method of research
1	Blending formal and informal learning networks for online learning	Czerkawski, B.	2016	Students and professors use both formal and informal online learning networks; however, online course design does not always consider students' informal experiences.	Quantitative
2	Learning outside of classroom: Exploring the active part of an informal online English learning community in China	Sun, Y., Franklin, T., and Gao, F.	2017	High levels of teaching, cognitive, and social presences that support learning.	Quantitative
3	Work-learning in informal online communities: evolving spaces	Thompson, T. L.	2011	Participants (re)configure online spaces to create the degree of connection and learning needed.	Qualitative
4	A comparison of participation patterns in selected formal, non-formal, and informal online learning environments	Schwier, R. A. and Seaton, J. X.	2013	The level of participation differs among the three environments - depending on either personal interest or being required to participate. It is also affected by the design of learning materials.	Quantitative

Table 4.1 (continued)

5	Motivational factors in self-directed informal learning from online learning resources	Song, D. and Bonk, C. J.	2016	Intrinsic motivational reasons for self-directed informal learning were interest in the topic, curiosity, need for some information, freedom to select the topic, and goals for self-improvement. The top three external motivators were academic work, ease of access to online learning resources, and others' recommendation.	Quantitative
6	Informal learning on YouTube: exploring digital literacy in independent online learning	Tan, E.	2013	Even though students are consuming more online content, their skills and self-assurance in integrating these materials to support their own learning, either collectively in an informal learning environment such as YouTube or individually when exploring is still somewhat off a utopian vision of independent learning.	Qualitative
7	Informal learning and identity formation in online social networks	Greenhow, C. and Robelia, B.	2009	Students did not perceive a connection between their online activities and learning in classrooms.	Qualitative
8	Constructing learning spaces: What we can learn from studies of informal learning online	Sackey, D. J., Nguyen, M., Grabill, J. T.	2015	Using online spaces as a lens to construct learning environments can help to bridge the gap or diffuse the power dynamics between student and teacher.	Qualitative

Table 4.1 (continued)

9	Blending student technology experiences in formal and informal learning	Lai, K. W., Khaddaget, F., and Knezek, G.	2013	Tools for collaboration, tools for coordination and tools for communication, have been identified as pertinent in blending formal and informal learning.	Qualitative
10	Bridging the gap? Mobile phones at the interface between informal and formal learning.	Cook, J., Pachler, N., and Bradley, C.	2008	Appropriate scaffolding from the instructor is needed to connect formal and informal learning practices.	Qualitative

The review of the research studies outlined in the table above provides proof for the relevance of the author's findings to the research questions posed in this paper. They are then described below in the discussion of motivational factors and incorporation of informal learning in formal learning environments.

Motivational Factors

The first question posed in this secondary research paper focuses on the motivational factors behind informal online learning, i.e. this paper attempts to identify the reasons informal online learning is attractive to learners. Self-directed process makes informal learning different from formal learning. A question then arises: what motivates learners to engage in informal learning activities? In their study, Schwier and Seaton (2013) compared groups of learners involved in formal, non-formal, and informal online learning contexts. In their opinion, non-formal online learning is facilitated through organized, systematic educational activities, for example, professional development interest groups, while the formal online learning represents

the process by which “people acquire and accumulate knowledge skills, attitudes and insights gathered from a lifetime of experiences” (Schwier & Seaton, 2013, p. 2). The informal learning environment resembled discussion boards on a broad topic where conversations were held in public and participation is open to anyone, but did not include social media such as Twitter, Facebook, or Tumblr, social media platforms with large amount of private conversations. The number of participants (graduate students) was 588 for informal environments, 20 in non-formal environments, and 26 in formal environments. The researchers’ goal was to find out the level and reasons of learners’ participation in each of the above learning environments. According to their findings, learners participate in formal learning communities mostly due to requirements mandated by their program or course, while a non-formal learning environment does not require participation, but is expected. Participation in informal learning communities, on the other hand, was caused mostly by personal interest, rather than requirement or expectation. In addition, for learners to fully engage in an informal learning environment, the topic should be of particular interest to them and draw their attention. The level of the “intensity” of participation, as the researchers call it, is determined by a number of factors, such as “social advocacy, joyful learning, emotional connections to ideas, and even associations with someone who is important or provocative” (Schwier & Seaton, 2013, p. 11).

