Internet and Higher Education 17 (2013) 90–100

Contents lists available at SciVerse ScienceDirect

Internet and Higher Education

An analysis of research trends in dissertations and theses studying blended learning

Jeffery S. Drysdale *, Charles R. Graham, Kristian J. Spring, Lisa R. Halverson

Department of Instructional Psychology and Technology, Brigham Young University, Provo, UT, USA

ARTICLE INFO

Article history:
Accepted 15 November 2012
Available online 23 November 2012

Keywords:
Blended learning
Hybrid learning
Research
Scholarship
Graduate student research

ABSTRACT

This article analyzes the research of 205 doctoral dissertations and masters' theses in the domain of blended learning. A summary of trends regarding the growth and context of blended learning research is presented. Methodological trends are described in terms of qualitative, inferential statistics, descriptive statistics, and combined approaches to data analysis. Research topics are divided into nine topics (learner outcomes, dispositions, instructional design, interaction, comparison, demographics, technology, professional development, and other), each containing several sub-topics. Patterns in these topics are analyzed to identify gaps in research and to highlight opportunities for future research as the field of blended learning continues to grow.

1. Introduction

Thousands of corporate training programs, institutions of higher education, and K-12 schools participate in blended learning (Picciano, Seaman, Shea, & Swan, 2012; Staker et al., 2011). Nearly half of four-year degree-granting postsecondary institutions and two thirds of two-year institutions in the U.S. were reported as offering "hybrid/blended online learning" courses in 2007 (Parsad & Lewis, 2008). Blended learning is also known to be on the rise in Australia (Eklund, Kay, & Lynch, 2003), Canada (Collaboration for Online Higher Education Research, 2011), and the UK (Sharpe, Benfield, Roberts, & Francis, 2006). Blended learning—in its simplest form, the thoughtful integration of online and face-to-face-instruction (Garrison & Kanuka, 2004; Graham, 2006, 2013)—is being used with increased frequency around the world.

Concurrent with this rise in implementation, research on blended learning has increased over the past decade, with much of the seminal work occurring in higher education contexts (Halverson, Graham, Spring, & Drysdale, 2012). An analysis of dissertations and theses can provide a window into the state of research in a particular domain and can be a powerful tool for understanding trends in theory development, methods, themes, and gaps within the domain (Davies, Howell, & Petrie, 2010).

In this article we identify and analyze over 200 theses and dissertations written in the past decade in the domain of blended learning. Our analysis documents the growth of blended learning research and identifies demographic, methodological, and topical trends in that body of research.

2. Literature review

Over the past decade there have been many attempts to define blended learning (Graham, 2013; Mayadas & Picciano, 2007; Oliver & Trigwell, 2005; Picciano & Seaman, 2009; Vaughan, 2007). Graham (2013) reviewed the various definitions with their strengths and limitations. Additionally, Graham examined the literature related to learning effectiveness, learner satisfaction, faculty satisfaction, access and flexibility, and cost effectiveness. Graham identified the need for more theoretically grounded research. He also outlined opportunities for research exploring the link between satisfaction data and specific blended learning methods, accessibility, opportunity costs, cost effectiveness, and psycho-social relationships.

Other efforts have recently been made to assess the state of blended learning research. Halverson et al. (2012) sought to identify the most impactful scholarship and research in blended learning. This study identified the top 50 articles, 25 edited book chapters, 10 books, and 15 non-academic publications ranked by citation count. These seminal works indicate where the conversations on blended learning research are taking place. However, dissertations and theses related to blended learning were not considered part of that analysis.

Additional actions to synthesize the results of Blended Learning research have also been undertaken. A meta-analysis conducted by the U.S. Department of Education reviewed 99 studies on online or blended learning (Means, Toyama, Murphy, Bakia, & Jones, 2009). Dissertations were included as part of the initial search, but most did not include enough data to calculate effect size and therefore did not meet the criteria for inclusion. Researchers found that students participating in online or blended instruction produced stronger learning outcomes than those that participated only in face-to-face instruction with a mean effect size of s +0.20, $p<.001$. Only five instances of K12 instruction qualified for the analysis, leaving a need for further study on the subject.

* Corresponding author at: Brigham Young University, 150 MCKB, Provo, UT 84602, USA. Tel.: +1 801 709 4982.
E-mail address: jeff.drysdale@byu.edu (J.S. Drysdale).

