

E-learning and flipped instruction integration in business education: a proposed pedagogical model

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ABSTRACT

While Blended pedagogical approaches are a ubiquitous feature in higher education, the Flipped class is a rather recent instructional format in undergraduate-level instruction. The Flipped paradigm blends together many of the benefits of E-Learning courses, with many of the benefits of face-to-face instruction. At the same time, the disadvantages of each mode of instruction are minimized. However, the modern college instructor has the challenge of incorporating a host of online educational resources into Flipped learning approaches. This study a) reviews the relevant literature on the Flipped model of instruction with a focus on applications in business school coursework; b) outlines the available major E-learning resources and tools based on the experiences of the first author in designing and executing Flipped classes for a business school curriculum; and c) reports on experience based successes and failures with this pedagogical model of integrating E-Learning and Flipped instruction in face-to-face instruction. Future research should examine specific aspects of Flipped techniques that enhance or detract optimal student learning and those modalities that hamper the role of the instructor.

Keywords: flipped learning, flipped instruction, e-learning, business school curriculum, pedagogical model

INTRODUCTION

E-Learning is a designation that describes the use of electronic media conjointly with information and communication technologies in order to facilitate both teaching and learning. Among the advantages of this complementary pedagogical modality are 24/7 access of academic information by the student, the ability of the student to re-visit parts or all of the educational content on an as needed basis, the acquisition and refinement of technology skills by the student, peer-to-peer interaction, and instructor consultation. Along with the advantages, however, come disadvantages. One disadvantage is the difficulty in authenticating the virtual student. Another disadvantage is the lack of real time interaction between the student and the professor. Other disadvantages include the delayed professor response time in answering student queries, and the lack of spontaneity and immediate class interaction that often exists in a face-to-face didactic environment.

Given the advantages of E-Learning, many educators incorporate E-Learning teaching strategies into a traditional face-to-face class format, with few of the inherent disadvantages. From both a conceptual and a practical perspective, the “Flipped Classroom” reflects this complementary approach in education. While there are variations to the Flipped Classroom, a common approach involves making E-Learning lectures and other E-Learning material available to the students for access anytime, anywhere. In this manner, teachers are able to modify their didactic role from being the “sage on the stage to the guide on the side”, utilizing the face-to-face classroom to further explain concepts, demonstrate techniques, focus on problem solving, and confront erroneous conceptualizations.

The experience of the first author in undergraduate accounting courses in a business school suggests that students do indeed benefit when E-Learning teaching strategies are incorporated into a traditional face-to-face class. How does an educator go about building E-Learning content, or finding suitable E-Learning content that has already been developed? What tools and resources are available to facilitate the development of E-Learning content? What didactic tools work and which do not work? The current article addresses these critical issues.

PREVIOUS RESEARCH

Over the past decade, Blended instructional models that utilize the potential of hybrid learning strategies have been at the forefront of efficacious teaching approaches at all educational levels (Bonk & Graham, 2006; Garrison & Kanuka, 2004). Despite the popularity of Blended learning, research investigations on integrated instructional formats that combine face-to-face and online learning modalities are still in the seminal stage and continue to be a steadily developing area of scholarly study (Halverson, Graham, Spring, Drysdale, & Henrie, 2014). Concurrent with these developments, adaptations of Blended teaching approaches have become a ubiquitous feature in higher education (Bonk & Graham, 2006; He, Xu, & Kruck, 2014). In fact, educators predict that more than 75% of courses in colleges and universities will be based on a Blended didactic model in the near future (see Porter, Graham, Spring, & Welch, 2014). Recent research supports the efficacy of active learning strategies, based on a Blended academic framework, in college-level coursework (e.g., Baepler, Walker, & Driessen, 2014; Lopez-Perez, Perez-Lopez, Rodriguez-Ariza, & Argente-Linares, 2013). Such positive perspectives are not surprising as research suggests that millennial students harbor constructive attitudes toward

interactive, experientially-based learning experiences; i.e., a preference for being ‘engaged’ and actively ‘doing’ rather than listening in a lecture format (Phillips & Trainor, 2014).