According to the findings of the same study, the level of participation is affected by the design of the learning materials (in this case, discussion boards). If the discussions were well-designed and well-structured, thus covering different aspects of a certain topic, more elaborate responses were elicited from the learners. In a way, such findings are expected, as informal learning environments offer more freedom in participation and, most importantly, can provide anonymity. However, if they were to apply these findings in practice, schools, organizations,

educators and instructional designers would benefit greatly from clearer guidance on the delivery of such “social advocacy” and “joyful learning” and how to give their learners an opportunity to engage in a well-designed and well-structured discussion. The researchers assert the necessity for online learning environments to attend to emotional connections, and the possibility to achieve in a variety of ways, such as “promoting a social advocacy agenda in a class, intentionally introducing opportunities for learners to share the happy moments in their academic growth, having instructors share stories of times they were moved emotionally by their subject areas, or inviting guest instructors who are well-known or controversial” (Schwier & Seaton, 2013, p. 12).

Learners are attracted to informal learning environments by a more student-centered structure. Learners then have control over their own learning process: they have choice over the timing, location, contents, and path of their learning (Song & Bonk, 2016). The increasing popularity of the Internet and social media offers a possibility for engagement to a great number of learners. As Song & Bonk (2016) point out, people currently can acquire information while on a plane, subway, or a boat. They have access to the so-called open educational resources, such as MIT OpenCourseWare, Khan Academy, Open College Textbooks, TED (Song, Bonk, & Whiting, 2012).

So how do educators and instructional designers better understand their learners’ motivation for engaging in informal learning? Song and Bonk (2016) analyzed motivational factors in self-directed informal learning in an online environment by conducting a survey about the learners’ experiences with informal learning. The participants were users of various informal learning websites and online learning resources. The researchers listed the intrinsic motivational reasons for self-directed informal learning that had the highest ranking among learners. The reasons included interest in the topic, curiosity, need for some information, freedom to select the

topic, and goals for self-improvement (Song & Bonk, 2016). Such factors all point to intrinsic motivation in learners. As for external motivators, the top three reasons were academic work, ease of access to online learning resources, and others' recommendation. In Song & Bonk's study, the majority of respondents also indicated that freedom to learn is "the most important factor of successful self-directed informal learning" (Song & Bonk, 2016, p. 6). As the authors suggest, the openness of informal learning might be the factor contributing to the overall success and satisfaction from the respondents' learning experiences, as opposed to the strict formal environment. With this freedom, learners gain more autonomy and feel more in control of their own learning.

Incorporating informal learning into formal learning

The second question posed in this secondary research paper focuses on the connection between informal and formal learning and blending the two together. Informal learning is often used in combination with the elements of formal learning. Using technology in the classroom is becoming more popular among teachers. For example, mobile technologies are now a prevalent part of students' lives and are often incorporated in the curriculum, as well (Jones et al., 2013).

However, even though instructors are often encouraged to use technology in the formal learning environment, for example, through mobile technologies, websites, and, in rare cases, augmented or virtual reality tools, it can be quite challenging to incorporate informal learning in the curriculum. As Czerkawski (2016) points out, numerous institutions are not able to support a system that would "measure knowledge and skills gained outside formal environments" (p. 140). Therefore, the effects of informal learning are usually not formally measured. Another obstacle in incorporating elements of informal learning in formal environments is the inability for some of the informal activities to be applied to formal settings (Czerkawski, 2016). Czerkawski provides

example of the European Commission (2013), stating “it is not easy and clear-cut to transfer students’ prior learning experiences because knowledge and skills gained through informal learning are not tangible and transferable to formal settings” (Czerkowski, 2016, p. 141). The example reveals the challenge in using informal learning in formal learning environments, namely the assessment of the knowledge and skills gained by the learners. Thus, educators and instructional designers may not have clear recommendations on the approaches to blend formal and informal learning networks. Further, Czerkowski (2016) suggests creating personal blogs/websites to log learning experiences, as well as including regular formative assessments for individual and peer progress.