1096-7516/$ – see front matter © 2012 Published by Elsevier Inc.
http://dx.doi.org/10.1016/j.iheduc.2012.11.003

An understanding of trends in dissertation research can show what issues, theories, and methodologies young researchers and their faculty mentors are interested in. In 2010, Davies et al. evaluated the general state of distance education research among research universities in North America by analyzing dissertation trends in research topics, research designs, data collection methods, and data analysis techniques. They argued that:

> …new scholars typically learn to conduct research in graduate school as they complete thesis and dissertation projects. For this reason, an analysis of research topics and methods in graduate schools promises to provide an important perspective and update on the state of research in the field. (p. 44)

Davies et al. (2010) also expressed concern that little work was being done to develop the theoretical foundation of distance education. While distance education and blended learning are referred to by some as cousins, blended learning environments offer different affordances that allow for different kinds of instructional activities to take place. We believe that reviewing graduate research about blended learning will give us insight into the state—and future—of research related to blended learning.

To our knowledge there has not yet been an analysis of research trends among doctoral dissertations and masters' theses that focus on blended learning. This study begins to fill that gap.

3. Methodology

We surveyed all theses and dissertations found on the ProQuest Dissertation and Thesis Database (ProQuest) that addressed blended learning. Once we compiled the manuscripts, we analyzed their demographic, methodological, and topical trends. The following questions were used to explore these trends:

Demographic trends:

(1) How has the number of blended learning theses and dissertations changed over the past decade?

(2) In what contexts (higher education, K-12, or corporate) is the blended learning research occurring?

(3) At what organizational level—institution, program, course, or activity—are the blends taking place?

Methodological trends:

(1) What data analysis techniques are most commonly used in BL research?

Topical trends:

(1) What theories are used to frame research in blended learning?

(2) What is the range and frequency of topics being explored in blended learning research?

3.1. Manuscript selection

For this review, we collected all pertinent doctoral dissertations and masters' theses written through 2011 and submitted to ProQuest on or before April 3, 2012. We selected ProQuest because it receives 97.2% of all dissertations and theses from research universities in the United States and 87.2% of those from Canadian research universities (Davies et al., 2010).

Employing terms accepted in the literature on blended learning (Graham, 2006), we searched for manuscripts containing *blend**, *hybrid*, or *mixed mode* in the title or abstract, while limiting our search to manuscripts that were full-text and written in English. We further refined our search using Boolean operators to connect *blend**, *hybrid*, and *mixed mode* with educational terms (such as learning, environment, approach, method, instruction, course, program, and class) to create phrases pertinent to blended learning. Our final search resulted in 263 manuscripts. Each manuscript was reviewed by two researchers to determine that blended learning was studied, not simply mentioned. An independent third rater negotiated any discrepancies in determining relevancy. Of the 263 manuscripts, 205 were deemed relevant to our study.

3.2. Manuscript categorizing and coding

Two researchers categorized demographics and methodological trends, and then open-coded topical trends (research questions and theoretical frameworks).

3.2.1. Categories for demographic trends

We divided studies into demographic categories according to learner type and organizational level (see Table 1). Learner type identified where the research was conducted: K-12, higher education, or corporate settings. Organizational level categories identified the level on which the studied blend took place: institution, program, course, or activity (Graham, 2006).

3.2.2. Categories for methodological trends

We next categorized documents according to the methods used in each study: inferential statistics, descriptive statistics, qualitative, and combined data analysis methodologies (see Table 2), coding only methodologies that contributed significantly to the analyses and conclusions of the research. To verify coding reliability, 25% of the manuscripts were blind coded—coded independently by two researchers. We selected Cohen's kappa as our measure of inter-rater reliability because it takes into account chance agreement (Strijbos, Martens, Prins, & Jochems, 2006). After double coding 54 manuscripts, a Cohen's kappa of .816 was achieved which is considered in the top category for inter-rater reliability according to the benchmarks established by Landis and Koch (1977).

3.2.3. Coding for topical trends

All research questions were extracted from the manuscripts to determine topical trends. We adapted a pattern established by Emerson, Fretz, and Shaw (1995) to open code the extracted questions. Round one of coding attempted to capture the breadth of ideas and themes addressed in the research questions without regard to pre-selected topics. In round two we analyzed the topics for similarities and grouped them into slightly broader categories. In the final round we consolidated the categories into groups that were distinct and informative.

3.2.4. Coding for theoretical frameworks

Theoretical frameworks were extracted if the researcher sought to prove, disprove, or build on a particular theory. Frameworks that were merely cited to provide background or context were not counted.

4. Findings and discussion

Graduate research on blended learning has increased steadily since 2001 (see Fig. 1). Recognizing and understanding the trends in this growing body of research are important for at least two key reasons. First, knowing the trends in blended learning research can help researchers better frame their own investigations. Second, understanding those trends gives insights into where there are gaps in the existing knowledge base which can be explored. In this section we will discuss the demographic trends, methodological trends, and topical trends of graduate research on blended learning.