Educational Research Review 19 (2016) 104–118

Contents lists available at ScienceDirect

Educational Research Review

journal homepage: www.elsevier.com/locate/edurev

Thematic review

A taxonomy to define courses that mix face-to-face and online learning

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ARTICLE INFO

Article history:
Received 3 March 2016
Received in revised form 3 June 2016
Accepted 6 July 2016

Keywords:
Hybrid
Blended
Flipped
Inverted
Online learning

ABSTRACT

The efficacy of courses that mix face-to-face and online instruction, such as blended, hybrid, flipped, and inverted courses, is contested in the literature. Some studies find that they improved learning outcomes and some do not. We argue that these unreliable results are due to inconsistent definitions of these courses. To address this problem, we propose the Mixed Instructional eXperience (MIX) taxonomy to define hybrid, blended, flipped, and inverted based on two dimensions. To test the usefulness of the taxonomy to organize the literature, we reclassified research using the taxonomy. The analysis of the literature after reclassification revealed themes that illuminate how mixing face-to-face and online instruction affects learning. These findings validate the taxonomy as a useful tool for classifying literature and further knowledge in this field.

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http://dx.doi.org/10.1016/j.edurev.2016.07.001
1747-938X/

1. A taxonomy to define courses that mix face-to-face and online learning

Instructors in higher education courses increasingly use information technologies for their pedagogical, accessibility, and flexibility benefits (Bonk & Graham, 2005). Since the early 2000s, a growing group of educators has been interested in using information technology, particularly computers, to mix face-to-face and online instructional methods for courses that are commonly referred to as hybrid, blended, flipped, or inverted. These types of courses are called mixed instruction courses in this paper. Much research has been conducted in the past several years to assess the effectiveness of mixed instruction courses, but the results of that research as a whole are inconclusive.

Though many studies of mixed instruction courses have found that they improved learning outcomes over traditional courses, just as many have found no differences. For example, for papers that included quantitative learning outcomes (i.e., those included in the current paper's analysis) and were reported as hybrids, 41% (7 out of 17) reported improved learning outcomes and 59% (10 out of 17) reported equivalent outcomes. In addition, for those that were reported as blended, 45% (5 out of 11) reported improved learning outcomes and 55% (6 out of 11) reported equivalent outcomes. These overall results for hybrid and blended course outcomes neither support nor refute the potential learning benefits of mixed instruction courses. To make sense of these papers collectively, an educator or researcher would need to conduct an in-depth analysis of the research, making the cost of useful information exorbitantly high.

We argue that the differences between courses that improved outcomes and those that did not are unclear due to the ill-defined terms used to describe these courses. For instance, the terms hybrid and blended have been used to describe a large range of mixed instruction courses. “Blended” has been used to describe a course in which students learn content before class and practice applying content in class (Melton, Graf, & Chopak-Foss, 2009) as well as a course in which half of the lectures are delivered in class and the other half are delivered online (Gerlich & Sollosy, 2009). The pedagogy of these courses is different, but they are classified as the same type of course.

Better definitions of terms are needed to advance knowledge in this area because inconsistent definitions of mixed instruction courses makes comparing results, replicating experiments, implementing course design, and finding and understanding information from the literature difficult. Furthermore, without agreement about the foundational definitions of mixed instruction courses, research exploring different features of these courses, such as frequency of peer interactions or synchronicity of instruction, cannot be systematic. To address these issues, we propose a taxonomy that identifies pedagogically relevant dimensions that can be used to define terms and discriminate among different types of mixed instruction courses.

2. The proposed taxonomy

The taxonomy uses dimensions of instructional experiences that affect the pedagogy of mixed instruction courses to create a tool for defining and distinguishing between different types of courses. It classifies the design of courses focusing on how instruction is provided; therefore, it is designed for classification at a course level rather than a lower (e.g., single class or unit) or higher (e.g., program of study) level. Because the taxonomy focuses on instruction, it captures dimensions of courses that instructors have influence over, but it does not capture other important dimensions, such as study groups. Before we can explore these important dimensions, we need to define the foundations of these courses.

2.1. Identifying dimensions from existing definitions

To identify the relevant dimensions for defining and categorizing mixed instruction courses, previous definitions of these courses in higher education were reviewed. A sample of original definitions (i.e., definitions that were not repeated from a previous source) were selected from a range of publication dates (from 2000, when mixed instruction courses started to become popular in higher education, to present), publication types (peer-reviewed articles, books, magazines), and content areas (science and humanities). Definitions that were cited more than five times (Allen & Seaman, 2010; Lage, Platt, & Treglia, 2000; Strayer, 2012) were also included because they are popular. This sample was taken from the top 10 results on Google Scholar for the each of the following searches: “hybrid class,” “blended class,” “flipped class,” and “inverted class.” After the popular definitions were selected, the other definitions were selected to represent the most diverse publications as possible. In addition, definitions from different countries were included. The sample was qualitatively coded and analyzed using techniques described in Taylor-Powell and Renner (2003) to identify dimensions that researchers have used to describe these types of courses. Four dimensions were identified:

- *Instructional location* described whether the learner receives instruction at home or at another location, such as a classroom or coffee shop,
- *Delivery medium* described whether a person or technology delivers instruction to the learner,
- *Instruction type* described whether the learner is receiving content (e.g., lecture) or applying content (e.g., learning activities), and
- *Synchronicity* described whether learners are following a group pace (i.e., synchronous or real-time) or individual pace (i.e., asynchronous).