As other studies have shown, even with the inclusion of informal learning in formal settings, the connection between the two and their impact on learning might not be clear to the learners. In their study, Greenhow and Robelia (2009) concluded very little connection between learners formal and informal learning experiences. They presented findings from a qualitative study examining how urban high school students from low-income families used the social networking site, MySpace, to engage in self-discovery, self-presentation, and identity formation. While the learners were all proficient in using the technology, little effort was made by the teachers to help them effectively use all the benefits of informal learning. The researchers then suggest that educators need to change their expectations regarding the students’ access to technology and its impact on their daily lives and, of course, learning. When educators are equipped with such knowledge, they can, jointly with the students, better use online networking to their advantage. Then, they suggest that more research need to be done to help teachers and students see how Web-based communication can “shape content area learning and social practices” (Greenhow & Robelia, 2009, p. 136). Thus, before new theories can be developed

about using informal online learning in formal environments, educators first need to have an understanding of the nature of informal online environments and its importance in formal learning.

However, it is not only the understanding of informal online learning, but also students' proficiency in technology having an important role in the effects of informal learning when blended into a formal environment. For example, Fox (2013) argued an imbalance between formal and informal settings as learners have different levels of technological literacy: even with the increasing access to technology, information literacy is not developed ubiquitously among all learners, in school or at home. Therefore, educators face an impossibility to create a course design to be equally effective for all learners. Along the same lines, not just the physical access to technology, but also the gap in information literacy skills that creates a digital divide (Cox, 2013). In other words, it is challenging for educators to predict the level of student experiences in informal learning to inform their online course design, because students have a wide range of experiences.

Another trend in blending formal and informal learning is related to the use of mobile technologies. Mobile technology is gaining popularity among both learners and instructors, as it provides access to learning materials any time and in any place. Research has shown the numerous benefits of using mobile technology as an element of informal learning. For example, Lai, Khaddaget, and Knezek (2013) suggested the incorporation of mobile technology mitigates the weaknesses of formal learning. According to the learning model proposed in their research, mobile tools such as Google Apps, Twitter, Skype, and Facebook, help create a blended formal and informal learning environment that is also well-balanced and flexible. Cook, Pachler, and Bradley (2008) conducted interviews with college students to understand the bridge of their

informal learning experiences to formal learning and found two major themes: affective issues (attitudes towards the technology) and phone usage in a learner's formal and informal practice. Another important finding of this study is learners need appropriate scaffolding from their instructor to help create a connection between their informal and formal learning experiences.

In her study, Czerkawski (2016) analyzed the use of formal and informal learning networks by graduate students. The most commonly used informal learning networks are Facebook, LinkedIn, Google+, YouTube, Delicious, Piazza, Twitter, Google Apps, Reddit, and professional networks, while the most common formal learning networks are learning management systems (LMS) and Coursera. The respondents are active members and participants in all of the above networks, whether formal or informal. However, they believed the benefits of formal and informal learning networks are different. While both networks involve significant amount of collaboration, cooperation, brainstorming, and reflection, informal learning provides more anonymity and less pressure in terms of the requirements for the learning process. The respondents also found informal learning networks to be more engaging and motivating; however, the biggest challenge in informal learning is filtering through unnecessary information and finding the "right" network to fit the learners' interests. This, again, aligns with the finding above that informal literacy skills vary from one learner to another. Also, when incorporating informal learning elements into a lesson plan or curriculum, educators need to carefully select the online learning network or community that would fully engage the learners and match their interests. They need to consider the topic of learning, learners' preferences in regard to anonymity, as well as the design of the online environment. As for the students' perception of blending the two learning networks together, most of them stated a positive impact since informal learning activities add more engaging learning opportunities to formal activities.

Conclusion

This chapter discussed the findings of this secondary research study in an attempt to answer the research questions. In regard to the first research question, the related research reveals learners engage in informal online learning if it matches their personal interest in the topic of online materials, if it is well-designed and well-structured (as in the case with discussion boards), and if learners have open access to online resources. As for the second research question, the related studies demonstrate the challenge to blend informal online learning into formal learning environments considering it is more difficult to assess the knowledge and skills the learners gain while engaging in informal learning. In order to do that, educators need to understand the importance of informal learning, its nature, ability to provide the necessary scaffolding for their learners and help the learners filter unnecessary information they receive while engaging in informal learning. The next chapter will offer a summary of this secondary research paper, as well as suggestions for further research.