Thus, with the popularity of online coursework and interactive computer-based instructional modalities, it is not surprising that the success of the “Flipped” or “Inverted” classroom paradigm, quite popular in K-12 education (see Bergmann & Sams, 2012; Bretzmann, 2013), has recently been adapted in higher educational settings. The Flipped model contends that pre-recorded multimedia lectures, in the form of videos (Welsh, 2013), can serve as homework assignments which can allow class time for synchronous learning activities by students and knowledge application discussions by instructors (Strayer, 2012). Based on this college course design, the Flipped format fosters student completion of preparatory academic work while, at the same time, supporting integrative learning and deeper-level comprehension during class time (O’Flaherty & Phillips, 2015). In this educational milieu, students can proceed at an individualized pace and remain more academically engaged (Tullis & Benjamin, 2011). Indeed, prior research has shown that one major component of effective instruction is student engagement (Barkley, 2010). In this regard, Bryson and Hand (2007) concluded that students tend to be more engaged academically when instructors present a challenging learning environment that fosters higher-order, critical thinking. In addition, faculty can focus on a) addressing shortcomings in content comprehension, and b) facilitating discussions regarding applications of supplementary materials learned online.

Davies, Dean, and Ball (2013), based on a sample of undergraduate-level students in an information systems course, found that a technology-enhanced Flipped course format proved to be more effective in terms of college student achievement, motivation, and satisfaction than a simulation-based class mode. Based on the views of 142 college undergraduates, Gilboy, Heinerichs and Pazzaglia (2015) reported positive evaluations of Flipped instruction not only by students but also by faculty. Despite the recent interest in novel instructional modes, the Flipped model is rather underexplored in the higher education context (Chen, Wang, Kinshuk, & Chen, 2014). Empirical investigation, based on cross-disciplinary designs, that examines the acceptability and utility of the Flipped approach in college-level instruction has garnered much research attention (e.g., Kim, Kim, Khera, & Getman, 2014). Moreover, educators are beginning to advance descriptive training models and college faculty development programs that facilitate ‘Flipped’ coursework teaching approaches (See & Conry, 2014).

Flipped Instruction in Business Education

In recent years, there has been emerging research on adaptations of the Flipped paradigm in undergraduate business school settings. Positive views of business students toward Flipped models of course presentation have been reported in the field of management (Albert & Beatty, 2014; Jacot, Noren, & Berge, 2014), economics (Roach, 2014), and accounting (Butt, 2014; Phillips & Trainor, 2014). In a mixed-methods study on a Flipped classroom for an operations management course, Prashar (2015) found enhanced student evaluations on academic involvement, task orientation, and innovation. These findings underscored the central importance of coordinating the structure and function of learning tasks when implementing a Flipped mode of instruction. It must be noted, however, that the Flipped model has not always garnered positive findings. For example, one comparative study on a Flipped vs. traditional format for an undergraduate introductory business course revealed equivocal didactic outcomes (Findlay-Thompson & Mombourquette, 2014). In a Flipped operations management class, Pragman

(2014) reported that students found learning rather difficult. This was attributed to students not reviewing lecture videos prior to in-class discussions and not engaging in teamwork assignments. Thus, further research is needed to examine those components of the Flipped model that produce optimal academic success and identify the types of student learning styles that are most congruent with a Flipped format.

E-LEARNING STRATEGIES ADAPTIVE TO THE FLIPPED MODEL

Three separate, but related concepts are embodied in effective E-Learning teaching strategies. These include well thought out course design, meaningful course execution, and high quality course content. With a focus on course design, Quality Matters provides a faculty centered, peer reviewed process that is used to certify the quality of E-Learning courses and related components. Nationally recognized in the United States, Quality Matters adopts the view that student learning, engagement, and overall satisfaction in an E-Learning environment are directly related to the basic components that are encompassed in a carefully planned course design. These components are incorporated in the Quality Matters Rubric which details eight general standards that define the expectations of quality in E-Learning courses. The general standards focus on the following:

- course objective and introduction;
- learning objectives and competencies;
- assessment and measurement;
- instructional materials;
- learner interaction and engagement;
- course technology;
- learner support; and
- accessibility.

Each of the eight general standards includes specific standards that focus on various elements of E-Learning course design. There are 41 specific standards in total.