Chapter V: Conclusion

Introduction

In this secondary research study, informal learning in online environments has been discussed. The main questions of the study, namely, motivational factors for learners to engage in informal online learning, and the challenges of incorporating informal learning into formal learning environments, have been expanded upon. This chapter describes a conclusion to the paper, including a discussion of the findings of related research, limitations of the study, suggestions for further research, as well as a personal reflection.

Discussion of the Findings

The two research questions this secondary research study attempted to answer were:

1. What are the motivational factors that make learners choose and engage in informal online learning?
2. What are the challenges of blending informal online learning into formal learning environments?

In line with the literature review, for learners to fully engage in an informal learning environment, the topic should be of particular interest to them and draw their attention. When learners feel an emotional connection with the topic, they find the learning process “joyful” (Schwier & Seaton, 2013, p. 11). In addition to the personal interest in the topic, attractive features of informal learning include the anonymity of online environments, freedom of access to online resources, freedom to learn, and control over their own learning. Among other important factors are curiosity, need for information, and self-improvement. One should not eliminate

external motivators, too, such as academic work, ease of access to online learning resources, and others' recommendation.

When it comes to the challenges of incorporating informal learning into formal learning environments, it is difficult to measure the effects of informal learning formally, as well as not all informal activities can be applicable to formal settings: for example, educators and instructional designers need to be aware of the types of assessment and their difference when applied for formal or informal environments. Some of the researchers also point out the need for teachers to provide scaffolding for their learners in order to help them make a connection between their informal learning experiences and formal learning, as well as the need to show them the filtering of the unnecessary information the learners find in online learning environments. For example, this can be achieved by providing learning hints to the learners and, overall, making sure, the learners are aware of their teachers' presence and support.

Limitations and Suggestions

This study does not cover informal online learning in a specific context, say, academic or corporate. While the research discussed in this paper does provide insights into the concept of informal online learning, it covers wide audiences (high school students, adult learners, etc.) and various contexts. It would be useful to narrow down the research and focus on, for example, informal learning in a corporate setting, and possibly even compare it with informal learning in an academic context.

Second, only the current research of the last 10-12 years has been selected to discuss the topic of informal learning. While it can be beneficial to the paper in terms of narrowing down the research, an analysis of earlier research could provide an interesting insight into the development of informal learning and its connection with formal learning.

Further literature review on motivation behind informal online learning and ways of incorporating its elements into formal environments would be beneficial in helping educators understand how they can efficiently use informal online environments in their lesson plans and curriculum. Such research can potentially lead to a making of a set of recommendations for educators on ways of maximizing the benefits of informal learning for their students.

Conclusion

In this secondary research paper, informal online learning was examined. Previously published studies on informal learning were reviewed, and research gaps identified. In an attempt to answer the research questions raised due to the research gaps, motivational factors for learners' engagement in informal online learning were identified, as well as the challenges that arise when incorporating its elements in formal learning environments. Further research into informal online learning in a specific (academic or corporate) context, as well as finding ways for educators to blend informal and formal learning, is recommended.

References

- Arnold, N. and Paulus, T. (2010). Using a social networking site for experiential learning: appropriating, lurking, modeling and community building. *The Internet and Higher Education*, 13(4), 188-196.
- Bakia, M., Shear, L., Toyama, Y., and Lasserter, A. (2012). Understanding the Implications of Online Learning for Educational Productivity. Washington, DC: U.S. Department of Education, Office of Educational Technology.
- Blaschke, L. M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. *Distance Learning*, 13(1), 56-71.
<https://doi.org/10.19173/irrodl.v13i1.1076>.
- Blaschke, L.M., Porto, S., & Kurtz, G. (2010). Assessing the added value of Web 2.0 tools for e-learning: The MDE experience. In *Proceedings of the European Distance and E-learning Network (EDEN) Research Workshop*, October 25-27, 2010. Budapest, Hungary.
- Cochrane, T. and Bateman, R. (2010). Smartphones give you wings: Pedagogical affordances of mobile Web 2.0. *Australasian Journal of Educational Technology*, 26(1), 1-14.
- Cofer, D. A. (2000). *Informal Workplace Learning (Practical Application Brief No. 10)*. Columbus, OH: Center of Education and Training for Employment.
- Collins, A. and Halverson, R. (2010). The second educational revolution: rethinking education in the age of technology. *Journal of Computer Assisted Learning*, 26(1), 18-27.
- Conole, G., de Laat, M., Dillon, T., & Darby, J. (2008). “Disruptive technologies”, “pedagogical innovation”: What’s new? Findings from an in-depth study of students’ use and

- perception of technology. *Computers & Education*, 50(2), 511-524.
doi:10.1016/j.compedu.2007.09.009
- Cook, J., Pachler, N., and Bradley, C. (2008). Bridging the gap? Mobile phones at the interface between informal and formal learning. *Journal of the Research Center for Educational Technology*, 4(1), 3-18.
- Cook, J. and Smith, M. (2004). Beyond formal learning: informal community eLearning. *Computers & Education*, 43(1), 35–47.
- Coombs, P. H. and Ahmed, M. (1974). *Attacking rural poverty: How nonformal education can help*. Johns Hopkins University Press, Baltimore.
- Cox, A. (2018). The online alone together paradox as a context for incidental and informal learning. *New Directions for Adult and Continuing Education*, 159. doi: 10.1002/ace.20288
- Cox, M. J. (2013). Formal to informal learning with IT: Research challenges and issues for e-learning. *Journal of Computer Assisted Learning*, 29(1), 85-105.
- Czerkawski, B. C. (2016). Blending formal and informal learning networks for online learning. *International Review of Research in Open and Distributed Learning*, 17(3), 138-156.
- Czerkawski, B. and Hernandez, J. (2012). Formal, non-formal, informal E- Learning experiences with emerging technologies: A case study of a graduate educational technology program. In Yang, H. & Wang, Y. (Ed). *Cases on formal, non-formal, and informal learning: Opportunities and practices*. Hershey, PA: IGI Global.
- Dykstra, D. I., Jr. (1996). Teaching introductory physics to college students. In C. T. Fosnot (Ed.). *Constructivism: Theory, perspectives, and practice*. New York, NY: Teachers College Press.

European Commission, Education, Audiovisual and Culture Executive Agency (2013).

Recognition of prior non-formal and informal learning in higher education (Catalog No.

EC-02-13-202-EN-N). Retrieved from

<http://eacea.ec.europa.eu/education/eurydice/documents/focus-on/152.pdf>

Fox, M. J. (2013). Formal to informal learning with IT: Research challenges and issues with e-

learning. *Journal of Computer-Assisted Learning*, 29(1), 85-105.

Greenhow, C. and Robelia, B. (2009). Informal learning and identity formation in online social

networks. *Learning, Media and Technology*, 34, 119-140.

Haythornthwaite, C. (2008), "Ubiquitous transformations", *Proceedings of the 6th International*

Conference on Networked Learning, 598-605, available at: [www.](http://www.networkedlearningconference.org.uk/past/nlc2008/Info/confpapers.htm#Top)

[networkedlearningconference.org.uk/past/nlc2008/Info/confpapers.htm#Top](http://www.networkedlearningconference.org.uk/past/nlc2008/Info/confpapers.htm#Top)

Hodgson, V. and Reynolds, M. (2005). Consensus, difference and 'multiple communities' in

networked learning. *Studies in Higher Education*, 30(1), 11-24.

Holland, A. A. (2019). Effective principles of informal online learning design: A theory-building

metasynthesis of qualitative research. *Computers & Education*, 128, 214-226.

Jones, A. C., Scanlon, E., and Clough, G. (2013). Mobile learning: Two case studies of

supporting inquiry learning in informal and semi-formal settings. *Computers &*

Education, 61, 21-32.