To ensure meaningful course execution, the instructor in an E-Learning course needs to be actively involved in the course delivery from beginning to end. This includes establishing a pattern of course activities and communicating those activities to the students, monitoring and grading assignment submissions, responding to student inquiries, and providing meaningful and timely assessment feedback to the students. In short, effective communication is a critical component to a successful E-Learning course. Effective communication, however, does not equate to the E-Learning professor being available on a 24/7 basis. It does, however, suggest that the professor should make clear an expected response rate to the student, and that the response rate should be timely. In addition, the professor should clearly define the acceptable communication methods and provide a mechanism whereby frequently asked questions and related responses are made available to all students.

The final concept included in effective E-Learning teaching strategies is high quality course content. This relates not only to the content per se, but also to the dimensions of the course that may impact course integrity. These dimensions relate to some of the specific standards from the Quality Matters Rubric. Examples of things that could impact course integrity include inaccurate course content, confusing and/or incomplete course information, broken course links, technology that does not work across various computer and tablet platforms, poorly

executed audio and video presentations, and lack of professor understanding of the E-Learning platform and related technologies that are available to the student.

E-Learning Content

A key component in the E-Learning environment is online content, which can be adapted to a Flipped format. A Flipped Classroom "Flips" the lecture that is traditionally done inside the classroom, with the homework and other content reinforcing activities that are traditionally done outside the classroom. The Flipped Classroom provides an environment in which students are more engaged in the learning process, and receive a more personalized education.

In addressing the issue of whether to build E-Learning content or use existing content in a traditional face-to-face class environment, the professor should begin with the end in mind. In doing so, the instructor should consider the following relevant questions:

- Why are you doing this?
- What do you hope to accomplish?
- How much of a learning curve are you facing?
- Where can you go to for help if needed?
- What types of devices will your students be using?
- Do you want a consistent look for the E-Learning content? If so, what would that be?
- What are the pros and cons of using "free" resources, versus "professor created" resources?
- If using professor created resources, do you want to publish to the "cloud", to YouTube, to space provided by your institution, or to your own space?

If the professor wants to explore the use of existing content, a number of online educational resources exist. These online educational resources fall into the categories of full package courses, videos, and repositories. Full package courses are just that, i.e., online courses that have been developed and are publically available. Many of these courses fall into the category of "Massive Open Online Courses" (MOOCs) and cover a number of different subject areas (Brahimi & Sarirete, 2015). Generally, MOOCs utilize video lectures, peer-to-peer and group collaboration, and automated feedback on quizzes and examinations. Some of the better known MOOC providers are Coursera, edX, and Udacity which offer the content at set times. However, many of the videos from past courses are available on a 24/7 basis on YouTube. Other sources of full courses include Academic Earth, Connexions, MIT OpenCourseWare, MITx, Open Course Library, Open Courseware Consortium, Saylor Academy, and Udemy. Furthermore, a growing number of stand-alone and grouped videos are available for use in courses such as iTunes U, Kahn Academy, and YouTube Education. While some sites focus on videos, other sites serve as repositories for not only videos, but also full courses, notes, simulations, problem sets, and tutorials. Included in this category are Applied Math and Science Educational Repository, iTunes U, Merlot, National Repository of Online Courses, OER Commons, and The Orange Grove.

Notwithstanding the publicly available content, many textbook publishers provide a wealth of resources specific to the course in question. These resources include PowerPoints outlining the chapter material, quizzes, solutions for end of chapter material, links to videos, articles and current events, and sometimes narrated PowerPoints.

A professor who is interested in creating content can record actual in-class lectures. An alternative to the recording of actual in-class lectures, however, is professor created narrated

PowerPoint or Keynote presentations. A benefit of this is that the narration is personal and can be tailored to specific issues and purposes. Once the narrated presentation is produced and uploaded to a web space, students can access it anytime, anywhere, and as often as is necessary. A disadvantage, however, is that it takes time to develop quality narrated presentations. If the quality of the audio and/or video of the narrated presentations is lacking, then student interest is likely to be compromised.

With all of the available online resources at one's fingertips, why spend the time and effort in building content? One reason is that the content can be specifically tailored to the course objectives and the teaching style of the professor. Also, the instructor has control of those factors that could impact course integrity such as inaccurate or unrelated course content, confusing and/or incomplete course information, broken course links, technology that does not work across various operating systems, and poorly executed audio and video presentations.

Tools that Facilitate the Creation of E-Learning Content

As a first step in creating E-Learning content, one needs a computer with a sound card or a tablet with a recording function. Also, either an incorporated webcam or a stand-alone webcam or camcorder is necessary if the presenter is to be video recorded. A microphone is required for recording the audio, with USB microphones generally producing the best results. If whiteboard functionality is desired, then some sort of tablet device like the Wacom Bamboo or SurfacePro 3 is useful. Presentation software such as PowerPoint and Keynote is needed for creating presentations to be narrated. While both PowerPoint and Keynote have a built-in narration feature, screen capture software generally produces a more refined and universally accessible end product.

Screen capture software allows for screencasting, which is a digital recording of what is occurring on a computer or tablet screen, paired with an audio narration describing the on-screen visuals. A variety of free and commercial screencasting software products are available. The free products include Camstudio, Jing, Screencast O-Matic, and Screenr. Free tablet apps include 9Slides, Educreations, Screenchomp, and Showme. However, the free resources are limited in functionality. In addition, the recording time is often restricted, as are the editing capabilities and publishing options.

Commercial screencasting software is preferable to the free software if one's goal is to produce high quality E-Learning content. With an educational discount, the costs range from around US\$200 to US\$500. Popular choices include Adobe Captivate, Adobe Presenter, Articulate Presenter, Articulate Storyline, Camtasia Studio, and ScreenFlow (Mac). Doodlecast Pro and ExplainEverything, both iPad apps costing US\$2.99, are particularly efficacious.

Several factors need to be considered in the selection from available screencasting software. First, does the company provide for a trial download so that one can test-drive the software? Does the company offer tutorials to help one get started and to deal with specifics? Can one record a "head shot" from a webcam or camcorder while capturing the screen? Can one import media such as images, audio, or video into the presentation? Does the software have an option for drawing or annotating on the screen while recording? Is there a quizzing feature? Does the software allow for the recording of one narrated slide at a time, or does the recording start at the beginning and go to the end? Is there a pause feature during recording? How easy is it to correct mistakes made during recording? How easy is it to edit the presentation after the screen capture? What about adding open and closed captions to the finished product? What output

formats are supported? Is the output compatible with various operating systems that students are likely to use? Is it possible to add a navigation menu so that viewers can pause, go back, fast forward, etc.? How easy is it to split a longer video into shorter videos? A wealth of information about the various screencasting software options is available online.

Business Education – Advantages/Drawbacks of E-Learning

Experience suggests that incorporating E-Learning teaching strategies into a traditional face-to-face class does improve student performance. For example, the failure rate in Intermediate Accounting I which is generally in excess of 50%, dropped to around 40%. The failure rate in Advanced Financial Accounting which is generally around 35%, dropped to 20%.

The supplementing of a traditional face-to-face class with online content, however, has both advantages and disadvantages. One advantage is that it provides the students with an extension of the professor that can be accessed anytime, anywhere. That is, students can watch and re-watch the E-Learning material as many times as they want. Another advantage is that the professor can spend in-class time further developing the material, illustrating difficult concepts, and engaging the students in higher level discussions related to the subject matter. Students are more actively engaged in problem solving and creative thinking, and are transformed from passive listeners to active learners. Students who miss class are not left to their own devices to make up the missed material.

A main disadvantage of incorporating E-Learning teaching strategies into a traditional face-to-face class is the significant amount of time and effort on the part of the professor in putting together the E-Learning content. Another disadvantage is that some students use the online content as a crutch as opposed to a learning experience. Table 1 (Appendix) highlights what works and what does not work in building this pedagogical model.

CONCLUSION

It is not unusual for one to view online instruction as separate and distinct from traditional face-to-face instruction. Both have their advantages and disadvantages. Interestingly, when one incorporates E-Learning teaching strategies into a face-to-face class, the advantages of online instruction tend to replace the disadvantages of face-to-face instruction. Doing so, however, is time-consuming and often requires a different mind-set to be effective. If done well, the benefits will generally outweigh the costs.

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APPENDIX

Table 1: E-Learning Strategies: What Works and What Does Not Work

What Works	What Does Not Work
High quality audio and video presentations	Audio and video presentations that lack quality
Modular based short videos - 10 to 15 minutes	Long videos exceeding 15 minutes
Small file size for quick streaming	Large file size with delayed streaming
Universally accessible output - MP4, HTML5	Platform specific output - Flash, MOV
Using videos to supplement in-class discussion	Using videos to replace in-class time
Setting clear objectives up-front	Poorly organized with no clear objectives
Ensuring that all technology works	Many technology related problems