Junco, R., Heiberger, G., & Loken, E. (2010). The effect of Twitter on college student

engagement and grades. *Journal of Computer Assisted Learning*. DOI: 10.1111/j.1365-

2729.2010.00387.x

Knowles, M. S. (1980). My farewell address: Andragogy – no panacea, no ideology. *Training &*

Development Journal, 34(8), 48-50. Retrieved from

<http://connection.ebscohost.com/c/articles/9070920/my-farewell-address-andragogy-no-panacea-no-ideology>

Lai, K. W., Khaddage, F., and Knezek, G. (2013). Blending student technology experiences in formal and informal learning. *Journal of Computer Assisted Learning*, 29(5), 414-425.

Lebenicnik, M., Pitt, I., Istenic Starcic, A. (2015). Use of online learning resources in the development of learning environments at the intersection of formal and informal learning. The students as autonomous designer. *CEPS Journal* 5(2), 95-113.

Lee, Y., Choi, J., and Kim, T. (2012). Discriminating factors between completers of and dropouts from online learning courses. *British Journal of Educational Technology*, doi: 10.1111/j.1467-8535.2012.01306.x.

Livingstone, D. W. (2001). *Adults' informal learning: Definitions, findings, gaps and future research*. (Working paper No. 21). Toronto: Centre for the Study of Education and Work, OISE/UT.

Marsick, V., & Watkins, K. (2001). Informal and incidental learning. In S. Merriam (Ed.), *The new update on adult learning theory*. San Francisco, CA: Jossey-Bass.

Merriam, S. B., Caffarella, R. S., and Baumgartner, L. M. (2007). *Learning in adulthood: A comprehensive guide* (3rd ed.). San Francisco, CA: Jossey-Bass.

Northcote, M.T. and Boddey, C. (2014). Using the self-determined learning principles of heutagogy to support academic staff who are learning to teach Online Education Conference Papers. Retrieved on 13th March 2016 from 9.http://research.avondale.edu.au/edu_conferences/9

Okojie, M., & Boulder, T. C. (2020). *Handbook of Research on Adult Learning in Higher Education*. IGI Global.

- Price, D. and Andrews, J. (2014, January 26). Why pedagogy is no longer enough. [Web log]. Engaged Learning. Retrieved from: <http://engagedlearning.co.uk/?p=2212>
- Ross, D. A. R. (2007). Backstage with the knowledge boys and girls: Goffman and distributed agency in an organic online community. *Organization Studies*, 28(3), 307-325.
- Sackey, D. J., Nguyen, M., and Grabill, J. T. (2015). Constructing learning spaces: What we can learn from studies of informal learning online. *Computers and Composition*, 35, 112-124.
- Schleifer, D. and Silliman, R. (2016, October). What's the payoff? Americans consider problems and promises of higher education [Issue brief]. Retrieved from https://www.publicagenda.org/files/WhatsThePayoff_PublicAgenda_2016.pdf
- Schugurensky, D. (2000). The forms of informal learning: Towards a conceptualization of the field. NALL Working Paper #19-2000.
- Schwier, R. A. and Seaton, J. X. (2013). A comparison of participation patterns in selected formal, non-formal, and informal online learning environments. *Canadian Journal of Learning and Technology*, 39(1), 1-15.
- Song, D. and Bonk, C. J. (2016). Motivational factors in self-directed informal learning from online learning resources. *Cogent Education*, 3, 1-11.
- Song, D., Bonk, C. J., and Whiting, J. (2012, November). Motivational and self-regulated learning factors of informal and extreme learning. Paper presented at the third annual virtual Global Education Conference. Retrieved from <https://sas.illuminate.com/d.jnlp?sid=2008350&password=GECPart223>
- Sun, Y., Franklin, T., and Gao, F. (2017). Learning outside of classroom: Exploring the active part of an informal online English learning community in China. *British Journal of Educational Technology*, 48(1), 57-70.

Tan, E. (2013). Informal learning on YouTube: Exploring digital literacy in independent online learning. *Learning, Media and Technology*, 38(4), 463-477.

Thompson, T. L. (2011). Work-learning in informal online communities: evolving spaces. *Information Technology & People*, 24(2), 184-196.

Zhan, Z., Xu, F., and Ye, H. (2011). Effects of an online learning community on active and reflective learners' learning performance and attitudes in a face-to-face undergraduate course. *Computers & Education*, 56(4), 961-968.